

Attributes, compliance and effectiveness of *nested regimes*  
The Biological Weapons Regime Complex

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## Abstract

Are non-proliferation regimes effective? If so, under which circumstances? Existing theoretical and empirical studies fall short of providing consistent indications of the constraining power of security institutions and non-proliferation regimes on state decisions.

On the one hand, proponents of regimes highlight the overall capacity of institutions to contain the number of proliferators. On the other hand, detractors maintain that regimes have little or no effect on state decision to pursue specific weapons. The empirical associations between framework conventions and the non-proliferation of the weapons under provisions has proved unsatisfactory and weak.

Moving from a broader idea of regimes in relations to a complex/graded notion of effectiveness, this research work develops a theoretical argument about the importance of networks of individual institutions across issue-areas (nested and overlapping institutions) in regime analysis.

I argue that complex-regime level data can drastically enhance our capacity to explain actual regime effectiveness, and possibly the link between specific institutional features and non-proliferation outcomes. I do so by introducing a new dataset, which includes information on the institutions parts of the biological non-proliferation regime complex. I then illustrate the use of the new dataset by developing measures of state exposure to the regime-complex in terms of overall “embeddedness”.

## Relevance, research questions and elements of innovation

The global chronicle of the Cold War demised and the great level of stability it assured extinguished, the world has witnessed the turnaround of the relative importance of regional issues over global ones, the unprecedented impossibility to reliably predict upcoming political events, the recurrent failure of multilateral and unilateral attempts to respond to emerging security challenges (intruded by inconsistent and sporadic accomplishments), and the increased incidence of terrorist acts. Since the 1970s, it also became apparent that new scientific and technological developments outpaced the capacity of international institutions to grant full oversight and management.

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More specifically, notwithstanding the multiplication of institutional efforts aimed at controlling the possession and proliferation of Weapons of Mass Destruction (WMD), the resulting regimes do not seem very well equipped to respond to the current challenges menacing their role and influence. Non-proliferation treaties tend to be characterized by indeterminate language, contradictory norms on possession and use, modest compliance and verification measures, lack of enforcement tools and review processes that are barely able to satisfy the international community call and to accommodate the amplitude of ongoing changes. If on the one side, our understanding of how treaties influence world politics has increased tremendously in the last years.<sup>1</sup> On the other side, scholars still lack a full understanding of whether or not these treaties work (do they constrain state policies or merely reflects pre-existing preferences?).<sup>2</sup> Besides, some of the mechanisms through which they are expected to constrain states policies remain elusive and are still waiting empirical validation. Because of their specific nature (natural living agents existing in nature), biological weapons represent a particular challenge to policy makers committed to their governance.

Under this perspective, this work represents an effort aimed at (1) offering a more complete and comprehensive understanding of the Biological Weapons (BW) non-proliferation regime; (2) describing the diachronic variance in its configurational structure and the evolution of its main features; (3) advance hypothesis concerning the BW regime effectiveness. Concerning the latter point, it is worth anticipating here that the this work address the concept of effectiveness by disaggregating its substance into three discrete dimensions: outputs (consent/embeddedness), outcomes (compliance/obedience), and impact (true effectiveness).

This research may theoretically confirm existing findings, provide some new insights and possibly open lines for further inquiry with regards to two key fields of

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<sup>1</sup> Simmons, "International Law and State Behavior"; Simmons, *Mobilizing for Human Rights*; Sikkink, *The Justice Cascade*; Lutz and Sikkink, "International Human Rights Law and Practice in Latin America"; Von Stein, "Do Treaties Constrain or Screen?"; Ritter and Wolford, "Bargaining and the Effectiveness of International Criminal Regimes"; Conrad and Ritter, "Treaties, Tenure, and Torture"; Lupu, "Legislative Veto Players and the Effects of International Human Rights Agreements."

<sup>2</sup> Lupu, "Why Do States Join Some Universal Treaties but Not Others?"

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investigation in contemporary International Relations. (1) The one addressing non-proliferation regime effectiveness which sees, on the one side optimists - who believe in the capacity of institutions to constrain the number of proliferators and on the other side regimes pessimists who believe institutions are epiphenomenal (and only mirror underlying preferences). (2) And the one concerned with understanding international support to multilateral treaties and cooperation in general focusing on a particular pattern of them, the one of Biological Weapons governance (including formal and informal arrangements and networks)

Although building on a now-50-years-old theory of International Relations, namely Regime Theory, the present study de facto dialogues with most recent publications from non-proliferations studies and international organization literature. It displays elements of originality and innovations that are more comprehensively detailed in the introductory section. Inter alia the following are worth recalling:

- 1) The work tries to refresh regime theory by exploring where and how room exists for further integration with social-related accounts.
- 2) Furthermore, without challenging the idea that regimes are partial order, the present research, by proceeding from the problem which informed the regime creation in the first place (the proliferation of BW) has decided to address the full set of initiatives which contribute to its solution (nested and overlapping institutions operating across issue-areas).
- 3) The large majority of proliferation studies have focused on nuclear weapons and have only marginally covered the problem of biological weapons possession, development and circulation. Vice-versa Biological Weapons are the main focus of the present work.
- 4) Much of proliferation literature (whose focus is on the factors prompting or hampering proliferation) and international cooperation theory (when not directly ignoring the non-proliferation realm) have dealt with framework conventions or international organizations. This present work, on the contrary, starts from observing that much of non-proliferation activities do not fall under that rubric anymore. For this reason the present work scrutinizes the plethora of more or less formal initiatives besides the regime's framework convention (BTWC).

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- 5) Under this perspective, the inclusion of practitioners from the early stages of the research also represents a novel approach aimed at granting a sound empirical basis and more grounded findings.
- 6) Little attempt has been made to compare these additional cooperative endeavours supplementing and complementing the core BW treaties.
- 7) Although the Biological Weapons regime is 100 years old, to date there has been no major comprehensive study on its evolution and impact. Under this perspective this research represents a systematic, inclusive, multi-year, and multinational study.
- 8) Empirical studies on effectiveness have focused mainly on whether and how states reach agreements and comply with its provisions once the agreement is in place. This work proposes that effectiveness can be measured both in terms of process (insofar important elements of non-proliferation effort also involve the construction and expansion of the cooperative arrangements) and results. Nonetheless, and maybe just because of that, even when the latter is the case, this study believes that effectiveness should be accounted for in terms of a complex of outputs, outcomes and impacts.

## Introduction

In the minds of scholars, the question of *international regimes* has inspired considerable attention since the early 1970s. During that period, the policy dilemmas created by the rapid growth in international interdependence fostered new forms of cooperation, coordination and organization among state and non-state actors that uneasily fit into the then-dominant realist conceptual framework. Born to fill this lacuna, Regime Theory (RT) represented a substantive effort to produce an investigative paradigm that could make the emerging context more comprehensible and understandable to academics and policy-makers.



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Since the publication of the well-known 1982 special issue of *International Organization* on the subject,<sup>3</sup> regime analysis established as an enduring research program and an honoured subfield of International Relations (IR) scholarship.<sup>4</sup>

During the last five decades, research efforts in this field pointed attention to distinct aspects of international institutions. At the very beginning, the bulk of regime analysis concentrated primarily on the process of regime *formation* and on describing regime *attributes*. Assessments mainly focused on the conditions that accounted for the rise of international regimes as instruments for managing or resolving conflicts over international problems and on the characteristics that different forms of cooperation were displaying. Later on, the interest of scholars began to shift towards a better understanding of regime consequences and researchers restored the core question of whether international regimes, once created, actually make a difference in the international system and for the international society.<sup>5</sup> Since then, regime *effectiveness* has become a “driving force in the analysis of international relations”.<sup>6</sup>

All major schools within International Relations (IR) discipline (realism, neo-liberalism, and constructivism) have provided their own contribution to the study of International Regimes. The major difference among the three schools of thought is the explanatory variable that these identify as playing the most important role in explaining regimes’ formation, and justifying its characteristics and functioning. Along these lines, theories of international regimes have been classified as interest-based (functionalism/institutionalism/neoliberalism), power-based (realism), and knowledge-based (which include, although are not limited to constructivist approaches).<sup>7</sup> A second difference among the three schools’ perspectives is the degree of effectiveness they are able to accept when it comes to evaluate regime consequences; in other words, the scholars would disagree on the amount of “institutionalism” regimes would display in the very end (simply put, on how much

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<sup>3</sup> International Organization, Vol. 36, No. 2, Spring, 1982

<sup>4</sup> Hasenclever, Mayer, and Rittberger, “Integrating Theories of International Regimes,” 5.

<sup>5</sup> Haas, “Do Regimes Matter?”

<sup>6</sup> Zürn, “The Rise of International Environmental Politics”; Martin and Simmons, “Theories and Empirical Studies of International Institutions.”

<sup>7</sup> Haas, *Institutions for the Earth*; Young and Osherenko, *Polar Politics*; Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997.

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institutions matter and are resilient to external change).<sup>8</sup> If on the one side, none of the exponents of the three schools, totally rejects the idea that international regimes exist or have some impact on world politics, they vary indeed considerably in the “institutionalism” they are available to concede.

Both realism and neoliberalism build on a shared rationalist grounding and acknowledge rationalist assumptions, however they have then developed independently within Regime Theory. On the one side, realists have been inclined to downsize the role that regimes actually play in influencing international behaviours. They tend to acknowledge regimes just as institutions mirroring the underlying power/capacity distribution of actors with very limited capability to change behavioural outcomes. Consistently, some of realist scholars have come to label regimes as totally irrelevant elements in the international system (nothing more than a siren song of false promises).<sup>9</sup>

On the other side, neoliberals believe that regimes can fruitfully change the cost/benefit calculus in transactions among actors which want to maximise/increase their utilities (with actors’ preferences being essentially given/fixed). According to this stream, by changing the strategic environment in which rational decisions are taken, regimes can, in certain conditions, drive divergent actors to cooperate when doing so is not immediately in their interest.

Finally, knowledge-based theorists (strong and weak cognitivists) have attempted to draw attention on the potential endogenous changes that regimes can produce in the normative characteristics and properties of actors. These scholars have tried to issue warning against treating states’ preferences as given and ignoring states’ identities (as realists and neoliberals do). Inheriting much of the epistemology of sociology and sociological institutionalism, cognitivists have introduced into the structure-constrained realm of international relations notions like appropriateness, learning, intersubjective meaning, interpretation, and socialization.

Prevailing IR literature has distinguished two strands within cognitivism. Weak cognitivism focuses on the role of causal beliefs in regime formation and change.

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<sup>8</sup> Krasner, *International Regimes*; Powell, Koput, and Smith-Doerr, “Interorganizational Collaboration and the Locus of Innovation.”

<sup>9</sup> Mearsheimer, “The False Promise of International Institutions,” 1994.

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Weak cognitivists admit that states can engage in learning activities (simple and complex - respectively referred to behavioural changes in means and ends) and have studied the condition of governmental learning (including epistemic communities). Strong cognitivists (also called “reflectivists” and “constructivists” emphasize the role of “social” knowledge and reject the idea of states as “rational actors” (this is not the case for weak cognitivists) and describe them as “role players”.

Hasenclever, Mayer and Rittberger have explored and reasoned on the possibilities for the three schools of thought to provide a synergetic contribution to the study of international regimes by pooling together selected items of their conceptual and theoretical resources. In their view, realist and neoliberals approaches to international regimes can be profitably reconciled and reorganized by specifying the condition of validity of each; for example by making explicit the contexts in which related predictions apply (a priori specification).<sup>10</sup> The same way, these scholars have shown that the weak variant of cognitivism can, on its turn, fruitfully supplement realism and neoliberalism accounts without violating the rationalist core of these approaches. Integrating weakly cognitivists arguments with rationalist accounts is indeed possible but the process appears to be more effective when cognitivist variables are placed in a single causal chains with rationalist ones (with cognitivist variables either causally preceding or following rationalist ones).<sup>11</sup> The optimism toward a grand synthesis however has stopped vis-à-vis the contribution of “strong cognitivism”. In fact, because of epistemological and ontological issues a universal disciplinary agreement seems unlikely.<sup>12</sup>

Whilst much of the research structured around regimes’ formation and properties has been undertaken with profit and has led to satisfactory results reaching a full maturity, the same cannot be said regarding *regimes’ functioning*. More precisely, the understanding of how regimes work is still far from looking complete implying certain serious repercussions when it comes to draw conclusions about regimes’ effectiveness and/or elaborate on the determinants of regimes’ success and/or failures.

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<sup>10</sup> Hasenclever, Mayer, and Rittberger, “Integrating Theories of International Regimes.”

<sup>11</sup> Hasenclever, Mayer, and Rittberger, 27.

<sup>12</sup> Hasenclever, Mayer, and Rittberger, 30–32.

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Notwithstanding the fact that impressive steps forward have been made in specific issue areas, as international political economy and, more recently, in the environmental field,<sup>13</sup> effectiveness still represents a challenging issue within contemporary IR research agendas. Along with effectiveness, some of its main related themes, such as compliance and implementation, have also been investigated with regards to specific variants of international regimes (international binding treaties and/or international organizations) backing mixed-results.<sup>1415</sup>

All the above is especially true and consequential when it comes to the study of *security regimes*. Robert Jervis has represented one of the first exception to this dearth of commitment. Nonetheless, the author suggests that the limited interest devoted to the study of security institutions (and the modest and controversial results back-then collected) was not random neither it was the result of neglect but rather inherent to the very nature of states' relations when performed in the security realm.<sup>16</sup> Prevailing literature describes regimes as intervening variables standing between causal forces (most prominently power, interests, and "ideas") on the one hand, and outcomes and behaviours, on the other hand.<sup>17</sup> It follows that the more indirect and mediated the connections between causal factors and behaviours are, the larger is the room for institutions to restrain and regulate behaviours. What research, both in security and non-security areas, has demonstrated is that those connections (between power/interests/ideas and outcomes) are far more direct in the security arena than in

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<sup>13</sup> Breitmeier et al., *The International Regimes Database as a Tool for the Study of International Cooperation*; Helm and Sprinz, "Measuring the Effectiveness of International Environmental Regimes"; Hovi, Sprinz, and Underdal, "Regime Effectiveness and the Oslo-Potsdam Solution," 2003; Breitmeier, Underdal, and Young, "The Effectiveness of International Environmental Regimes"; Weaver, "The Politics of Performance Evaluation"; Young, "Effectiveness of International Environmental Regimes"; Elsig, "The World Trade Organization at Work."

<sup>14</sup> Chayes and Chayes, "On Compliance"; Victor, *The Implementation and Effectiveness of International Environmental Commitments*; Jacobson and Weiss, "Strengthening Compliance with International Environmental Accords"; Helm and Sprinz, "Measuring the Effectiveness of International Environmental Regimes"; Underdal, "The Concept of Regime 'Effectiveness'."

<sup>15</sup> Dai, "Information Systems in Treaty Regimes," December 12, 2002.

<sup>16</sup> Jervis, "Security Regimes," 1982; Jervis, "Cooperation under the Security Dilemma," January 1978; Jervis, "From Balance to Concert."

<sup>17</sup> Krasner, "Structural Causes and Regime Consequences."

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others, as well as it is more intense, within states' security-relevant bargaining, the sensitivity to relative gains over absolute ones.<sup>18</sup>

Under this perspective, security regimes are challenging precisely because they are designed to govern behaviours and manage problems of international life that are considered to be inimical to successful collaborative arrangements (either cooperative or coordinative in nature)<sup>19</sup>. Specific features make regimes establishment, persistence and functioning more problematic in the security realm than it is for other issue-areas.<sup>20</sup> Such typical, or at least typically prominent characteristics, include "security dilemma" and Prisoner's Dilemma (PD), inherently competitive cast of security concerns, similarity between actions driven by offensive and defensive postures, high stakes, unforgiving nature of the confrontation, uncertainty about others' intentions, subjective nature of actors' security needs and a sense of "fear for the future evolution" of the international setting ("shadow of the future"). Finally, evidences and empirical analysis demonstrated that decision-makers usually act and react first and foremost by relying on unilaterally informed behaviours when operating in the security domain rather than by going for cooperative solutions.<sup>21</sup>

In the light of the above mentioned research perspectives, security regimes have been described precisely as "hard cases" within regime analysis<sup>22</sup> and accepted as "irregularities" within contemporary international relations theory.<sup>23</sup>

At the same time, security regimes de facto did arise and flourished over the last decades.

Jervis himself presented a substantial contribution in explaining the logic behind security regimes formation.<sup>24</sup> Based on the assumption that (in most cases) states display the capability to reciprocate their counterparts' actions and that such

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<sup>18</sup> Grieco, "Anarchy and the Limits of Cooperation," 1988; Grieco, "The Maastricht Treaty, Economic and Monetary Union and the Neo-Realist Research Programme," 1995.

<sup>19</sup> Stein, "Coordination and Collaboration"; Stein, *Why Nations Cooperate*.

<sup>20</sup> Czempiel, *Internationale Politik*; Efinger and Zürn, "Explaining Conflict Management in East-West Relations: A Quantitative Test of Problem-Structural Typologies"; Zürn, *Interessen Und Institutionem in Der Internationalen Politik: Grundlegung Und Anwendung Des Situationsstrukturellen Ansatzes*.

<sup>21</sup> Jervis, "Cooperation under the Security Dilemma," January 1978.

<sup>22</sup> Waltz, *Theory of International Politics*, 123; King and Murray, "Rethinking Human Security," December 2001, 209–10.

<sup>23</sup> Smith, "Explaining the Non-Proliferation Regime."

<sup>24</sup> Jervis, "Security Regimes," 1982.

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reciprocity changes the calculus of preferences finally leading to regime formation, he (and others with him) proved able to identify some conditions that contribute to creating propitious settings for security regimes' establishment.<sup>25</sup> The same way, the "relative gains" related impact on perspective cooperative efforts have been mitigated by accounts supplementing the very first contributions.<sup>26</sup> Regarding regimes working mechanisms, steps forward have also been made in our understanding of security regimes' working mechanisms (interalia regimes increase transparency; reduce uncertainty about others' behaviours, capability and intentions; increase the cost of cheating etc..).<sup>27</sup> However research over effectiveness (despite fierce debate) has been fractional and unable to offer generalizable conclusions.<sup>28</sup>

A specific category of security regimes is represented by arms control arrangements, whose ultimate goal is to enhance national and international security by a restraint upon armaments (usually but not necessarily towards a reduction of them). More specifically, among scholars and researchers, the type of arms control arrangements that have generated the greatest interest are disarmament and non-proliferation regimes. These are regimes that aim at reducing or abolishing armaments (disarmament) or curbing their growth and propagation (vertical and horizontal proliferation, respectively). In theory, the prohibitions these arrangements entail could be associated to many different actions and non-actions and weapons' categories. However, since when strategists and analysts first co-opted the term 'proliferation' from bioscience and shuffled it into international politics, "non-

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<sup>25</sup> Axelrod and Keohane, "Achieving Cooperation under Anarchy"; Axelrod, "Robert Axelrod. 1986. 'An Evolutionary Approach to Norms.' 'American Political Science Review' 80 (December)."

<sup>26</sup> Snidal, "Coordination versus Prisoners' Dilemma"; Snidal, "Relative Gains and the Pattern of International Cooperation."

<sup>27</sup> On the one side, we know that regimes enhance cooperation/coordination acting as (1) utility modifiers; (2) collective action problems moderators (interests-based perspective) (3) bestowers of authority and power/providers of authoritative comparative standards (power-based perspective); (4) learning facilitators and socializer (knowledge-based perspective). On the other, it has been demonstrated that regimes' action can be accelerated or deterred by factors both exogenous and endogenous to the regime. Exogenous factors include (a) distribution of power and influence, (b) nature of the issue, (c) patterns of interest and linkages. Building on the first part of the chapter, this section also explores the potential implication that the studies on the socialization's microprocesses have over our understanding of regime consequences. Endogenous factors include institutional design and programmatic activities

<sup>28</sup> Fuhrmann and Lupu, "Do Arms Control Treaties Work?"

proliferation” has been associated to a specific subset of weapons, namely non-conventional weapons (nuclear first, and then radiological, chemical and biological weapons known as “CBRN weapons”) and acknowledged in many accounts in terms of Weapons of Mass Destruction (WMD).<sup>29</sup> Understanding the implications and problems derived by this linkage, is preliminary to any discussion over non-proliferation.

Traditionally IR thinking on strategic assets’ proliferation – and inevitably the one on the complementary non-proliferation efforts – has been dominated by rationalist perspectives (especially realism), according to which WMD (nuclear, in particular) are extremely valuable to states. According to these scholars, in fact non-proliferation regimes are bound to have very limited (if not any) independent function in modifying states’ behaviours unless they impose very high costs to defectors. Consequently, the idea has prevailed that only regimes envisaging strong supply-side measures can stop states’ natural tendencies toward “rampant” proliferation.<sup>30</sup> Realist/institutionalist intuitions seemed to have worked quite well in describing the realities of the first wave of non-proliferation arrangements produced within the Cold War framework (bipolar world). In fact, since 1955 onwards and more prominently after the Cuban missile crisis, the world witnessed the multiplication of a series of international arrangements trying to limit the use and spread of Weapons of Mass Destruction (the Antarctic Treaty, OST, NPT, BWC and later on the CWC).<sup>31</sup> These agreements have been informed by and indeed displayed characteristics consistent with rationalist assumptions according to which only formal tools entailing binding norms and rules may play actual role in restraining the proliferation of highly destructive/disruptive weapons dominated by PD-like dynamics. Inevitably, the modern image of non-proliferation and disarmament became the one of arms control formal treaties;

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<sup>29</sup> Carus, “Defining Weapons of Mass Destruction.”

<sup>30</sup> Hymans, “Theories of Nuclear Proliferation.”

<sup>31</sup> Arms control theory and practice developed in a very specific time frame. The 1955 Geneva summit along with Eisenhower’s Open Skies proposal has been described as the turning point towards a new vision of military strategy (neither arms race, nor disarmament). In Larsen’s view the 1958 Surprise Attack Conference is key. The following years (1960s) were the most productive for the definition of an arms control community and the proliferation of the related debate with the publication, in 1961, of three crucial works on “traditional” arms control theory: Schelling and Halperin, *Strategy and Arms Control*, 1985; Bull, *The Control of the Arms Race*; Donald G. Brennan, *Arms Control Disarmament And National Security*.

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preventing the use, development and possession of WMD (nuclear, chemical and biological); multilaterally negotiated; nearly universal in their membership; developed within a specific institution that is international law (of which regimes became a crucial part of); including specific norms and rules, and equipped with measure to ensure the treaty is observed (from bland incentives to inspections). The flip side of this encroachment was that there would have not remained much room for disarmament and non-proliferation outside arms control and no arms control outside formal treaties.

Consistently and unsurprisingly, the discussion on non-proliferation “regimes” ended up being dominated by contributions developed within the field of International Law (IL), with a major impact on the way the issue of non-proliferation was received and framed by the academia. Matters of universalization, implementation, compliance, rights to the development of nuclear/bio/chemical civil technologies, institutional design have directed the discussion at a great length with the following marginalization of broader reflections on the evolution of international cooperation, coordination and collaboration beyond IL (which actually did occur) or delayed a full understanding of the limits of rationalist accounts. Scholars, have gradually come up against situations of cooperation where none of the existing explanations seemed to hold. Situations where actors’ behavioural changes towards cooperative attitudes could not be explained by exclusively referring to realist structure constraints nor to cost-benefit shifting equilibria.<sup>32</sup>

Additionally, the non-proliferation discussion, as it was formulated at its foundation, implied a second problem. It produced a superficial look over the different characteristics which distinguished and still distinguish the three weapons (nuclear, chemical, and biological). International Law, because of its focus on the normative side of the non-proliferation equation, have often overlooked the dangers of dealing with nuclear, biological and chemical weapons jointly. A similar approach has for instance, overemphasised the distance between the group (WMD) and conventional armaments, and - on the other hand - inevitably had underestimated the difference

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<sup>32</sup> Johnston, *Social States*, 2008.



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existing among each of them.<sup>33</sup> Under this perspective, the peculiar nature of bioweapons (living agents, self-reproducing, existing in nature, and responsible for endemic infectious diseases) would require a specific approach that inevitably develops at the cross-road of many different fields (security, health and environment).

For these reasons, the present work tries to bring back the discussion on non-proliferation regimes under the flag of International Relations studies. The task implies the need to examine and harmonize at least three bodies of literature that rarely have talked to each other and that cover the following topics: International Regimes (plus International Organization and Governance), WMD's disarmament and non-proliferation, and Human Security. However, it has to be noticed that, especially in recent times, International Law has indeed offered a lucid overview of and a sound reasoning on emerging forms of international coordination. These contributions go well beyond a mere analysis of legal aspects of customary and treaty law, and consequently will not be left aside for the sole purpose of maintaining a separate agenda for IR and IL.<sup>34</sup>

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<sup>33</sup> Mauroni, *Countering Weapons of Mass Destruction*, 2016.

<sup>34</sup> Dunoff and Pollack, *Interdisciplinary Perspectives on International Law and International Relations*.

## Structure and methods

For the last fifty years, International Regimes have been a major focus of research in International Relations. Three major schools of thoughts (realism, neoliberalism, and cognitivism) have shaped the debate within International Regime Theory (IRT). The first chapter provides a synthetic overview of their assessments of the way power, interests and knowledge explain the origins, operating mechanisms, and design features of international regimes. I investigate the relationship between the three approaches and argue that there is substantial scope (and demand) for progress towards an inter-paradigmatic synthesis among the three and with global governance studies. Within the discussion which addresses interest-based approaches to international regimes, a particular relevance is assigned to the contribution provided by problem-structuralists, including those scholars who consider the nature of the problem at stake, the issue-area involved and/or the object of conflict as key elements in determining an institution's development and performance. Additionally, a specific attention is devoted, within the chapter's section dedicated to cognitivism, to the insights' offered by the so-called "sociological turn" in international relations. Under this perspective, the paragraph delves into the "microprocess" of learning (mimicking, persuasion, and social influence) and explores whether and how these can contribute to regime analysis.

The second half of the chapter focuses on regime consequences. The section examines how the topic of effectiveness has been addressed in IR literature, offers a general conceptualization of the notion, introduces existing theoretical analytic tools, and explains the trade-offs associated with each measurement's choice. I then review regime literature searching for references concerning determinants of effectiveness intended as those characteristics believed to be associated with regime successful outcomes. In conclusion, I enlist and comment on the persisting challenges haunting the study of regime effectiveness (especially when it happens to be applied to regime-complexes in the field of security and non-proliferation studies) and I, finally, present the way in which effectiveness is to be evaluated in the present research work. Our current understanding of institutional effectiveness and its determinants is informed by at least three bodies of literature whose main contents and findings are reported

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in this paragraph. The first contribution comes from a rationalist-institutionalist literature that emphasizes the importance of endogenous and exogenous factors in the analysis of regime consequences and explains regime “outcomes” as a function of specific institutional designs, underlying cooperation problems, and distribution of power. A second relevant contribution is developed within the framework of environmental policy discourse. It addresses the issue of “regime effectiveness” by exploring more in details the very notion of effectiveness (as distinct from implementation and compliance) and speculates on how to measure its variation. Least but not last, and not less important, is the contribution offered by scholars who focus on International Organizations (IOs) and IOs performance.

The first half of Chapter two focuses on the properties and peculiarity of regimes that operate in the security realm (*vis-à-vis* other issue areas) and the role they may play in shaping political military decisions. It describes the types of problems that usually pertain security (coordination, collaboration, suasion and assurance), as well the types of arrangements that can be settled to increase each actor’s individual security (Security Regimes, Security Communities, Collective Defence, Collective Security Arrangements; Mere Alliances/Defence Communities). Finally, I examine those arrangements that better fits with a restriction on the spread of specific weapons and military capabilities (WMDS) making use of the what elaborated in Chapter 1.

The second half of chapter two introduces the case study: the biological weapons regime. The analysis explains how the extensive adoption of securitization models that widen the notion of security (human security, environmental security etc..), has resulted in the present need for a redefinition and re-conceptualization of the notion of biosecurity, biological risk, and inevitably of biological weapons regime. It critically examines how specific matters have become removed from a low-politics process and discourse to enter the security agenda. The section aims at presenting a new two-level taxonomy of biological threats. The first level of analysis identifies the type of actors responsible for posing the threats: states; non-state actors and nature. The second level of analysis addresses who is at risk from these biological threats: states, individual, community or society. This framework allows to better distinguish between the following categories: biowarfare, biological terrorism, biocrimes, pandemics. Finally, the chapter focuses on the existing links between health and security at the

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theoretical and practical level (sharing the results from a research effort conducted at the premises of the World Health Organization). By developing the notion of health-security interface, the chapter emphasizes the need for scholars to address the issue of biological agents' development and proliferation across multiple issue areas today involved in the practice of biological agents' management.

Chapter 3 starts exactly by describing the international complex framework of coordination and cooperation developed around the key security-concerns described in previous paragraphs. This is represented by those institutions that deal with non-proliferation of biological weapons, spread of infectious diseases, the conservation of biological diversity, technology transfer, and patent protection (among others). I illustrate the mechanisms through which the individual components of the regime come to light and the institutional provisions interact, overlap or compete in governing the use, development, conservation and proliferation of biological agents. The paragraph explores the emerging features of those regulatory instruments that characterize a unique and complex international order (soft law, networks, NGO, IO). Finally, the section explains how the increased density of international norms and institutions creates both conflict and cooperation across different legal sources and diverse issue areas in international politics.

In the study of international regimes qualitative contributions enlighten causal forces at work in specific situations, but prove unable to produce results that are easy to generalize; quantitative procedures generate interesting measure of associations, but display limited capacity in terms of revealing the causal mechanisms underlying the relationship identified; mixed-methods like Qualitative Comparative Analysis capture causal conjunctions (combination of necessary and sufficient conditions) but have very stringent inclusion criteria (e.g. only applicable to small-to-intermediate causal situations). For these reasons, this work has implemented diverse methodologies to answer different questions. Each chapter includes a detailed description of the methodology that has informed its production. Under this perspective, Chapter 4 represent a preliminary spin-off of the preceding work insofar tries to complement its result by testing assumptions and conclusions about the biological agents' regime complex from 1945 to 2000 by means of a new dataset.

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The last chapter presents few preliminary results organized around three aspects: (1) the nature of any state's support for (or antagonism /ambivalence towards) the BW regime-complex in terms of "embeddedness" in the regime complex; (2) the determinants external/internal and political/legal that affect states' support ("embeddedness") to the regime (which is supposed to work as predictors of regime's commitment preferences); (3) the compliance tools developed within the regime and across issue areas and states' related returns rate; (4) the regime impact on any state's proliferation choices (BW possession as dependent variable).

## Chapter 1: Theories of International Regimes (a critical analysis)

### Definitions and operationalization

Defining regimes remains a difficult task and it is fair to say that the concept is still “essentially contested” (in the four-decades-old-words used by Helen Milner in 1993).<sup>35</sup> Nonetheless, since when Regime Theory established as a field of research, International Relations scholars have fostered many definitions of international regimes throughout the years (for a selection of them see Table 1.1). It proved difficult however difficult to define and identify with consistency the regimes of international society. Even when scholars have sought to address this problem by devising tighter definitions and applying them more rigorously, different understandings and diverse lists of regimes have proliferated as it has been the case also with the similar (but not identical) notion of institutions.<sup>36</sup>

When John Ruggie introduced the notion of international regimes into international politics literature in 1975, he defined regimes as “set of mutual expectations, rules and regulations, plans, organisational energies and financial commitments which have been accepted by a group of states.”<sup>37</sup> A couple of years later, Hedley Bull made reference to the importance of institutions and rules in any international *society* writing in the following terms: “in international society, as in other societies, the sense of common interest in elementary goals of social life does not itself provide precise guidance as to what behaviour is consistent to these goals; to do this is the function of rules. These rules may have the status of international law, of moral rules, of custom or established practice, or they may be merely operational rules or “rules of the game” worked out with formal agreement or even without verbal communication. It is not uncommon for a rule to emerge first as an operational rule, then to become established practice, then to attain the status of moral principle and finally to be incorporated in a legal convention; this appears to have been the genesis for example, of many of the rules now embodied in multilateral treaties or conventions concerning

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<sup>35</sup> Milner, “International Regimes and World Politics: Comments on the Articles by Smouts, de Senarclens and Jönsson,” 493–4.

<sup>36</sup> Wilson, “The English School Meets the Chicago School.”

<sup>37</sup> Ruggie, “International Responses to Technology.”

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the laws of war, diplomatic and consular status, and the law of the sea.”<sup>38</sup> In 1980 Haas wrote on this matter labelling a regime as encompassing “a mutually coherent set of procedures, rules and norms.”<sup>39</sup>

There is a general agreement that the English School (ES), of which Hedely Bull is one of the major exponents, and Regime Theory overlap at several points as far as their approach to institutions is concerned. Nonetheless some essential differences exist especially between ES and rational streams of RT and are well summarized by Barry Buzan in his essay “The Primary Institutions of International Society” (for a synthesis see Table 1.2).<sup>40</sup>

In 1982, Donald Puchala and Raymond Hopkins claimed that “a regime exists in every substantive *issue-area* in international relations where there is discernibly patterned behaviour. Whenever there is regularity in behaviour, some kinds of principles, norms or rules must exist to account for it. Such patterned behaviour may reflect the dominance of a powerful actor or oligarchy rather than voluntary consensus among participants. But a regime is present.”<sup>41</sup> Providing one of the most comprehensive/inclusive definition of regimes, the authors attach five typical features to the notion of regime with respect to previous elaborations. First, they define regimes as attitudinal phenomena. According to them, regimes themselves are indeed subjective, in other words they exist primarily as participants’ understandings, expectations or convictions about legitimate, appropriate or moral behaviour. Second, international regimes shall include tenets concerning appropriate procedures for making decisions. Third, a description of regime must include a characterization of the major principles it upholds. Fourth, each regime is supposed to have a set of elites who are the practical actors within it. Finally, a regime exists in every substantive issue-area in international relations where there is discernibly patterned behaviour. Wherever there is regularity in behaviour some kinds of principles, norms or rules must exist to account for it. Such patterned behaviour may reflect the dominance of a powerful actor or oligarchy rather than a totally voluntary consensus among all

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<sup>38</sup> Bull, *The Anarchical Society*.

<sup>39</sup> Haas, “Technological Self-Reliance for Latin America.”

<sup>40</sup> Buzan, “From International System to International Society.”

<sup>41</sup> Puchala and Hopkins, “International Regimes,” 1982.

participants. But a regime is present. The risk of associating regimes closely with patterned practices is the one of limiting their explanatory because it is precisely the impact of them on practice that needs to be explained. For this reason the “explanans” should be kept separate from the “explanandum”, although in practice stipulative definitions failed to meet the test. Under this perspective, the normative element (principles, norms, and rules) “on the top of” the recurrence is, indeed, essential to properly differentiate regimes from regularized patterned behaviours.<sup>42</sup>

Building on these first attempts to grasp/describe the then-emerging new form of international interactions, Stephen Krasner, in the introductory essay of the 1982 International Organization special editions on regimes, provided what became to be known as the “consensus definition”, which reads as follows: “[regimes are] sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations. Principles are beliefs of fact, causation, and rectitude. Norms are standards of behaviour defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice.”<sup>43</sup> Such a definition accrued many benefits. First, as illustrated by the author, this usage was compatible/might accommodate many formulations, like the other ones included in the many essays of the volume, from here the attribute “consensus”. Second, the definition, which is also referred to as a “complex definition” encompassed a hierarchy of several elements: principles, norms, rules and procedures – that becomes crucial when it comes to assess regime’s resilience, adaptation, or change. The hierarchy of regimes components presented in the consensus definition had enabled Krasner to categorize regime change as follows: “if a change in the principles and norms occurs, we assist to a change of the regime itself. All other changes in regime content (rules and procedures) are changes within a regime (adaptation)”. A third (noncontroversial) advantage the definition implies, is that it processes the relationship between regimes, institutions and international organizations. On the one side, it becomes

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<sup>42</sup> Hayek, *Law, Legislation and Liberty*.

<sup>43</sup> Krasner, “Structural Causes and Regime Consequences.”



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clear that regimes are international institutions (possibly a special case of), and should be approached and studied as such.<sup>44</sup> On the contrary, the terms “international regimes” and “international organisations” have distinct meaning with the first (being a set of principles, rules, and procedures accepted by states) which do not have the capacity to act that which instead the international organizations do have. Under this perspective, institutional analysis requires indeed a clear distinction between regimes and regimes’ participants: the first are social structures guiding the behaviours of stakeholders but possess no independent ability to act, and the latter (states, IGOs and NGOs) which are the ones that make decisions and drive policy developments, thereby creating and upholding social structures. Therefore, as pointed out by Selin, regime analysis should always carefully distinguish between structures and agents as well as empirically explore their relationship.<sup>45</sup>

Finally, Krasner’s consensus definition provided practitioners with a functional analytic tool and with a non-arbitrary point of departure to further studies. The definition has been used in practical terms to explain/describe existing regimes, this have been the case, for example, of the nuclear non-proliferation regime<sup>46</sup> and the biological non-proliferation regime<sup>47</sup> with mixed-results. Notwithstanding the clear benefits the consensus definition brought and still brings to scholars, dissatisfaction with its letter has also been expressed now and again by commentators of regime analysis. In 1983 Susan Strange prompted a torrent of criticism against the concept of international regimes as formulated by Krasner, which she taxed with “imprecision” and “woolliness”: “people mean different things when they use it.”<sup>48</sup>

In a review article, Oran Young also criticized Krasner’s definition of the term “international regimes” essentially on three grounds arguing that: 1) the definition is “really only a list of elements that are hard to differentiate conceptually and that often overlap in real world situations”; 2) it exhibits a disconcerting elasticity when applied

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<sup>44</sup> Keohane, *After Hegemony*, 1984; Young, “International Regimes.”

<sup>45</sup> Selin, *Global Governance of Hazardous Chemicals*, 22.

<sup>46</sup> Müller, “Regimeanalyse Und Sicherheitspolitik: Das Beispiel Nonproliferation”; Müller, Fischer, and Kötter, *Nuclear Non-Proliferation and Global Order*; Smith, “Explaining the Non-Proliferation Regime.”

<sup>47</sup> Kelle, “Strengthening the Effectiveness of the BTW Control Regime – Feasibility and Options,” April 2003.

<sup>48</sup> Strange, “Cave! Hic Dragones.”

to real world of international relations”; 3) It is “conceptually thin” in that it fails to “tie the concept into... [some] larger system of ideas that would help to solve the ambiguities.., and that would offer guidance in formulating key questions and hypotheses regarding international regimes.”<sup>49</sup> Broadly speaking, there are at least two major reasons why critics have attacked the consensus definition. One criticism points out the difficulty in differentiating the four components of the regimes (Young’s first objection): despite the diligence with which the components of the regime are described, the distinctions among principles, norms and rule lack intersubjective meaning. “Principles” tend to shade off into “norms” and norms, in turn are difficult to distinguish from “rules.”<sup>50</sup> The second, more substantial, arises from the letter “around which actors’ expectations converge” and deals with the vagueness of the concept which brings about the problem of knowing regimes when we actually see them (how can we recognize convergent expectations before they materialize or when they do not materialize – being there anyhow). According to this critique, most of the definitional vagueness of the definition lays in the empirical difficulty of recognising regimes, rather than describing them in talks and discussions.

Some ideas for operationalizing the consensus definition have been put forward, as it will be described below. According to some scholars, it could have been useful to concentrate on explicit rules or injunctions (with an embodiment independent of the actors). Another approach suggests adding an element of observable behaviour to the definition.

These considerations made, some authors have even suggested dropping the consensus definition altogether and replace it by more straightforward formulations which focus on the explicit dimension of rules and norms. Along these lines, Robert Keohane defined regimes as: “institutions with explicit rules, agreed upon by governments that pertain to particular set of issues in international relations”<sup>51</sup>. This is often referred to as a *lean definition* of international regimes.<sup>52</sup> When he proposed

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<sup>49</sup> Young, “International Regimes.”

<sup>50</sup> Kratochwil, “The Force of Prescriptions.”

<sup>51</sup> Keohane, “Neoliberal Institutionalism,” in *International Institutions and and State Power: Essays in International Relation*.

<sup>52</sup> Keohane, “Neoliberal Institutionalism.”

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this formal approach, Keohane believed it would have been still crucial to distinguish neatly between international regimes, on the one hand, and mere ad hoc substantive agreements, on the other. For this reason, the author add a specific to the previous wording clarifying that: “regimes, facilitate the making of substantive agreements by providing a framework of rules, norms, principles, and procedures for negotiation.”<sup>53</sup> Notwithstanding the pragmatic gains its use implies, in terms of simplification, the *lean definition* (even supplied with the adequate specifics) involves costs that should not be overlooked. For example, the abandoning of the hierarchy of regime components precludes the possibility to use the regime-change model described above and the exaggerate the focus on formal/binding agreements over other arrangements. For a summary, see Table 1.3

The limits of the formal definition have been widely recognised and there is today a widespread preference for consensus-type definition.<sup>54</sup>

At the same time, efforts to actually improve on it have been marginal.<sup>55</sup>

An exception to this general trend is Levy’s attempt. He described regimes as “social institutions consisting of agreed-upon principles, norms, rules procedures, and programs that govern the interactions of actors in specific issue areas.”<sup>56</sup>

The reading of such endeavour, reveals the idea that the empirical phenomena covered by regime definitions must keep broad and should range from formal rules codified in a treaty, to patterns of convergent behaviour, to ideational structures consisting of share understandings, intersubjective meanings, and reciprocal expectations (see Table 1.4).<sup>57</sup>

The discussion regarding the use of a complex-like definition instead of its lean substitute has gone hand in hand with the parallel speculation on the diverse ways through which the concept of regime should be brought into operation (operationalized). As very well summarized by A. Hasenclever, P. Mayer and V.

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<sup>53</sup> Keohane, “The Demand for International Regimes.”

<sup>54</sup> Hasenclever, Mayer, and Rittberger, “Interests, Power, Knowledge.”

<sup>55</sup> LEVY, YOUNG, and ZÜRN, “The Study of International Regimes.”

<sup>56</sup> LEVY, YOUNG, and ZÜRN.

<sup>57</sup> Dimitrov et al., “International Nonregimes,” 2007.

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Rittberger, the debate concerning the criteria that should pilot operationalization has led to three distinct positions known as (1) behavioural; (2) cognitive; and (3) formal approaches.<sup>58</sup>

These approaches are relevant to our discussion since they display a very different interpretation of regime effectiveness and of the role it has to play in regime identification. Authors who belong to the “behavioural” stream tend to consider social institutions as “practices consisting of recognized roles linked together by clusters of rules or conventions governing relations among the occupants of these roles”<sup>59</sup> and opt for an “empirical identification of the regimes”. This understanding of the notion of institutions in general and regimes in particular, has two corollaries. First, a rule that does not shape, at least in part, the behaviour of its addressees cannot be described as the element of some regime. Under this perspective, Mark Zacher highlights that “effectiveness of behavioural guidelines” is not a merely contingent characteristic of regimes, but it is part of their very nature. He also contends that the actual behaviour of states is a decisive factor for establishing the existence of a regime.<sup>60</sup> By that, he does not mean that compliance (which he apparently considers as necessary to effectiveness) must be perfect. A social practice can indeed tolerate a considerable measure of deviation (that is not per se an indicator of the absence of a rule-governed behaviour). However at least some degree of compliance (alignment with the normative content of the regime) is crucial: “We must doubt the effectiveness of behavioural guidelines if glaring violations are allowed to persist or if states tend to violate norms and rules on those few occasions when they would benefit from doing so.”<sup>61</sup> On the same wavelength, Michael Zürn has recommended elaborating further on the consensus definition in order to include an element of rule-effectiveness as a necessary term.<sup>62</sup>

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<sup>58</sup> Hasenclever, Mayer, and Rittberger, “Interests, Power, Knowledge”; Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997.

<sup>59</sup> Young, “The Politics of International Regime Formation.”

<sup>60</sup> Zacher, “Trade Gaps, Analytical Gaps.”

<sup>61</sup> Zacher.

<sup>62</sup> Rittberger and Zürn, “Rittberger, V. and Zürn, M. Regime Theory.”

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The second corollary to the behavioural approach relates to the fact that there is no need, for the rules that govern practices, to be formally stated. Consequently, implicit regimes are admitted.

As far as the “cognitive” approach, the major contribution comes from Kratochwil and Ruggie, who both rejected the focus on compliance in assessing the existence of regimes and instead emphasize the coordination of expectations that regimes should embody and produce: “international regimes are commonly defined as social institutions around which expectations converge in international issue-areas. The emphasis on convergent expectations as the constitutive basis of regimes gives regimes an inexplicable intersubjective quality. It follows that we know regime by their principal and sharing understandings of desirable and acceptable forms of social behaviour.”<sup>63</sup> After shifting the accent from “effective behaviour” to “intersubjective assessment”, what it becomes relevant for regimes identification is the interpretation given by the regime members in the case of a state’s violation (and not the violation per se). In this framework the communicative action, in terms of reproaching, justifications or punishment, adopted by the community of states becomes crucial.

Finally, Keohane who championed the formal conceptualization of regimes, sharply criticizes the approaches above presented underlining the prominence of formality as a necessary criterion for the identification and operationalization of regimes.<sup>64</sup>

He rejected the notion of implicit regimes for two main reason. The first one refers to the potential fallacy deriving from the identifying of “regimes on the basis of observed behaviour and then ...[using] them to ‘explain’ observed behaviour”.<sup>65</sup> Secondly, he noticed that a behavioural-based model precludes explanation, in regime terms, of the observable regularity in behaviours.

The point made against the cognitive approach is again a methodological one and deals with the difficulty, if not impossibility, to determine “principled and shared understandings”. By the same taken, he decided to conceptualize regime primarily (if not exclusively) as explicit rules that are agreed upon by actors and are incorporated in treaties or other documents. It has been largely demonstrated that a purely formal

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<sup>63</sup> Kratochwil and Ruggie, “International Organization,” 1986.

<sup>64</sup> Goldstein and Keohane, *Ideas and Foreign Policy*.

<sup>65</sup> Goldstein and Keohane.

conceptualization has its disadvantages (for instance it leaves aside social institutions and tend to focus on treaty agreements). Keohane himself has partially modified such a strictly formal interpretation and revised the definition in an effort explicitly aimed at bridging the behavioural and formal streams. However, the matter of finding an efficient way to operationalize the notion of regime is far from being solved and it is obviously still connected to the no-longer-so-new debate regarding the relationship between international law and international relations.

This premise made, it is clear that the discipline has been characterized by a general acceptance of thick definitions. However, at the same time, regime analysis has also displayed a theoretical tolerance for diverse operationalizing procedures with a tendency to emphasize the role of formalized rules at the expenses of broader transnational interactions and less explicit norms.<sup>66</sup>

Consistently, Levy, Young and Zürn have contended that all-inclusive/thick definitions should be used only if, and so long as, “individual analysts are careful to state clearly the universe of cases they are referring to”, inviting scholars, in a certain way, to walk the path of compromise between intellectual completeness and research practicality.<sup>67</sup> Approach that has been sponsored also by those interested in the study of non-regimes.<sup>68</sup>

To escape this conceptual tangle, most empirical investigations actually embrace a dual approach to the study of international regimes: on the one side they champion *broad/consensus definitions* that leave room for various intellectual orientations, then elaborate working (but still stipulative) definitions (that grow more sophisticated and detailed according to their ultimate scope), and finally *operationalize* the notion by applying the working definitions to their research interests (in most cases, current investigations focus on binding treaties or formal policy agreements among state-governments and leave out other types of multilateral governance).<sup>69</sup> What above has

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<sup>66</sup> Stokke, “Qualitative Comparative Analysis, Shaming, and International Regime Effectiveness,” May 2007.

<sup>67</sup> Levy, Young, and Zürn, “The Study of International Regimes.”

<sup>68</sup> Dimitrov et al., “International Nonregimes.” Dimitrov et al., “International Nonregimes,” 2007.

<sup>69</sup> Krasner, “Structural Causes and Regime Consequences: Regimes as Intervening Variables”; Keohane, *After Hegemony*, 1984; Young and Osherenko, *Polar Politics*; Koremenos, Lipson, and Snidal,

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somehow legitimated the use of international treaties/formal policy agreements among governments as “substitutes” for regime.

Summarizing, until today the conceptual breadth of the regime definition has been left in deep contrast to the narrower ways in which the notion has usually operationalized.<sup>70</sup>

This study revisits the persistent lack of a universal disciplinary agreement on regimes’ definitions and operationalization. However, although aware of the need for a “concrete” and “usable” notion, the present research refuses to yield to the drawbacks of stipulative definitions and too restrictive operationalization’s procedures.

This is not only in the interest of comprehensiveness, but also a necessary step to produce acceptable inferences when it comes to study regime consequences.

Whether we conceptualize regimes as interstate regulatory frameworks, non-state government mechanisms, or patterns of behaviours conditioned by sharing understanding, this changes the objects we intend to analyse and may dramatically impact on the conclusions we draw about how well regimes function. More specifically, I argue that the prevailing focus on formal treaties is not only overly narrow but can be inappropriate when it comes to the study of regime effectiveness. A reconsideration of the way in which the notion of regimes has been traditionally defined and, above all, operationalized is thus necessary.

Gathering prevailing criticisms to current definitions and operationalization procedures and the building on an interpretive “insider” approach inspired by Chicago School Sociology, I would define regimes as:

*deliberately agreed/constructed principles, norms, rules, decision-making procedure and programs on which converge members’ behavioural expectation and their derived patterned practices that eventually facilitate the accomplishment of precise goals by organizing members’ interactions in or across specific/traditional issue-areas.*

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“The Rational Design of International Institutions,” October 1, 2001; Miles et al., *Environmental Regime Effectiveness*; Breitmeier, Young, and Zürn, *Analyzing International Environmental Regimes [Electronic Resource]*.

<sup>70</sup> Dimitrov et al., “International Nonregimes,” 2007.

Most importantly, I operationalize such broad definition as to encompass very diverse phenomena: 1) internationally legally binding *treaties* and protocols; 2) *networks* of states that have succeeded to endorse formal policy agreements and non-binding policy initiative; 3) *multilateral forums* of discussion and other informal channels producing explicit actions to address specific issues around which states have raised concerns.

It is clear that such a broad operationalization still requires further specifications regarding: (1) the problem(s) to which the regime constitutes a response and its related aspect, (2) the external boundaries of the regime, as such regimes have temporal boundaries in the sense of starting point and, in some cases, ends point (3) the discrete internal components of the regime.<sup>71</sup>

The definition and operationalization above proposed builds on the following considerations:

(a) Regimes principles, norms, rules and procedures do not need (in principle) to be equipped with prescriptions that are integrated into formal treaties to be understood as regimes. International norms managing problems over international coexistence have been not formalized for a long time. Nevertheless, these same norms have been respected under *ius gentium* (in the case of early western system) and customary international law (more recently) long before the very existence of states as we know them, and certainly before United Nations started its longstanding effort to codify norms and rules within the framework provided by the international Law of Treaties/ Public International Law.

Even today, discussing regime effectiveness only with reference to single international treaties exclude from the scope of the analysis “softer form of legalized international governance and those intermediate blends of obligation, precision and delegation.”<sup>72</sup>

This obviously represents a severe limitation since, as pointed out by Abbot et al., not only most international law is soft in distinct ways, but also softer forms of legalization are not necessarily/only a way station to hard legalization; in fact international actors

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<sup>71</sup> LEVY, YOUNG, and ZÜRN, “The Study of International Regimes.”

<sup>72</sup> Abbott and Snidal, “Hard and Soft Law in International Governance,” June 2000.



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often deliberately choose softer forms of legalization as superior institutional arrangements because they can be more acceptable or more efficacious in different circumstances (for example under uncertainty; a typical characteristic of current international system).

Consistent with this discourse is the argument supported by Randall Stone according to which powerful states make large use of informal means to control formal existing multilateral institutions.<sup>73</sup>

Excluding informal networks also overlooks the role (both as initiators and implementers) of non-state actors,<sup>74</sup> the one of epistemic communities,<sup>75</sup> NGOs and private actors,<sup>76</sup> as well as the one of dyadic diplomacy,<sup>77</sup> that vice-versa largely account for regimes' outcomes. Under this perspective it is interesting to see how Verdier uses the precisely the NPT regime to illustrate the idea that dyadic diplomacy is not incompatible with the building of multilateral regime, but an efficient and necessary component thereof.<sup>78</sup>

(b) A broader and grounded operationalization of the term also avoids the counterproductive multiplication of vocabulary and concepts that is gaining foothold within regime theory, and at the same time it will enable scholars to keep pace with present international setting and events. Whether we return to the tradition language of "institutions,"<sup>79</sup> or champion more recent descriptions as "policy coordination"<sup>80</sup> or "governance,"<sup>81</sup> the object of analysis remain the same: rules-based cooperation. Under this perspective a very interesting insight is provided by Keohane labelled notion of "Contested Multilateralism" born de facto to explain how regimes can

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<sup>73</sup> Stone, *Controlling Institutions*.

<sup>74</sup> Breitmeier, *The Legitimacy of International Regimes*.

<sup>75</sup> Haas, "Do Regimes Matter?"; Adler and Haas, "Conclusion"; Haas, "When Does Power Listen to Truth?"

<sup>76</sup> Abbott and Snidal, "Hard and Soft Law in International Governance," 2000; Abbott and Snidal, "International Regulation without International Government"; Thompson and Snidal, "International Organization"; Vabulas and Snidal, "Organization without Delegation."

<sup>77</sup> Dimitrov et al., "International Nonregimes," 2007, 235.

<sup>78</sup> Verdier, "Multilateralism, Bilateralism, and Exclusion in the Nuclear Proliferation Regime."

<sup>79</sup> Milner, "International Regimes and World Politics: Comments on the Articles by Smouts, de Senarclens and Jönsson."

<sup>80</sup> Haas, *Knowledge, Power, and International Policy Coordination*.

<sup>81</sup> Young, *International Governance*, 1994; Biersteker, "Targeted Sanctions and Individual Human Rights."

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change as a consequence of their internal components' bargaining processes: "The NPT has been supplemented by more or less informal institutions such as the Nuclear Suppliers Group or the International Nuclear Fuel Cycle Evaluation, which shifted the effects of the nuclear proliferation policy in the direction favoured by the United States and other established nuclear power."<sup>82</sup>

(c) Furthermore, a more inclusive and grounded operationalization of regime is better positioned to unlock the dialogue between traditional IR theories and the rapidly growing sub-stream (e.g. "International Practices"<sup>83</sup> and "Human Security"<sup>84</sup>)

(d) Finally (and partially linked to the latter point), the joint appeal to a boarder definition of regime and a theory which ground interpretations in practitioners understanding has made apparent that many "objects" that used to be confined to a single domain are nowadays governed by elements that belong to diverse issue-areas and highlighted very clearly the need for an inter-paradigmatic approach.

Regime building, functions and persistence

As anticipated in the introduction, RT has attracted and welcomed contributions from all the three major schools of mainstream IR. With regards to international regimes, the realism, neoliberalism and constructivism differ (1) for the specific explanatory variable (interests, power, and knowledge) they champion to account for regimes formation (and attributes) and (2) for the diverse degree of "institutionalization" they accept. Neoliberalism (also referred to as "functionalism") embodies an "interest-based" approach to regimes' study and has been extremely influential in RT. If it is true that structural realists (both defensive and offensive) have devoted little attention to regimes and international institutions,<sup>85</sup> some others "post-classical" or

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<sup>82</sup> Morse and Keohane, "Contested Multilateralism," March 23, 2014.

<sup>83</sup> Adler and Pouliot, *International Practices*.

<sup>84</sup> Bajpai, *Human Security*; King and Murray, "Rethinking Human Security," December 2001; Martin and Owen, "The Second Generation of Human Security."

<sup>85</sup> Waltz, *Theory of International Politics*; Mearsheimer, *The False Promise of International Institutions*, 1994.

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“modified structural” realists see in the distribution of material capabilities a powerful trigger for cooperation (as it is for discord) among nations.<sup>86</sup>

Knowledge-based theorists (especially strong cognitivists) proceed from the constructivist claim that social interaction in international relations can affect actors’ interests by inducing endogenous changes in the normative characteristics and properties of actors involved in the relationship.

Neoliberal and realist theories are both committed to rationalism/utilitarian and embrace shared assumptions. Rationalism is a meta-theoretical orientation which recognizes in nation states the key actors in the international arena and describes them as atomistic, self-interested and goal-seeking players that set their behaviour in order to further their individual utilities.<sup>87</sup> States’ calculations are informed by their utility functions which in turn build on fairly stable preferences concerning final outcomes. Neorealists and neoliberal perspectives focus on how structures affect the instrumental rationality of actors. Consistently, foreign policies (including the decision to participate in a regime) result from the calculations of advantages made by states in line with their preferences. If the first (policies) can change as time passes by (on the basis of external structural conditions), the latter (preferences) are fairly stable over time.<sup>88</sup> Structural constraints may include the distribution of capabilities among states,<sup>89</sup> the nature of technology and warfare,<sup>90</sup> the degree of the institutionalization of the international system,<sup>91</sup> or other issues. Within rationalism, strongly systemic

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<sup>86</sup> Gilpin, *War and Change in World Politics*; Krasner, “Global Communications and National Power”; Grieco, *Cooperation Among Nations*.

<sup>87</sup> As it will become clearer later in the chapter, as far as utility calculations are concerned, neoliberals and neorealist approaches diverge. According to a neoliberal-institutionalist perspective states are essentially egoist in the sense that their utility function are independent one another and they do not gain or lose utility depending other states’ gain and losses. In other words, states are interested in absolute gains. This is not the case for realists whose interests in relative gains, make them sensitive to how well others perform. This element is all but inconsequential in the sense that for institutionalists interactions (including cooperation under a regime umbrella) does not affect utility functions challenging the very foundation of what an international society is indeed.

<sup>88</sup> This is better understood as an epistemologically motivated rule of theory construction, see Rittberger, 1997 p.24. The strongest forms of rationalism even assume that preferences are not only maintained over time but also across actors. This is because preferences are believed to vary according to the decisional environment and the external constraints exercised on players’ actions (strong systemic theories).

<sup>89</sup> Waltz, *Theory of International Politics*.

<sup>90</sup> Powell, “Absolute and Relative Gains in International Relations Theory.”

<sup>91</sup> Keohane, “Neoliberal Institutionalism,” 1–20.

theories are committed to the view that preferences are not only stable over time, but also across actors. In these understandings, variation in individual and collective behaviours can only lie in the decisional environment of “like units” (external constraints) since “the internal attributes of actors are given by assumptions rather than treated as variables.”<sup>92</sup> This vision implies that domestic politics is unimportant, at least when it comes to explaining that “small number of big and important things” in international life.<sup>93</sup> This is not the case for weak rationalists.<sup>94</sup> What is indeed a typical feature of both systemic theories (weak and strong) is that in interaction (including the one generated from and produced within a regime) preferences, along with other internal attributes of states, are given by assumption rather than treated as variables<sup>95</sup> and interactions (that happen when preferences permit) do not have any feedback effect on actors’ utility functions (nor identities).

Consistently, neoliberals and realists share the conviction that actors’ perceptions (or causal belief) need not to be addressed as troublesome and there is no need to problematize actors’ perceptions. When they admit the role of uncertainty in accounting for international politics outcomes, they tend to interpret uncertainty as an objective attribute of the system, associated mainly with the anarchy of the international arena and not with individual actors’ disposition or lack of knowledge (as cognitivists do).

In summary both neorealists and neoliberalists accept a paradigm which suggest a three steps approach to the study of international regimes: (1) First there is the specification of a set of constraints; (2) then a set of actors who are assumed to have certain kinds of interests; (3) finally, there is the behaviour of the actors which is related to those constraining conditions in which the actors find themselves. For a summary of the assumptions and main features of three schools see Tables 1.5 and 1.6.

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<sup>92</sup> Keohane, “Theory of World Politics: Structural Realisms and Beyond.”

<sup>93</sup> Walt, “‘A Few Big and Important Things’: The Enduring Legacy of Kenneth Waltz.”

<sup>94</sup> a weakly theory in this sense is Moravcsik’s version of neoliberalism, for an enhanced analysis see also Stein (1990)

<sup>95</sup> Keohane, *International Institutions and State Power*.

### **Interest-based theories**

As anticipated in the previous paragraph, neoliberals describe states as rational-*egoist*-utility maximizers, concerned only with their own (absolute) gains and losses (also known as negative altruists). One of the pioneer of the approach was Robert Keohane who departed from realist premises to arrive at liberal institutionalist conclusions.

Under this approach to international relations, regimes are analysed as strictly interests-driven phenomena with interests that are accounted for from the perspective of *mutually indifferent* actors. According to neoliberals, states' references are obviously strongly influenced by configurations of power, but cannot not be reduced to them. In particular, states which operate in particular issue-areas may share common interests which they can realize only through cooperation aimed at maximizing their utilities. In situations where shared interests exist, however, cooperation is not automatically generated. Institutions play a role in helping states realizing their interests.

### **Functional theories of international regime**

Robert Keohane is the author of one of the most influential theory of international regimes. Relying heavily on modern economic theories of institutions, the author developed a functional argument (contractualism) to explain the creation and maintenance of international regimes in situations of mixed-motives game resembling the Prisoner's Dilemma (PD). A second pool of contributions designed within the functionalist framework (as a sort of expansion of Keohane's core argument) are those provided by situation-structuralists (SS). These scholars expanded Keohane's perspective over PD-like situations by taking into account the whole spectrum of mixed-motive game interaction (not only collaboration, but also coordination, assurance, and suasion games). They have analysed the implication of different patterns of interests for the likelihood of regime formation as well as for explaining the institutional shape regimes take.

An additional approach, which enriches the functionalist analysis, is the problem-structuralism model. Problem structuralists simply add an element to the structuralist

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paradigm which values the nature of the issue at stake (in other words, the issue-area within which regime is bound to operate). The nature of the issue becomes an important variable affecting the likelihood and ease of regime formation in conflict situations (with insightful consequences).

Finally, Oran Young elaborated a model of institutional bargaining typically classified within the ranks of neoliberalism although displaying some peculiar characteristics with respect to core rationalist assumptions. If on the one side, the author acknowledges the critical roles that interests play in regimes' formation and maintenance, at the same time he detaches from rationalists in mitigating the structure-over-process framework they sponsor and for accepting a pervasive role to institutions (which is more similar to the one championed by cognitivists).

*Functionalism after hegemony.* Keohane's major study of regimes is found in his book "After Hegemony". In Keohane's view states are atomist, rational and egoist protagonists of the international stage, nonetheless contrary to dominant realist assumptions, states' egoism is considered "pure" by the author in terms of not influenced by other players' concurrent and/or perspective success or failure.

"Rationality means that [actors] have consistent ordered preferences and that they calculate costs and benefits of alternative courses of action in order to maximize their utility in view of those preferences. Egoism means that their utility functions are independent of one another: they do not gain or lose utility simply because of the gains or losses of others."<sup>96</sup>

In Keohane's approach, states preferences are treated as exogenously given. Consequently, he doesn't question how actors define and understand their interests and the effects that learning and ideas may have on that understanding.<sup>97</sup> The fact that states' interests (otherwise said, utility functions) are not explained within the theory is the major reason why Keohane himself consider his contribution as incomplete inviting additional research activities aimed at better comprehending how actors understand and evolve their interests.

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<sup>96</sup> Keohane, *After Hegemony*, 1984, 27.

<sup>97</sup> Keohane, 16.

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Contractualists, including Keohane, propose a *functional theory* of regimes that “accounts for causes in term of their effects”, where the functional argument explains both regimes’ formation and persistence. A functional explanation implies that we observe a phenomenon (regime) and only afterwards, we rationalize its existence.

“Rational choice theory, as applied to social institutions, assumes that institutions can be accounted for by examining the incentives facing the actors who create them and maintain them. Institutions exist because they could have reasonably been expected to increase the welfare of their creators.”<sup>98</sup>

Keohane identifies as a *necessary* (although not sufficient) condition for regimes’ formation and functioning the one where actor-states have a mixture of complementary and conflicted interests that can realize through cooperation (mix-motives situations).<sup>99</sup>

Keohane withholds that states in many situations do have mutual interests and international politics is not a zero-sum game; according to the author, a mixed-motives pattern sets out more often than the realists think it does. As anticipated, although the existence of some common interests represents a necessary premise, it is not a sufficient condition for cooperation: it cannot be taken for granted that states with a common interest also decide to cooperate. If common interests are there, cooperation only occurs when actors adjust their behaviour to the actual or anticipated preferences of the others.<sup>100</sup> In Keohane’s view, the Prisoner Dilemma game impeccably captures the essence of this collective action problem and the related impasse – which indeed also identifies the space for regimes intercession.

Two-persons prisoner dilemma (PD) is a symmetrical game, where each player prefers mutual cooperation to mutual defection, yet is better off when, while defeating, can benefit from the unrequited cooperation of the partner. On the other hand, ending up as the one who behaves cooperatively with the other doing the opposite is the outcome which is last desirable form either player’s point of view. It follows that defection is the dominant strategy: each adopts the strategy of not cooperating, of

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<sup>98</sup> Keohane, 80.

<sup>99</sup> Keohane, 6.

<sup>100</sup> Axelrod and Keohane, “Achieving Cooperation under Anarchy,” 226.

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not choosing the course of action, which puts his partner in a position to achieve its best option (see Figure 1.1)

It is clear that cooperation (C) under a single PD shot is very unlikely because each player will find rationale to guard themselves from the risk of incurring in his worst outcome (CD). As a result, both players will do worse than they could have done had they chosen a concurrent cooperative course of action (CC). The paradox is obvious, the players have common interest in achieving the (CC) outcome, which at the same time they are unlikely to realize. Defection would seem perfectly rationale because it secures the player a higher pay off no matter what the other decides.

The situation is complicated by the fact that it is not enough that the actors become aware of their situation and agree that they both should cooperate, since each actor – under a mere utilitarian drive - would continue to prefer his own exploitation of his partner's cooperative attitude (DC) to mutual cooperation (CC). If both defect the result is inefficient, nonetheless mutual defection (DD) is the only equilibrium outcome possible.<sup>101</sup> However, the two players still have a common interest in preferring a CC outcome over a CD one. According to neoliberals means/tools do exist that can help players (states in our metaphor) to realize such common interest. Consistently, the most general proposition of functionalist theory – that focuses on a specific one among these instruments - is exactly that *regimes can facilitate international cooperation*. To do so they do not need to change actors' interests (utility functions), values or the overall structure of the system (the PD game maintains as well as the payoff structure), on the contrary regimes operate by altering the strategic environment where the decisions are taken. Regimes change “the calculations of advantages that governments make.”<sup>102</sup> Speaking the game-theory language, regimes do make a strategy (different from the dominant one) more rational for the actor, without altering the pay-off structure.

For states locked in a PD situation, cooperation (CC) becomes a viable option also for egoistic utility-maximizers players (which might be happier with a CD outcome but are better off with a CC outcome than a DD one, the only equilibrium possible if the

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<sup>101</sup> The preference order of both players from their respective point of view is DC>CC>DD>CD

<sup>102</sup> Keohane, *After Hegemony*, 1984.



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regimes wouldn't come into play). This approach is very useful for the discourse of this work because it allows to discern conceptually between regimes (the cause) and the cooperation (the effect) including the potential manifestations/materializations regimes can bring about (ad hoc agreements). Regimes facilitate the making of substantive agreements by providing a framework of rules, norms, principles and procedure for negotiation. The main problem actors embedded in a Prisoner Dilemma situation face relates to *uncertainty*. In the international arena as well, states are uncertain about what their partners are planning to do in present and in future situations. Consequently, states are often inclined to opt-out cooperation for fearing of being cheated and double-crossed (resulting in a CD scenario with which they would be worse off than a DD one). Regimes intervene in this process by reducing uncertainty in three ways: First, regimes provide states with information which they would not have otherwise access. Secondly, they reduce the information costs. Lastly, they generate reputational costs in case of cheating. More and cheaper information reduce the risks of defection, as it does the risk to pay a price for a deceitful behaviour. The information mechanism work in the sense that it increases the probability of being caught.

Reputational effects do exist in the sense that that regimes provide standards of behaviour against which performance can be measured by linking these standards of behaviour to specific issues and by providing a forum - often through international organisations - in which these evaluations can be made and discussed. Reputation matters particularly because regimes end up being nested one another and consequently the violation of a particular agreement by a state has backlashes beyond that particular issue and over that particular time and then to influence that cheater perspective negotiations in the future (linkage). Linkage does not only connect diverse issue areas but also distance time. Regimes stretch the "shadow of the future" to discourage immediate defection because it could undermine future gains. It follows that, provided that the decision to cooperate may be reversed if someone discovers to be "exploited" or not "reciprocated", actors can always stop current cooperation and its sufferance will end quickly.

The significance of this argument is also very well explained by the work of Robert Axelrod. Axelrod has shown that in a reiterated PD game, played over and over again

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by the same (egoistic) players, cooperation can be maintained by a reciprocal strategy even in the absence of a central enforcement agency. Tit for tat provides that future gains and losses are not too heavily discounted by the actors.<sup>103</sup> Axelrod found that in these sequential bargaining situations, “tit for tat” strategy is the most successful. In this strategy, one player begins with a cooperative move and thereafter responds in kind to each action of the other. If the first cooperative move is reciprocated the original player will continue cooperating until the partner defects. Then swift punishment follows. In other words, good is to be turned for good bad for bad. Hopefully the defector will go back to a cooperation pattern.<sup>104</sup> For Axelrod, through “reciprocity” cooperation is made stable. Along these lines, regimes improve the conditions of application of the reciprocity strategy.<sup>105</sup> The reputational argument is important in Keohane’s analysis because it allows the author to mitigate the use of “tit-for-tat” strategies in real world situations, especially as far as sanctioning is concerned which represent in itself a collective action problem (someone has to bear the costs of defectors’ identification and punishment).

Since Keohane applies the functional perspective to explain regime formation, and regimes are created because they bring advantages principally enabling actors to cooperate, it follows that states are more likely to create a regime if the set of potential mutually beneficial agreements in the issue area is large or in Keohane’s words “the policy space is relatively dense”.<sup>106</sup>

Regime maintenance is linked to the transactional costs that the creation of regimes themselves implies for state-actors. Functionalists hold that regimes frequently persist even after the conditions that have led to their creation have disappeared exactly because creating a regime is so difficult in the first place and their dismissal is not free for those who want to quit.

“Ironically if regimes were costless to build there would be little point in constructing them. In this case, agreements would also be costless. Under these circumstances governments, could wait until specific

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<sup>103</sup> Keohane, 76.

<sup>104</sup> Even though this approach would imply a sort of “learning capability”, which is not exactly respondent to the interests-based approach assumptions.

<sup>105</sup> Axelrod and Keohane, “Achieving Cooperation under Anarchy,” 250.

<sup>106</sup> Keohane, *After Hegemony*, 1984, 79–90.

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problems arose, then make agreements to deal with them; they would have no need to construct international regimes to facilitate agreements. It is precisely the costliness of agreements and of regimes themselves that make them important. The high costs of regimes building help existing regimes to persist.”<sup>107</sup>

In 1997 Hasenclever, Mayer and Rittberger offered a critical examination of the contractualist theory which highlighted the following aspects.<sup>108</sup> First they observed, as Keohane himself had done already, that to the extent that contractualist stances have entered into empirical research they have produced mixed results. A second observation they raise concerning the argumentative structure of functional regime theory regards the post hoc propter hoc fallacy which seems to apply to Keohane’s reasoning in that he assumes that actors are rational (without showing it). A third issue regards the existing but confused relationship existing between the concepts of cooperation and regimes and between regimes and ad-hoc substantive agreements and their empirical implication for the study of compliance). Partially linked to the previous point is the fact that by arguing that states create regimes to enable themselves to conclude agreements (with regimes that must be regarded as regimes themselves), the argument suffers from a fundamental circularity.<sup>109</sup>

*The situational-structural approach (a game theoretic extension of functional regime theory).* To this stream belong, inter alia, Arthur Stein, Duncan Snidal, Kenneth Oye, Michael Zürn and Lisa Martin. These scholars assume that interactive situations in international relations among states cannot be reduced to Prisoner Dilemma-like settings because the game does not always reflect real world situations for at least two interconnected reasons.

On the one side, Duncan Snidal shows that PD related main assumptions need to be relaxed across several dimensions: number of strategies available, numbers of players, the distribution of power among them, and number of iterations of the game.<sup>110</sup> The

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<sup>107</sup> Keohane, 103.

<sup>108</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 39–44.

<sup>109</sup> Oye and Studies, *Cooperation under Anarchy*, 20f.

<sup>110</sup> Snidal, “Coordination versus Prisoners’ Dilemma.”

author explains (1) how the fact that states face only a dichotomous choice is a “drastic simplification of the wider menu of choices typically available” and the need is there for a “graduated” variant of the Prisoner Dilemma. (2) Along these lines, an extension of the two-actor PD to the n-actor situation is also required and must incorporate careful consideration about the impact of asymmetry within the group of states. (3) Finally, as already pointed out in the previous paragraph, traditional PD-like approaches are inherently static while iteration in the real world is often repeated. The relaxation of states’ traditional 2X2 PD model’s assumptions has several implications over cooperative outcomes (see Table 1.7).

On the other side, and partially linked to the previous point, the “Dilemma of Common Interests” (which is the name Stein assigns to PD bargaining) although crucial, does not exhaust all the strategic situations where individual and collective rationality comes at odds. For this reason, PD-like situations should be addressed as only one type out of many collective action problems potentially requiring the beneficial interlocking of international regimes. More precisely, situation structuralists expect that different situations require to be “managed” by different kind of regimes.

In coordination games, several pareto-efficient equilibria exist and actors face the problem of picking one of them collectively.<sup>111</sup> As long as the actors are indifferent about which equilibrium to pick (pure coordination), they do not face a real collective action problem, which instead arises whenever actors favour different coordination outcomes (battle of sex) (see Figure 1.2). This is the case of a couple who would like to spend an evening together (not separate), but have different preferences concerning how to spend their time with their beloved one (for example between watching a movie or going to the opera). Two pareto optimal equilibria exist and they are both preferred by a situation of not coordination (each going to its favourite place alone). Cooperating in this case means to allow the other to make the choice of the venue. However, since both points are equilibria, the coordination, if successful, is expected to be stable.

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<sup>111</sup> A Nash equilibrium is an out come from which no actor can depart unilaterally without suffering a loss of utility.

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Some authors, like Stein accept only these two types of situations as those in which states may find in their interest to cope. According to other “voices”, in particular Zürn and Martin two further types of situational structures may be at stake: assurance (stag hunt) and suasion (Rambo) games. Since the “assurance” and “suasion” strategic interactions are particularly suitable to explain security-issue scenarios, their analysis is indeed endorsed in the following chapter.

According to the structural-functionalist’s point of view, regimes have the same function already settled by Keohane: they facilitate cooperation mainly by enhancing communication/transparency among actors.

Moreover situation-structuralists argue that distinct collective actions pose very different problems and consequently appropriate institutional solutions (=regimes) can be/should be very different, as well. For this reason, in the following chapter, I will comment the main individual features of the regime-types that are born to respond to different collective-action problems typically emerging in the security domain where the non-proliferation of biological weapons should be located. Such analysis will be crucial for understanding compliance measures required in order to make regimes work properly.

*The problem-structural approach.* Michael Zürn, Klaus Dieter Wolf, and Manfred Efinger are the main authors ascribable to this stream. Their contribution develops from the assumption that regimes are “*partial orders*” and pertain to specific issue-areas, for example trade, money, arms control. Since in a rational/functionalist framework neither the attributes of the actors nor the characteristics of the international system, as a whole, can account for the variation of the behavioural patterns across issue-areas or for the empirical discontinuity in regime formation across them, these scholars assume that it is the very nature of the issue area to play a major role. Notwithstanding the assumption is not very distant from the one of situational structuralism - if we admit that different issue areas can broadcast diverse interactive strategic situations (and mirror diverse collective action problems) – they have been considered as fitting uneasily in the interest-based school of regime theory. According to Hasenclever, Mayer and Rittberger this was mainly due to the fact that 1) problem structuralists themselves have not clearly established a link with the other interest-based approaches; 2) their propositions cannot simply subsumed under

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neoliberal theories (e.g. in that they admit that “sometimes” states are sensitive to relative gains and in that they assign key role to issue-areas). Actually, although the very concept of “issue-area” is explicitly expressed in the consensus definition of regime by Krasner, nonetheless it can hardly be seen as completely detached by states perceptions about specific issue-areas boundaries. The concept of issue-area has not been object of any special interest with detrimental repercussion on the analysis of those regimes that do not exhaust their substance in a single treaty. In other words, when it is not possible to equate regimes with specific treaties, room is there for other agreements (possibly belonging to other issue-areas) to intervene. A second example is the literature over non-regime which have championed the idea that non-regimes are issue-areas in which states failed to establish an institution (without being clear about what issue-areas are).

Proponents of a structural problem approach, have described the notion of issue area as follows:

“Issue areas [...] consist of one or more, in the perception of the actors, inseparably connected objects of contention and of the behaviour directed to them. The boundaries of issue-area are determined by the perception of the participating actors.”<sup>112</sup>

As noticed by Hasenclever, Mayer and Rittberger, however, the *perception-dependency* of issue areas deserves to be highlighted because implies that issues areas can indeed “change without any corresponding change taking place in the objective facts to which policy makers make reference.”<sup>113</sup> What matters here is not only that issue areas have boundaries that can change over time (without the objective facts beneath to change), but that the way issue-areas are generated, even within the same period of time, is itself a highly political process. If derived by a perceptive process states undertake, the pool of objects belonging to a specific issue area again cannot be taken as granted. To those that have lamented the fact that the letter “objects of contention”, in the issue-area definition reported above, turns regime cooperation

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<sup>112</sup> Efinger and Zürn, “Explaining Conflict Management in East-West Relations: A Quantitative Test of Problem-Structural Typologies.”

<sup>113</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 61.

into a sort of conflict management (and thus draws the approach away from Keohane's one), it seems preferable the position of those who understand the term as implying a notion of *positions-differenzen*,<sup>114</sup> that means different position (not necessarily conflictual). This would be an interpretation closer and better aligned with the mixed motives settlements existing in PD like situations.<sup>115</sup>

As the situational functionalists do, the problem structuralists assume the existence of an empirical relationship between conflict's typologies and the forms of behaviour they give rise to.

Ernst Otto Czempiel has provided a simple typology to classify *issues areas* of international politics on the basis of their propensity to resolve conflicts that may arise through cooperation or rather self-help strategies.<sup>116</sup> He pinpoints three policy domains: security, economic well-being, and system of rules. He holds that policy domains under which regimes happen to develop, influence the propensity to the cooperation development.

Czempiel suggests that economic issues display a greater propensity to cooperative management than the other two domains since divisible gains rather than indivisible ones characterize them.

Efinger and Zürn have enriched the analysis with a further classification on the basis of the "object of conflict / "Positions-differenzen".<sup>117</sup> Again, the idea is that inherent properties of the "object of contention" account for at least part of observable conflict management settlement. These scholars distinguish four types of conflicts: conflicts about values, about means, about relative-interests (that tend to be assessed relatively) and about absolute-interests (that tend to be assessed absolutely). The object-conflict typologies can be prioritized according to their regime-conduciveness as follows: (1) conflicts on absolutely assessed goods (high conduciveness to regime

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<sup>114</sup> By this criterion, problem structuralism is not easily subsumed under interest based theorizing. According to neoliberals, states are rational egoists who are indifferent to how well others do.

<sup>115</sup> As pointed out by HMR, what (if anything) distinguishes the two positions is the emphasis on common interests in one case and contention in the other: In Keohane's view common interests are the basis for cooperation, problem structuralists highlight the conflictual background of regime based-cooperation.

<sup>116</sup> Czempiel, *Internationale Politik*.

<sup>117</sup> Efinger and Zürn, "Explaining Conflict Management in East-West Relations: A Quantitative Test of Problem-Structural Typologies."

formation), (2) conflicts on means (medium conduciveness), (3) conflicts on relatively assessed goods (low conduciveness), (4) conflicts on value (very low conduciveness). Such an analysis is, in the end, not so much different from the one depicted by situationalists. It might be argued indeed that “situation-structure” (PD, Battle of sex, stag hunt, etc..) are just another way of classifying “issue areas” and/or the “type of conflicts” that dominate them and what really distinguishes problem-structure scholars from situation structuralists approach are the specific tools (game theory) that the latter use.

*Institutional Bargaining: Oran R. Young Model.* Oran R. Young is one of the most prolific and valuable scholar in the field of regime analysis and, without any doubt, one of the pioneer of the subject. According to Young’s definition of regimes, already reported above, regimes are *agreements*.<sup>118</sup> Such a definition implies that regimes do not need to be explained by referring to their function (which is to provide the permissive environment for agreements (or cooperation)), like the functionalists would do. On the contrary, the author is closer to formal approaches. Young contribution to international regimes literature is wide-ranging, here it is considered only his “institutional bargaining” model of regime formation since this gives fruitful insights for the objectives of this work.<sup>119</sup> The model stresses the importance of the bargaining process which is meant to result in a “constitutional contract” that would specify the content of a regime for the issue area in question.<sup>120</sup> The author uses the term “institutional bargaining” as a shorthand for “bargaining with the objective of creating an institution” and he focuses the analysis on what he calls “negotiated regimes”.<sup>121</sup> Under a descriptive point of view the model seeks to outline the essential circumstances under which collective efforts to form regimes habitually take place.

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<sup>118</sup> Keohane explains regimes in term of the agreements they facilitate, this is not possible for Oran Young according to whom explaining regimes is only explaining a kind of agreements (for which Young uses the term “constitutional contract”).

<sup>119</sup> Young, “Political Leadership and Regime Formation,” 282.

<sup>120</sup> Young, “Political Leadership and Regime Formation.”

<sup>121</sup> Juxtaposed with “spontaneous” and “imposed regimes”, see also Oran R. Young “Regime Dynamics: The Rise and Fall of International Regimes” in ed. Stephen D. Krasner “Structural causes and regime consequences: regimes as intervening variables” in *International Regimes*, Ithaca, Cornell University Press, p. 93-113.



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The theory is interest-based in the sense that actors are considered as selfish players who confront with both the possibility of achieving joint benefits and the difficulty of setting upon a specific set of norms and rules for the purpose. However, Young's model also settles a critic of mainstream rationalists' "bargaining environment,"<sup>122</sup> which he sees as overoptimistic and not realistic.<sup>123</sup> His view is more contingent and the author argues that in real world situations actors are usually uncertain about the strategies the counterpart may employ or about the strategies available to themselves at all. Often state-actors are only vaguely aware of the outcomes they may get, and not sure about how the outcomes related to their interests. Nonetheless, according to Young it is exactly the initial absence of a specified and commonly known comfort-zone of agreement that, in real world situations, allows the parties to come to a final agreement: "once uncertainties are recognized, they produce a disposition in the actor to engage in integrative (rather than distributive) bargaining."<sup>124</sup>

In Young's model uncertainty is a structural condition, which enables actors to form regimes

From an analytical perspective, Young's model identifies a number of factors that are critical for the success of states when it comes to design formal agreements.<sup>125</sup> These features are also critical for the understanding of compliance issues (see later in the chapter). Factors encouraging and promoting the success of integrative bargaining are (1) contractual environment blurring the zone of agreement and veiling the future distribution of benefits; (2) exogenous shock crisis; (3) availability of equitable solutions (unanimity solution); (4) existence of a salient solution, which derives from simplicity and clarity;<sup>126</sup> (5) availability of clear cut and effective compliance mechanisms; (6) Mixture of entrepreneurial, structural, and intellectual leadership.

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<sup>122</sup> Young, "The Politics of International Regime Formation."

<sup>123</sup> Young, 358.

<sup>124</sup> Keohane's theory of regime formation also gives a central role to uncertainty, but (differently from Oran Young) he refers to actors' uncertainty about what their partner will do. For example: will they keep their promises? In Keohane's account uncertainty motivates state to create regimes that reduce uncertainty.

<sup>125</sup> Young, "The Politics of International Regime Formation," 349–52.

<sup>126</sup> Salience as here expressed it is not incompatible with the veil of uncertainty since: "while a salient solution must be formulated in a simple manner that it is easy for everyone to grasp and remember, its very simplicity may also cause ambiguous and uncertainty, leaving much to be resolved after the regime is in place".

### **Power-based theories**

“Power-based” theories, like their interest-based counterpart, espouse rationalist assumptions concerning the international system and the nature of state actors in it: states are considered atomistic and selfish utility maximizers acting as main characters in the anarchic system. However, realists also differ from neoliberals in many respects. First, realist theories of international regimes emphasize power capabilities (and not interests) as the central explanatory variable accounting for the formation, normative content and the perspective impact of regimes. Second, they stress states’ sensitivity to relative gains and distributional aspects of cooperation, insisting on the fact that the utility functions of states are (at least partially) interdependent with important consequences for international regimes, one above all the fact that the gains achieved by partners through mutual cooperation may diminish considerably the utility of those states are less rewarded by participation (and consistently their willingness to cooperate in the first place). A third distinctive element of realism, linked to the latter argument (emphasis on relative over absolute gains) is that realists tend to regard the effectiveness and the robustness of regimes as more narrowly circumscribed than functionalists do.

As anticipated in the introduction structural realists have in general deserved little attention to international regimes which they see as affecting international politics only on the margin. However three formulations, which are self-consciously realists, and yet take into great account international regimes, are useful for the present analysis: Gilpin’s (theory of hegemonic stability), Krasner and Grieco.

*Gilpin: theory of hegemonic stability (HST)*. The theory of hegemonic stability is a classic example of a power-based theory of IR. The theory links the existence of effective international institutions to a particular kind of power distribution (unipolar) in the issue-area in question.

Once the unipolar power structure that underlines a given regime dissolves, however, the regime itself is bound to collapse or turn into an ineffective cluster of norms and rules which are violated whenever the states perceive it is in their best interest to do it.

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In other words, Gilpin believes that actors that have predominant sources of power in a specific issue area only provide for regimes should they take advantage by that cooperation and that those regimes are bound to decline (that means they lose their robustness and effectiveness) when that power comes to be more equally distributed among regimes' participants.<sup>127</sup>

The theory has its origin from the work by Charles Kindleberger on the Great Depression<sup>128</sup> (in turn strongly inspired by Olson's theory of collective action (oriented to the provision of public goods)). The main idea informing this contribution is that public goods are characterized by the fact that the exclusion of any member of a group from the consumption of the good is not necessarily economically/practically feasible. The impossibility of exclusion has negative repercussions on the incentives states have in conforming to others' behaviour, de facto providing room for free riding strategies to take floor. The free-riding problem has devastating consequences on large groups, vice-versa small group are slightly privileged by the fact that at least one member of the group has usually a sufficiently strong interest in the good to make it rational to provide the good even though no one else shares in the cost.<sup>129</sup>

Kindleberger has applied these reflections to international politics and in essence has stated that only the presence of an exceptional economic and political power, which has the capacity and the willingness to lead other states, can "credit" the group by supplying and supporting the infrastructure that permits regime's sustenance and comparatively smooth and mutually beneficial exchange to take place.

Kindleberger believed that great powers power cooperation's could not substitute for one state shouldering the burden of leadership, and consequently he regards the relative decline of the U.S. starting in the late 1960 with some concern.

"The danger we face is not too much power but too little, not an excess of domination but a superfluity of would-be-free riders unwilling to mind the store and waiting for storekeeper to appear"<sup>130</sup>.

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<sup>127</sup> Keohane, "The Theory of Hegemonic Stability and Changes in International Economic Regimes 1967-1977."

<sup>128</sup> Kindleberger, *The World in Depression, 1929-1939*, 305.

<sup>129</sup> Olson, *The Logic of Collective Action*.

<sup>130</sup> Kindleberger, "Dominance and Leadership in the International Economy."

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As far as cooperation is concerned, it is clear that the HST implicitly denies the ability of states to engage in large scale collective action: no regime emerges in an issue area, unless a preponderance of power exists in the group so that the collective good can be supplied by independent action. Consistently, the regime would wane or stop existing when power distribution changes.

This vision belies a certain scepticism about international cooperation and sanctions the impossibility of a second order cooperation in the domains of rule-making and rule enforcement, since the costs implied in such activities would not be shared by some states but entirely borne by one (the hegemon).<sup>131</sup>

Snidal, in its critic to HST, identifies two types of hegemons and two variants of hegemonic theory.<sup>132</sup> In the first one, the “benevolent hegemonic state” provides the collective good (in this case an international regime) all by itself while the other states are basically free from the responsibility of maintaining the regime (smaller actors actually receive rents due to the hegemon’s action). The second variant, which Snidal calls the “coercive leadership” models and which he finds best represented in Gilpin’s approach, assumes that a dominant state is required to produce the international public good. In this case the asymmetric size of the actors in the issue area implies that the hegemon can and does use its superior power to force other to contribute as well. The two settings are not logically incompatible and we can and a combination of coercion and benevolence is absolutely possible.<sup>133</sup>

*Krasner*. According to Stephen Krasner the “basic issue in [in the policy] of regime formation is where state will end up on the Pareto Frontier, not how to reach the frontier in the first place”.<sup>134</sup> In other words, according to the author, what is interesting to understand and anticipate in regime analysis, are the outcomes that regimes mediate: “who gets what?”. In his view, this dynamic is nicely captured by the

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<sup>131</sup> First order cooperation takes place whenever states adjust their policies with regard to certain substantive issues in a multilateral beneficial way. Usually, such cooperation is aided or structured by agreed-upon rules of conduct or regimes. What the concept of first order cooperation leaves open is how the rules of cooperation come about and why they are observed by self-interested actors, who sometimes must sacrifice greater short-term gains in order to act in accordance with regime. This is where the notion of second order cooperation comes in. Both rule making and rule enforcement involve costs. When several actors share these costs, we do speak of second order cooperation.

<sup>132</sup> Snidal, “The Limits of Hegemonic Stability Theory.”

<sup>133</sup> Snidal, 590.

<sup>134</sup> Krasner, “Global Communications and National Power,” 336–66.

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battle of sex model (and not by the PD which provide for a single cooperative outcome): states often have unambiguous preferences for coordinating their activities in an issue-area and mutual unilateralism is their “common aversion”, however they clash in that they favour different institutional arrangements (for example different points of coordination).<sup>135</sup>

For this reason, Krasner believes that the coordination games are heuristically more fruitful points of departure in the analysis of international regimes. The first implication of recurring to coordination situations for explaining international relations is admitting that cooperation (coordination in this case) is not achieved by mutual adjustment (like it is the case of the PD/collaboration), but by one partner adjusting to the other. Consequently, the distributional bargaining (and not cheating) represents the problem the regime should and can address.

Cheating does any longer appears as a key factor hampering efforts to cooperate for mutual advantage, because changing one’s mind unilaterally involves a loss of utility for the cheater as well.

This means that intelligence and a guarantee of adequate information is devalued as a mean of solving the cooperation problem.<sup>136</sup> By converse, since the cooperation problem regards mainly the distributional bargaining, power becomes the mean of deciding such conflicts during the process of regime formation.

Krasner specifies three ways in which power can be deployed to solve collective action problem in situation similar to the battle of sex: (1) First, power may be used to determine who can play the game in the very first place. In international relations, less powerful actors are often never invited to the table of bargaining; (2) Power can be used to dictate the rules of the game (for instance who gets to move first); in the game, the player who moves first can decree the outcome, provided that the other player is convinced the first player strategy is irrevocable. (3) Finally, power may be used to change pay-off matrix.<sup>137</sup> These statements (especially the latter) appear to be quite in contrast with the ones incorporated into situation-structuralist approaches. Nonetheless, he departs from a similar background analysis: the basic

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<sup>135</sup> Stein, “Coordination and Collaboration,” 115–41.

<sup>136</sup> Axelrod and Keohane, “Achieving Cooperation under Anarchy,” 231.

<sup>137</sup> Krasner, “Global Communications and National Power,” 340.

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unit of analysis of situations-structuralism - the distribution of interests - is not here strictly prior to power politics and in part it is a function of the distribution of capabilities itself. Thus, a state with more abundant resources (military, economic or otherwise described) may manipulate the other's preference ordering, by means of threats and promises, and tactical issue-linkage. Consequently, the powerful state becomes able to transform a pure coordination game into one in which there is only one pareto-efficient solution left: the one favoured by the more powerful actor.<sup>138</sup> It is worth noting that bargaining leverage may also be derive from unequal opportunity costs of change: the actor less in need of cooperation can get his way by credibly threatening to leave the table, if the other side fails to be more forthcoming.<sup>139</sup>

As anticipated, within this framework, asymmetrical information stops being a critical element and the contribution regimes can provide in increasing transparency is lowered by the direct connection existing between capabilities and outcomes. Regimes relevance is inevitably decreased by an "analysis [that] seeks to explain outcomes in term of interests and relative capabilities rather than in terms of institutions designed to promote pareto optimality."<sup>140</sup>

Nonetheless, the author maintains that regimes are necessary for at least two reasons: because of the "common aversion" to uncoordinated actions and to "establish stability".<sup>141</sup> What's more they can be a source of power themselves. Thus, even structurally weak states can sometimes exert a modicum influence on the collective policies in an issue area due to membership and voting rules of the international organisations that often rise within the regime: "If regimes did not have significant distributional consequences, actors would not so often continue to be fought even after the establishment of an institution."<sup>142</sup>

*Grieco: Modern Realism's Theory of Cooperation among Nations*

In a series of publications on the topic, Joseph Grieco has qualified the claim that international institutions play an important role in states' cooperative ventures. His

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<sup>138</sup> Krasner, 340f.

<sup>139</sup> Krasner, "State Power and the Structure of International Trade," 28.

<sup>140</sup> Krasner, "Global Communications and National Power."

<sup>141</sup> Strange, "Cave! Hic Dragones," 397.

<sup>142</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 108.

interpretation of the realist theory of international cooperation does have interesting positive implications for the study of international institutions.<sup>143</sup> What we observe, in real world situation is that, even in a “realist” world, states have incentives to create international institutions, which in turn help them to manage the risks of cooperation. With the objective of providing evidence to this statement, Grieco offers a more detailed explanation of two typical realist features: states attributes and anarchy.

As far as state attributes are concerned, the author is the one who have first described states as utility maximizers (and not simply rational egoists) implying that relative gain counts. Under this perspective, the he goes even a step further when he combines this aspect with some situationalist/problem structuralism flavour by specifying that relative gains count in diverse measure depending on the issue area where the interaction takes place. In other words, the actors’ sensitivity to relative gains ( $k$ ) change across issue-areas  $U = V - k(W - V)$ . Where  $V$  and  $W$  are relative advantages of the two players, and  $U$  the Utility of one of them.

Concerning anarchy, Grieco focuses on the fact that the absence in the international system of an agency that enforces promises, and even more important that guarantees states they survival as independent units of the system, is highly consequential for regime studies.<sup>144</sup> Anarchy poses not only a problem in term of short-term survival (each unit bears exclusive responsibility for safeguarding its own endurance and independence) as other scholars had already pointed out, but also a problem of long-term existence (not to be only understood in terms of relative and absolute declines). It is not necessary that states are in immediate danger to worry about regimes today because the uncertainty inherent in the anarchical international system causes further concerns about states’ relative positions in the future;<sup>145</sup> In other words, state have to worry not only about their current bargaining power but also about their (and the others’) future one.<sup>146</sup>

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<sup>143</sup> Grieco, “The Maastricht Treaty, Economic and Monetary Union and the Neo-Realist Research Programme,” 1995.

<sup>144</sup> Grieco, “Anarchy and the Limits of Cooperation,” 1988, 497.

<sup>145</sup> Grieco, 500.

<sup>146</sup> Grieco, *Cooperation Among Nations*, 24.

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The fact that in international politics the gains of another do detract from one's own level satisfaction, does not rule out that sometimes state may decide to cooperate to further common objective and according to the author: international institutions can still be instrumental in many ways. Not only regime can mitigate cheating problems but also can affect the variables that determine the severity of relative gains concerns over states policy decisions, as for example the sensitivity of actors to relative losses. As to actors' intolerance for relative loss, Grieco speculates on the possibility of institutions promoting a norm of reciprocity which, to the extent it is regarded as effective, makes it easier for states to accept relative losses in one period on one issue as they expected to be compensated in a later period or on another issue since regimes increment connections between issue areas.

Conclusive remarks over contractualist approaches

Although avoiding the term socialization, contractual institutionalism acknowledges the possibility that extended social interactions in institutions can alter actors' behaviours by changing the strategic environment in which actors are called to take action. However, institutionalists still give little or none importance to actors' preference change. According to them, actors generally emerge from interaction inside institutions with the same identity with which they entered into them. Likewise, actor's characteristics are not able to affect the attributes of the institution itself. According to contractualism, an efficient institution should only reflect, in principle, the nature of the cooperation problem it was born to solve and not the nature of the actors involved that, in turn, do not change because of the institution.<sup>147</sup> As explained above, Institutions elicit pro-group behaviour in basically three ways: information, reputation, and issue-linkage. According to a strict contractualist perspective, the three mechanisms only affect beliefs about the strategic environment in which the

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<sup>147</sup> To be more precise, according to some institutionalists (Wallander, 1999) actors' preferences do change, however these scholars do not charge institutions with being responsible for such variation. Johnston also reports that other contractualists claim to the contrary that preferences can be modified exactly by participation to international institutions through a mechanism called *complex learning* (Keohane, 1984). Still the process, as described by Nye (Nye 1987), does not, in my opinion, belong purely to an institutionalist vision, rather than it straddles both institutionalism and constructivism. Complex learning indicates a process in which new information alters prior beliefs about the world; this results in new priorities and trade-offs. However, this information does not work by reducing uncertainty, like in traditional institutionalist approaches, but it seems to induce a cognitive change hitting preferences and not only beliefs.



actor is operating, leaving preferences fixed. Pro-social and cooperative behaviour in institutions are positively related to the degree of transparency in the strategic environment and of material and/or reputational side payments or sanctions provided by institutions or other actors within the institutions.

A main problem related with this approach is the alleged automatism by which information (the same discourse applies to issue-linkage and reputation, as well) seems able to change the strategic environment reducing for example the uncertainty of international scene and consequently facilitating cooperation.<sup>148</sup> The point is, according to Johnston, that in the process of sharing new information, interpretation should matter a great deal more than nothing. Empirically we know that the same information can be perceived differently depending on whether it comes from people “like us” or a devalued “other”. Institutionalists scholars have responded to this type of critiques by recurring to Bayesian signalling games (also called up-date beliefs), in which the credibility of the signals in conveying information depends in many instances on prior social relationship and interests formed from this. However, as Johnston points out, much of signalling literature only partially replies to the critique since it focuses on how the context of information alters beliefs about the credibility of the information and not identities.

Johnston instead underlines, relying on tests performed by Alker, that a string of cooperative interactions can lead players to take the same information – e.g. a defection by the counterpart – and to reinterpret it as a mistake or as a consequence of the situation rather than of the other’s player disposition.<sup>149</sup>

However, institutionalists do not rule definitively out changes in preferences and there is no reason why the new information cannot also lead to a redefinition of interests. But to date, if preferences do change, institutionalists have tended to look for a change in distribution of power among national political/elite decision makers leading to a picture of “new interests reflecting new coalitions”. In Katzenstein’s words, in adopting economic styles of analysis, [institutionalists] often misunderstand concept as prestige and reputation, which they view as “force effects rather than

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<sup>148</sup> Johnston, *Social States*, 2008.

<sup>149</sup> Alker, *Rediscoveries and Reformulations*, 303–31.

social attributions".<sup>150</sup> As Johnston observes, the indifference institutionalists ascribe to socialization is somewhat surprising, though. Given the prominence of coordination games and focal points,<sup>151</sup> in institutionalist theorizing about social norms, habits and customs, one might expect more curiosity about the social-historical origins of focal points, that this scholarship by the way acknowledge as products of shared culture and experience.

### **Knowledge-based theories: ideas, identities and socialization**

Knowledge-based theories of international regimes stress the importance of ideas, knowledge, and identities as explanatory variables for states behaviour. Cognitivists are broadly critics of rationalist stances, which they consider, at best, incomplete. Interests and distribution of power should be, in their view, at least supplemented by "distribution of knowledge" (weak cognitivists) if not directly challenged (strong cognitivists). Cognitivists (weak and strong) contest the idea that states' interests exist by themselves (ready to be discovered by self-interested actors). On the contrary, in their view, interests are constructed through a process of social interaction. The theory proceeds by asking (1) what happen if (in contrast to realism) the milieu (the structure) where states take action wouldn't be determined only by the material capabilities of states? And (2) what if, institutions can have impacts, beyond interests (as neoliberals already think) on identities of states? In other words, and merging the two points: what if scholars should care about the cultural-institutional context of states acting in a system/society and not only of the strategic environment where decisions are taken?<sup>152</sup>

Knowledge-based theorists (strong and weak cognitivists) have indeed tried to issue warning against treating states' preferences and identities as given, and have attempted to draw attention on potential endogenous changes in the normative characteristics and properties of actors involved in international relationships. Inheriting much of the epistemology of sociology, these scholars have introduced into the structure-constrained realm of international relations, notions like intersubjective

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<sup>150</sup> Katzenstein, *The Culture of National Security*, 1996; Harriman, *Post-Realism*.

<sup>151</sup> Schelling, "The Strategy of Conflict Prospectus for a Reorientation of Game Theory."

<sup>152</sup> Katzenstein, *The Culture of National Security*, 1996, 17.

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meaning, interpretation, appropriateness, learning and more recently, socialization. They believe that a special consideration needs to be given to the study of those processes that produces state-identities and the objectives which states want to pursue in their foreign policies, with important implications for the study of international regimes. In fact, if these processes are outlined by the normative and causal belief of the decision makers, they are subject to change

Cognitivists are grouped in two sub-groups: weak and strong.

According to *weak cognitivists*, the demand of regimes in the international arena depends on the actors' perceptions of international problems. These perceptions are, in part, produced by the material environment where they are sited (e.g. distribution of power and interests) *and* partially ascribable to knowledge and ideas. Weak cognitivists contribution can be interpreted as a complementary one to mainstream rationalists' accounts for regimes since provide a further (with respect to distribution of power and interests) reason for preferences assembling. Weak cognitivists indeed accept the idea of states as rational utility maximizers, however assuming that perception of utility is influenced also by knowledge and that such knowledge is not attributable to material structure only. Knowledge is understood as an autonomous variable. These authors want to illuminate the process of preferences' formation prior to rational decision-making proceeding when strategic situations occur. Under this perspective, the contribution can be accepted as supplement to mainstream rationalist accounts (realism and institutionalism). On the contrary, strong cognitivists argue that knowledge operates at a more fundamental level *constituting* states and afterwards enabling them to engage in power games and/or cooperative undertakings. They posit the existence of an international society, which is structured by institutions, and thus provide for an real alternative theory of regimes to rationalist approaches. In other words, if international institutions must be regarded as embodying the cognitive structures that underpin international society, they obviously can't be considered problem-solving devices and their role cannot be limited to an instrumental logic as it happens with neoliberalism and realisms approaches.

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Although the two approaches are profoundly different from one another, and only strong cognitivists are linked to the so-called *sociological turn* in international relations, they both restore the role of not-fixed preferences and states' identity.

*Weak cognitivism*

Weak Cognitivists undertake three central assumptions that actually serve to answering a unique question, which they see as the critical problem of regime analysis: "How convergent expectations among independent actors in an international issue area" can be possible?"<sup>153</sup>

(1) The first assumption, which is widely held among cognitivists, regards the importance of intersubjectively shared meaning:

"Before states can agree on whether and how to deal collectively with specific problem, they must reach some consensus about the nature and the scope of the problem and also about the manner in which problem relates to other concerns in the same and additional issue areas".<sup>154</sup>

(2) Second, weak cognitivists emphasize the role of interpretation as a standing variable between international structure and human volition: "Before choices involving cooperation can be made circumstances must be assessed and interests identified."<sup>155</sup> Since interpretation is shaped by the body of knowledge that actors hold at a given time and place, at the same time preferences cannot be treated as simply given but analytically as contingent on how actors understand themselves, the natural and social world.

(3) The third proposition weak cognitivists champion, refers to the growing demand, on the part of decision makers, for scientific information and other supposedly reliable knowledge. Technological innovation devalues traditional strategies and redefines political priorities:

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<sup>153</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 140.

<sup>154</sup> Haas, "Introduction," 29.

<sup>155</sup> Adler and Haas, "Conclusion," 101–46.

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“in order to make clever choices in unfamiliar situations, decision makers need and often demand high quality information and expert advice. In other words, scientists and other experts are often in a position to reduce the uncertainty decision makers feel about what is in their interest.”<sup>156</sup>

Judith Goldstein and Robert Keohane, are among the first to gather evidences justifying the need to go beyond the rationalist mode of analysis and have investigated the impact of ideas on foreign policy.<sup>157</sup>

After assessing that a rationalist approach (null hypothesis)<sup>158</sup> has sometime proved ill-equipped to provide convincing explanations about state behaviours, cognitivists have argued that changes in behaviour, to some extent, can be explained by variations in principled or causal beliefs.<sup>159</sup> At least in those periods of time when power relations are in flux, and interests and strategies are unclear, new thinking may have a considerable impact on the course of international politics. According to the authors, ideas/beliefs works through three causal pathways. First, belief may serve as *road map* defining goals and means of states action. Second, they may serve as *focal points*, which help define acceptable solutions to collective action problems thus facilitating coordination.<sup>160</sup> Third, once incorporated into institutional frameworks, ideas and causal beliefs start *constraining* public policy as long as they are not effectively undermined by new scientific discoveries and knowledge.<sup>161</sup>

If knowledge is considered as an autonomous variable, it is clear that changes in beliefs may induce behavioural change. When it happens, the process is called learning.<sup>162</sup> In his work dedicated to the US-Soviet Security Regimes published in 1987, Joseph Nye extensively investigates the relationship existing between regime and learning. More specifically along a continuum of ends-means, the author identifies

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<sup>156</sup> Note that weak cognitivist uncertainty is more similar to Oran Young’s one and doesn’t really match with Keohane’s uncertainty regarding lack of reliable information about the behaviour and intentions of other states.

<sup>157</sup> Goldstein and Keohane, *Ideas and Foreign Policy*, 3–30.

<sup>158</sup> The “null hypothesis” presumes “that the actions described can be understood on the basis of egoistic interests in the context of power realities: that variations of interests are not accounted for by variations in the character of the ideas that people have”.

<sup>159</sup> Principal Beliefs consist of “normative ideas that specify criteria for distinguishing right from wrong and just from unjust” causal beliefs are “beliefs about cause-effect relationships”.

<sup>160</sup> Ideas as focal points have the same coordinating function in processes of regime formation that Krasner’s power oriented research program attributes to power.

<sup>161</sup> The notion that institution may prolong the impact of ideas corresponds to what Krasner referred as the tectonic plates version of the theory of hegemonic stability.

<sup>162</sup> Nye, “Nuclear Learning and U.S.–Soviet Security Regimes,” 2–6.

two forms of learning. In the case of simple learning, new understandings of the social and political environment may prompt decision makers to alter their strategies to achieve basically the same goals. This is also called adaptation. When new knowledge redefines the very content of national interests so that some new goals are selected, it is complex learning that takes place. This reasoning implies that states can sometimes redefine their interests (and alter their preferences) without a shift in the distribution of power and wealth. Nye finds remarkable instances of complex learning in the bilateral relationships of the post-war superpowers in the area of arms control and nuclear non-proliferation.

What is very interesting and innovative about the weak cognitivist approach is that they consider regimes as a “bidirectional” intervening variable (between causal forces and behaviours). Not only regimes modify outcomes/behaviours but also can act back to actors’ belief by helping to lock in and to further develop the learning that had prompted their creation.<sup>163</sup> This feedback effect operates also in the case of new beliefs, but with the opposite result of destabilizing existing patterns of cooperation.<sup>164</sup>

It is important to point out that for knowledge to have an impact on regime formation, it must be widely shared by key policy makers. There must be a common understanding of both the nature of the problem to be solved and appropriated means to attain the valued ends. Peter Haas argues that epistemic communities are crucial channels through which new ideas circulate from societies to governments as well as from country to country. See Figure 1.5 for a scheme of the weak-cognitivist ontology.

### **Strong Cognitivism: the sociological turn**

The authors belonging to this stream questioned the appropriateness of the rationalist perspective as such for studying international regimes. In a nutshell, strong cognitivists (also referred to as constructivists) argue that rationalist approaches, due to their positivist epistemology and an ontology that gives actor priority over principles/rules/norms, are unable to grasp essential features of rule-governed

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<sup>163</sup> Nye, 385.

<sup>164</sup> Nye, 379.

cooperation under anarchy. Strong cognitivists believe that there is no rationality before sociality.

They reject states as utility-maximizers that only implement a utilitarian logic of consequentiality and rather consider states as role-players responding to a logic of appropriateness. According to this view, states will act evaluating behaviours on the basis of how different actions are appropriate for them, as occupants of a specific position in the context where they position themselves. They subscribe a relational model, which emphasizes the dependency of state identities and cognition on international institutions and links the formation and maintenance of particular international regimes to these pre-established identities. "A shadow of institutions" comes to join force with the "shadow of the future" in producing cooperation.<sup>165</sup> As a consequence, states are not as spontaneous and free to ignore international commitments. Under this analysis, social institutions and corresponding practices become a "condition of the possibility" of individual choices and without them rational behaviour would be unthinkable: "institutions *constitute* state actors as subjects of international life in the sense that they make meaningful interaction by the latter possible."<sup>166</sup> For this reason, institutions definitely cannot be reduced to mere devices for problem solving.<sup>167</sup> According to this ontology, strong cognitivists stress the intersubjective quality of regimes which is referred to in the consensus definition in terms of "convergent expectations".<sup>168</sup> Along these lines of reasoning regimes not only prescribe certain actions or affect utility calculations of rational actors but also are used as *point of reference* for the determination and assessment of individual behaviours. To illustrate both the regulative and constitutive dimension of regimes, strong cognitivists sometimes draw an analogy between the working of normative

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<sup>165</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 157.

<sup>166</sup> Duvall and Wendt, "Institutions and International Order," 51–73.

<sup>167</sup> Rationalists seem to have come to accept the tenet concerning the dependence of state actors on fundamental social structures; nevertheless, they maintain that the creation and maintenance of international regimes can be perfectly explained in terms of utility-maximization. They separate the constitution of states as central actors in international politics from issue-specific institutional choices. "International cooperation does not necessarily depend on altruism, idealism, personal honour, common purpose, internalized norms or shared beliefs in a set of values embedded in a culture. At various times and places any of these factors of human motivation may indeed play a role in process of international cooperation: but cooperation can be understood without reference to any of them".

<sup>168</sup> Kratochwil and Ruggie, "International Organization," 1986.

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institutions in world politics and the rule of games such as football. Such rules cannot be interpreted as causing particular moves within the play but, by defining the admissible behaviour, they enable the actors to play in the first place.<sup>169</sup>

The ascription to regimes of a constitutive dimension, however, blurs the distinction between cause and effect (which was carried through by the Krasner's consensus definition). In fact, regimes do not make states act in a particular way (by influencing them) but they make it possible for them acting at first, pursuing whatever purpose they would chose.<sup>170</sup> See Figure 1.6 for a scheme of a prospectus.

Needless to say, for strong cognitivists/constructivists socialization is the central concept.

As Johnston rightly remarks, when it comes to defining socialization, political scientists have not wandered far from borrowing the work already prepared by colleagues belonging to different branches of social sciences. Social scientists generally understand socialization as the process by which "social interaction leads novices to endorse expected ways of thinking, feeling and acting".<sup>171</sup> Sigel, for example, describes political socialization as a process "by which people learn to adopt the norms, values, attitudes and behaviours accepted and practiced by the on-going system."<sup>172</sup>

The constructivist ontology focuses on a notion of appropriateness according to which pro-norm behaviours are so deeply internalized as to become unquestioned, automatic, and "taken for granted". The term socialization, implies a change in the degree of convergence of expectations regarding actors' behaviour before and after entering into an institution. The process is due to the interaction/s among agents that occur inside the institution.<sup>173</sup> An important contribution within constructivist theorizing is the one covering "teaching", a reflection inaugurated by Finnemore.<sup>174</sup>

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<sup>169</sup> Dessler, "What's at Stake in the Agent-Structure Debate?," 1989; "Norms Versus Numbers. Multilateralism and the Rationalist and Reflexist Approaches to Institutions – A Unilateral Plea for Communicative Rationality," 449f.

<sup>170</sup> Kratochwil and Ruggie, "International Organization."

<sup>171</sup> Johnston, "Socialization in International Institutions: The ASEAN Way and International Relations Theory," 115.

<sup>172</sup> Cited in Johnston, *Social States*, 2008, 22.

<sup>173</sup> Kratochwil and Ruggie, "International Organization," 1986.

<sup>174</sup> Finnemore, *National Interests in International Society*.



Nonetheless, Johnston in his book “Social States” has recently supplemented this contribution which he considered incomplete for stopping at the point where institutions (at the international level) deliver norm-based lessons to rather passive students (national recipients/states)<sup>175</sup>. In general terms Johnston believes that not sufficient attention is paid to the process by which units or unit level actors understand, process, interpret, resist, and /or act upon “these lessons”. That is, it is unclear how exactly pro-normative behaviour are displayed, communicate to and absorbed by agents at the unit level. Put it visually we might refer to the picture represented in Figure 1.7; Until the late years 2000, argues Johnston in his book, constructivists empirical work has focused mainly on the first step/stage of the “teaching/learning” process and has skipped over the second, drawing unproblematic correlations between norms taught by institutions and content of states practice on the other. According to Johnston, we should not overlook the role the second stage plays in influencing both, the direct impact on national policies and practices on the one hand, and the feed-back on international normative structures, on the other hand.

A second critique some authors including Johnston have lamented against current cognitivists approaches, is that even when attempt are made to look at the micro-processes of socialization and to the constitutive effects of social interaction, they mainly target one of them: persuasion. Actually, persuasion is what really distinguishes constructivism from neorealists and contractualists, but, as Johnston’s underlines, with their almost exclusive focus on *persuasion*, constructivists have discounted other important micro-processes (*mimicking and social influence*) that help explain pro-normative behaviour.

In Johnston’s words, *mimicking* is a microprocess whereby a novice initially copies the behavioural norms of the group in order to navigate through an uncertain environment. It explains pro-group behaviour as a function of borrowing the language, habits, and ways of acting as a safe, first reaction to a novel environment: “I will do “X” because everyone seems to be doing X and surviving. So, until I know better, “X” is what I will do”. Basically, mimicking results from the desire to survive in a novel

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<sup>175</sup> Johnston, *Social States*.

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social environment: it is, in a sense, a safety response.<sup>176</sup> It cannot be assimilated to a rational search for successful exemplars (so-called emulation), neither it is a mechanism that motivate (like social influence and persuasion are).

If we look at how this microprocess operates within an institutional context, we get that when actors (in particular novices)<sup>177</sup> start mimicking, no considerations of punishments and rewards have succeeded yet, vice versa there are other features leading to path dependent lock-in.

Johnston tells us that *lock-in* can occur in at least three ways. One way is the *organizational and institutional development*. Usually participation in an international institution functionally requires the creation of national specialized organizations and expertise to handle policy towards the international institution and to continue interaction with it possibly premised in organizational culture.<sup>178</sup> Johnston, rightly, complains about how little has been written on the consequences of this process over knowledge development of state-level actors who, after all, populate the institution itself.

A second way in which mere participation in institutions can lead to lock-in, is through the reception of procedures and norms of behaviours of the group.<sup>179</sup> The domestic organization of actors who actually participate requires the adoption of *standard operating procedures* so as the state can retain, at least, a position within the institution. To take just few example, indicators of this mechanism can be the changing frequency with which diplomats submit working papers and statements prepared for consideration within institutional meeting, or the changing frequency with which research and analysis on issues relevant to the institution are ordered and produced at the national level.

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<sup>176</sup> Johnston, *Social States*, 2008, 46.

<sup>177</sup> Although Johnston does, I would not link the notion of mimicking exclusively to novices. It seems to me that this approach excessively restricts the sphere of analysis. It is reasonable to think that mimicking comes about every time actors within institutions are faced with challenges and behaviours taken by a leading group on issues they do not know as much, although they might have already been deeply involved in institutional activities on many other fronts.

<sup>178</sup> Johnston, *Social States*, 2008, 52.

<sup>179</sup> Johnston, 64.

A third and related mechanism justifying mimicking lock-in effect tested by Johnston, refers to the constraining effects of *discursive practices*.<sup>180</sup> The assumption is that there are accepted forms of argumentation, expression and interaction that exclude other forms. Consequently, linguistic practices within an institution can inhibit the articulation of arguments that run counter the ideology of the institution.

Whether the three mimicking-related lock-in mechanisms lead to internalization for example by facilitating the activation of other microprocesses (described below), might absolutely be the case. However, mimicking seems, in Johnston's account, to be self-sufficient in inducing a minimal degree of independent "substantiality". In other words, repetition of pro-social behaviours may actually lead to a certain degree of *retention* of intersubjective norms of the group governing basic communication. Instead of "retention" the author makes use of the term "internalization" tout-court.<sup>181</sup> Mimicking is evidently the least "social" of the socialization processes that the author describes in his book "Social States": no motivation develops and no full internalization takes place. However, the process is not completely asocial indeed it requires a group to copy (the more is uniform the behaviour of the group, the more the mechanism works) and a degree of pre-identification (necessary to choose which group to mimic or at least necessary to elaborate a satisfying decision about survival strategies in an unfamiliar environment).

Although, according to Johnston, mimicking is rather akin to the logic of consequences and not far from realism homogenizations,<sup>182</sup> the substantial difference I see between the two lays in that mimicking, unlike realism imitation and selection, should involve behaviours of different kinds, and not only realpolitik/power oriented.

*Social Influence* is a microprocess whereby a novice's behaviour is judged by the in-group members and rewarded with backpatting (or other similar status markers) and punished with opprobrium (or other status devaluation features). One could ask

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<sup>180</sup> Johnston, 67.

<sup>181</sup> I disagree with Johnston when he accepts that mimicking can on its own guarantee a degree of internalization. I am afraid that a separation between internalization and simple retention is necessary if we do not want to lose the content-specific import of mimicking towards adaptation (social influence) and learning (persuasion).

<sup>182</sup> Johnston, *Social States*, 2008, 72.

where lays the difference with reputational patterns accepted by contractualist institutionalism.

Contractualists indeed do not deny that rewards and punishments, by changing the strategic environment, can also belong to the social sphere and under this perspective a specific non-material mechanism based on reputational effects has been largely described by this scholarship: a player with a reputation of former co-operator brought to a stag hunt game, for example, can reassure other players that actors genuinely prefer a (C; C) outcome. This can stabilize the Nash Equilibrium. Thus, it is in the interest of actors with common preferences to first acquire a cooperative reputation, particularly from situation in which cooperation can be quite costly.<sup>183</sup> And here lays the difference between contractualists and cognitivists, for institutionalists intend reputation in terms of “concern for contractual reputation” within reiterated games. Now, this reputation-driven process has nothing to do with Johnston’s backpatting/opprobrium mechanism, which deals instead with social image. So much so that, the appropriate reference in-group and the degree to which certain backpatting and opprobrium signals are valued depending on an *a priori* identity construction (which is not a necessary condition for the contractualist-reputation discourse). Johnston’s rewards might include psychological well-being derived from conformity with role expectations and a sense of belonging. Punishments might include shaming, shunning, exclusion and dissonance derived from actions inconsistent with role and identity. Backpatting and opprobrium are “societal” exactly because only groups can provide them (and I would say only groups integrated at a societal level).

That said, Johnston acknowledges that, from international actors’ standpoint, *status* and *social value* are ends in and of themselves, along with other factors like relative power. Consequently, states display a common desire to maximize status (as well as power) that motivate their action.<sup>184</sup>

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<sup>183</sup> Johnston, 7.

<sup>184</sup> It is important to remember that, as Johnston underlines, actions that aim at maximizing status and relative power are not necessarily compatible, and actors have often to make trade-off between these desires especially in an era in which participation in international institutions that embody sovereignty-restraining norms has become one marker of status (Chayes and Chayes, 1996).

The accumulation of *status markers* becomes a drive towards pro-social behaviours. Quoting Johnston, “social influence therefore can be interpreted as a function of *prior identification* plus the *desire to optimize the social rewards* and *minimize the social punishments* bestowed by the group in the context of a relative fixed and unquestioned self-categorization and preferences.” Full internalization is not required for social influence to work, as Festinger summarizes when he describes the kind of compliance due to social pressure as: “public conformity without private acceptance”.<sup>185</sup> Johnston calls “social influence” this second-order microprocess since, although existent interests (or preferences) maintain, these interests may become linked in ways they were not in the past and new means are put into practice to achieve that goals. Johnston offers a thorough analysis of social influence in his book, which is impossible to condense in few pages.

Nevertheless, it is worth outlining social influence’s main features in order to clear out Johnston’s outstanding contribution to the study of regimes’ effectiveness. As Figures 1.8 and 1.9 show, backpatting and opprobrium change cost-benefit calculus in a very different way from contractualist side payments and sanctions. The latter, whether provided by institutions or key players, have a constant effect on actor’s utility regardless of how many members cooperate, participate, “backpat” or shame.<sup>186</sup> Vice versa backpatting and shaming have cumulative effect that depend precisely on how many others cooperate on the one hand, and backpat or shame, on the other hand. Backpatting is a benefit incurred from being seen as a co-operator or an active pro-social member of a group. Thus, for every additional member of the institution, a potential defector receives a certain added payoff from backpatting as long as he cooperates.

That is, side payments/punishments are not a social effect of the institution, so the audience size is irrelevant to them. On the contrary, backpatting and opprobrium are social effects *only*, and would not exist without the presence of, and interaction with the *social group* (which requires a-priori identity constructions); consequently, backpatting and opprobrium lose their impact outside a social group.

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<sup>185</sup> Festinger, *A Theory of Cognitive Dissonance*.

<sup>186</sup> Johnston 2008: 93

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A broad theoretical implication of social influence is for *collective action*. Traditionally, scholars have argued that a critical solution to free riding is to offer material/reputational side payments and sanctions to make collective action pay for the individual. The conundrum has been, however, that offering side payments is itself a collective action problem.

Usually hegemons or activists are reluctant to take the burden because of the well-known danger of overstretching (especially when the group is large, the collective good is joint, and verification of compliance unfeasible). According to Johnston, social rewards and punishments represent a particularly interesting kind of incentive precisely because they overcome collective inaction. They are relatively cheap to create (backpatting, after all, is nothing else than a mutual, virtuous circle of bestowing and receiving social cheers), but are often infused with a great deal of value.<sup>187</sup>

Johnston cleverly notices that it is probably the widespread tendency to link internalization and socialization that have pushed constructivists to focus on *persuasion* over other microprocesses. Besides, persuasion is what really distinguishes (strong) cognitivists from neorealists and contractualists insofar as it represents the process of internalization of group norms and values that is largely built on the cognitive practices of argumentation, reflection, and acceptance of the “oughtness” of particular norms. Accordingly, persuasion is a microprocess whereby novices are convinced through a process of cognition that particular norms, values and causal understanding are correct and ought to be included in their own behaviour.<sup>188</sup> It has to do with cognition and active assessment of the content of a particular message leading to common knowledge, epistemic conventions or to the homogenization of interests so that, in the end, the distance between actor’s basic causal understandings closes as a result of successful persuasion. It is considered the purest form of socialization, the more lasting and resistant, certainly the one which implies full internalization. How persuasion works is a focus of a great deal of research in communication theory, social psychology, and sociology.

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<sup>187</sup> Johnston, *Social States*, 2008, 152.

<sup>188</sup> Johnston, 25.

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Based on all these contributions, Johnston derives that actors may be persuaded in three ways.

First, actors can engage in a high intensity process of cognition, reflection and argumentation about the content of the new information. This is known as the *central route* to persuasion: the actor weighs evidence, puzzles through counter-attitudinal arguments and comes to conclusions different from those he/she began with. That is, the merits of the arguments are persuasive, *given* internalized standards for evaluating truth claims.<sup>189</sup> From the work of Sniderman, Gibson and others, Johnston infers that the probability of some change in attitudes through cognition increases in an iterated, cognition-rich-environment (where there is a lot of new information that cues linkages to other attitudes and interests). Vice versa probability decreases if the initial attitudes are already linked to a larger, internally consistent “network of supportive beliefs”, particularly if these beliefs are about a high-threat group.

Second, an actor is persuaded because of his/her *relationship* to the persuader; sometime this is called *peripheral route*. The persuadee looks for cues about the nature of his relationship to judge the legitimacy of counter-attitudinal arguments. Thus, information from in-groups is more convincing than that from out-groups’ informers. It is very interesting also to point out, as Johnston does too, that this line of reasoning might be used to support the idea that information coming from culturally recognized authorities (scientists, doctors, religious leaders) is more convincing than that coming from less authoritative sources.

Third, the persuasiveness of a message may be a function of characteristics of the persuadee her/himself. This can refer to a range of variables from cognitive processing abilities, to the strength of existing attitudes, to what appears to be a deeply internalized desire to avoid appearing inconsistent, to the degree of independence an agent might have in relation to a principal.<sup>190</sup> A focus on the characteristics of the persuadee means looking at the individual features that can either retard or propel persuasion. All this means that actors while entering a social interaction bring with them particular prior traits that, interacting with the features of the social

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<sup>189</sup> Johnston 2008: 156

<sup>190</sup> Johnston 2008:157

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environment and other actors, lead to variation in the degree of attitudinal change. According to Johnston, what such theories seem to overlook (or to easily assume) is the empirical frequency with which social variables are indeed primary cues that people use to determine the degree of knowledge and trustworthiness of a persuader. Therefore, what we should ask ourselves according to the author is: is perceived identity between persuadee and persuader more likely to be used by the persuadee as an authoritative measure of the persuader's knowledge and trustworthiness than other kinds of cues (e.g. external forces)?<sup>191</sup>

Lupia and McCubbins found that external forces (instead of identity and ideology), at national level, are relevant in clarifying beliefs about knowledge and trustworthiness of persuaders. However, the answer might not be so determinative, if translated to the international context, since national political environments are rarely ones where persuaders and persuadees interact face to face over long periods of time: the familiarity/personal interaction route beliefs, about the persuader's knowledge and trustworthiness tends to be less common, since messages from politicians are aimed at masses of voters.<sup>192</sup>

This is not necessarily true at the level of social interaction in international institutions among diplomats, specialists and analysts. Here the first route – due to familiarity, iterated face to face encounters - may be definitively more common. Hence effects based on identity, culture and ideology may be more critical for persuasion than external forces and costly signals. Institutions, that are “light” in terms of external forces, nonetheless may be able to create conditions conducive to persuasion and convergence around group norms even though there are few material incentives for the persuader to deceive and few material costs for the persuadee to defect from the group.

### The study of regime consequences

Our current understanding of regime “impacts” and its determinants is informed by at least three bodies of literature whose main contents and findings guide the

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<sup>191</sup> External forces are those conditions that make it difficult or costly for the persuader to hide knowledge (or the lack thereof) and trustworthiness.

<sup>192</sup> Lupia and McCubbins, *The Democratic Dilemma*.



following section. (1) A first theoretical contribution to the study of regime effects, comes evidently from within Regime Theory where the topic has been traditionally framed in terms of “regime consequences”. On the one side, the rationalist-institutionalist stream of RT has emphasized the importance of “exogenous” and “endogenous” factors in accounting for regime “outcomes”. While exogenous factors to international regimes encompass the distribution of power, the underlying cooperation problems (strategic dynamics, issue-areas, type of conflicts), and the institutional bargaining process; endogenous ones make reference to the institutional design and the programmatic activities promoted by the regime. On the other side of the RT spectrum, cognitivists have focused their attention on the way regimes modify states’ interpretations and identities with a special emphasis on those social mechanisms described in terms of learning and internalization (weak and strong variant of cognitivism respectively). These scholars have indeed supplemented rational factors (both exogenous and endogenous) with additional variables (ideas, knowledge, and identity).

(2) A second relevant contribution given to the (also empirical) study of regimes consequences has been developed within specific issue-areas of IR studies, like for example environmental policy discourses. Mainstream environmental scholarship address “regime consequences” in terms of “regime effectiveness”. Scholars from the field have devoted great attention to definitional and conceptual issues linked to the notion of effectiveness (especially with regards to the similar but not identical concepts of implementation and compliance) and they have a great deal speculated on how to measure effectiveness’ variation also by assembling extensive dataset (e.g. IRD Dataset, OSLO project). Throughout the last 15 years, these scholars researches have improved significantly their understanding of effectiveness, measurement opportunities and have made significant progresses by testing several hypotheses.<sup>193</sup> It is no coincidence that the majority of initial empirical studies published on the topic

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<sup>193</sup> Breitmeir et al., *The International Regimes Database as a Tool for the Study of International Cooperation*; Sprinz and Helm, “The Effect of Global Environmental Regimes”; Helm and Sprinz, “Measuring the Effectiveness of International Environmental Regimes”; Hovi, Sprinz, and Underdal, “Regime Effectiveness and the Oslo-Potsdam Solution,” 2003; Young, “Effectiveness of International Environmental Regimes”; Breitmeier, Underdal, and Young, “The Effectiveness of International Environmental Regimes.”

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of regime effectiveness have examined treaties that regulate environmental problems. A first reason is linked to the dramatic increase in the number of environmental treaties of the past twenty years, that has indeed generated passionate interest among practitioners as well as academics. The proliferation of environmental treaties, would be consistent with the idea that insofar environment is a domain where sensitivity to relative gains-sensitivity is low, the related issue-area is conducive to copious and inclusive forms of international coordination. A second reason for the prolific production of works about environmental regimes' effectiveness is an opportunistic one. Many of the most prominent environmental treaties are particularly appropriate for investigations over outcomes because it is relatively easy to identify clear-cut indicator for their success. For example, emissions' reductions (e.g. greenhouse gases, CFCs, SO<sub>2</sub>, or NO<sub>2</sub>), that follow more or less directly from the political consequence of treaties controlling emissions, are perfect effectiveness indicators because they are deterministically or at least probabilistically related to environmental and measurable impacts.<sup>194</sup>

If on the one hand, this very special circumstance makes the study of a treaty's consequences particularly unproblematic. On the other hand, any straightforward and explicit connection between a single treaty and the overall problem's mitigation is far from being the general rule. For this reason, parallelisms between environmental and other types of treaties can't be taken lightly.

(3) Finally, a last but not less important theoretical and empirical contribution is the one offered by scholars who deal with International Law and International Organization's performance at large (including institutional design; formal/informal organizations; hard/soft law; legalization and its components (Obligation; Precision; and Delegation))<sup>195</sup>. As already made clear elsewhere in the chapter, International Law and IOs (whether informal or formal) do not exhaust all possible regime-types, however conclusions holding for them are, with some precautions, reasonably

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<sup>194</sup> LEVY, YOUNG, and ZÜRN, "The Study of International Regimes."

<sup>195</sup> Abbott and Snidal, "Hard and Soft Law in International Governance," 2000; Koremenos, Lipson, and Snidal, "The Rational Design of International Institutions," October 1, 2001; Thompson and Snidal, "International Organization"; Abbott and Snidal, "International Regulation without International Government"; Parisi, *Production of Legal Rules*; Vabulas and Snidal, "Organization without Delegation."

applicable to other forms of regimes (of which, anyway, International Treaties and IOs can constitute one of the major expression). Empirically, an ever-increasing number of cases have shown that at the centre of regimes there is usually a formal treaty – some time more than one - that becomes the heart of the cooperative regime itself (a framework convention). Treaty-regimes vary widely in subject matter, scope, number of parties and degree of specificity. They can be umbrella agreements for consensus building, or little more than statement of purposes. Some others may even contain detailed prescriptions for behaviour in a defined field (rules and decision-making procedures).

The interest surrounding these tools is justified by the fact that they represent, at the least, some constitutive element of the regimes, if not the regimes in themselves, and are easier to identify compared to abstract (although more inclusive) approaches.<sup>196</sup> Furthermore, since the legal quality of regimes rules incorporated in treaties ends up being one critical source of regime variation and functioning, the use of law to structure regimes is believed to impact on their “work” as intervening variable operating between interests (however determined) and outcomes.

Reflecting the centrality of these treaties, most discussions have focused on those instruments and their associated organizations especially when it came to the study of regime effects of states behaviours: law and compliance are conceptually linked because law explicitly aims to produce compliance legal rules should set the standard by which compliance is gauged.

### **Implementation, compliance and effectiveness**

Although all linked to the study of regime consequences, effectiveness, compliance, and implementation are indeed very diverse phenomena.<sup>197</sup>

“**Implementation**” is the process of putting international commitments into practice: the passage of legislation, creation of bodies (both domestic and international) and enforcement of rules. It corresponds to regime output.

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<sup>196</sup> Thick vs thin definitions

<sup>197</sup> Fisher, *Improving Compliance with International Law*; Mitchell, “Regime Design Matters,” 425–58.

“**Compliance**” has been defined as a state of conformity or identity between an actor’s behaviour and a specific rule.<sup>198</sup> Implementation may be a critical step towards compliance but the latter can occur without implementation. This quasi paradoxical scenario materializes when governments or any regulated agency do not need to supplement any additional efforts to conform to specific norms. If an international commitment matches current practice, for instance, compliance is automatic and implementation superfluous. A slightly different example of a situation when compliance occurred because of reasons completely exogenous to the agreement is described by Raustiala and Slaughter. The authors show how Russia has produced perfect but coincidental compliance with many environment agreements after the Soviet Union collapsed only because a redefinition of borders vis-à-vis emission quota. Nonetheless, even if implementation is conceptually neither a necessary nor sufficient condition for compliance, in practice it can be potentially critical.

“**Effectiveness**” has been defined in several ways. In Keohane’s words it is “the degree to which a rule induces changes in behaviour that further the rule’s goal.”<sup>199</sup> According to Oran Young it is the capability to “channel behaviour [of states] in such a way to eliminate or substantially ameliorate the problem and achieve the policy objective of the treaty in question.”<sup>200</sup>

In short, “effectiveness has to do with the contributions institutions make to solving the problems that motivate actor to create them.”<sup>201</sup> While it is clear that all these definitions broadcast the idea that international regimes commonly emerge in response to particular problems (such as environmental deterioration, escalating tariffs, arms proliferation etc), operationalizing the concept is less straightforward as Aril Underdal has explained:

“What precisely constitutes the object to be evaluated? Against which standard is the object to be evaluated? How do we operationally go about comparing the object to our standards; in other words,

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<sup>198</sup> Mitchell, “Regime Design Matters.”

<sup>199</sup> Keohane, Haas, Levy, “The Effectiveness of International Environmental Institutions.”

<sup>200</sup> Keohane, Haas, Levy.

<sup>201</sup> LEVY, YOUNG, and ZÜRN, “The Study of International Regimes.”

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what kind of measurement operations do we perform in order to attribute a certain score of effectiveness to a certain object (regime)?”<sup>202</sup>

Scholars who have studied regime consequences have come to accept that there is more than one way to think about effectiveness.<sup>203</sup>

(1) Less ambitious conceptions of effectiveness direct attention to what are often referred to as regime *outputs* that are regulations or infrastructure created to move a regime (for example and international treaty) from paper to practice. The problem with this strategy, that surely enhance a straightforward account, is that it ignores non-contractual consequences and tells little about problem solving.

(2) A second approach is the one that would operationalize effectiveness in terms of outcomes (*behaviours*). These are changes in the political behaviours of actors relevant to the problem at hand (compliance-dependent notion derived from international law contributions).

This approach would account for a *legal definition and a political definition*. The first holds that the measure of success (effectiveness) is the degree to which conflicts become regulated by the rule of law (implementation-like) and to which contractual obligations are met.

For its part, a *political definition* directs attention to behaviours and behavioural changes. Effective regimes cause changes in the behaviour of actors and in pattern of interaction among them in ways that contribute to the management of the targeted problems. The strength of this approach is its firm connection to the real world through its emphasis on observable behaviour. Among its drawbacks the tendency to lose sight of the overall goal regimes are established to achieve.

(3) More ambitious conceptions of effectiveness seek to assess regimes performance; basically, these approaches want to grasp the extent to which the regime solves or mitigates the problems that motivates its creation.

Under this perspective, performance can be assessed both in relative terms (relatively to the probable course of events in the absence of the that treaty, that is the no regime

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<sup>202</sup> Underdal, “The Concept of Regime ‘Effectiveness’,” 228–29.

<sup>203</sup> Young, “Effectiveness of International Environmental Regimes.”

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counterfactuals), and in absolute terms (with regards to a collective optimum). One of the most appreciated operationalization of effectiveness/performance develops as it follows:

$$\text{Effectiveness Score/Performance} = \frac{AP-NR}{CO-NR}$$
$$\text{Sensitivity of effectiveness score} = \frac{AP + 1 - NR}{CO-NR} \cdot E = \frac{1}{CO-NR} = \frac{dE}{dAP}$$

AP = Actual Performance;

NR = No-regime counterfactual and

CO = collective optimum (<sup>204</sup>).

The many advantages derived from the use of this formula and in particular from the “sensitivity of effectiveness score” (that is the derivative of effectiveness score with respect of actual performance) are well illustrated by Helm and Sprinz.<sup>205</sup> However, evaluating effectiveness in term of *problem solving* also imply some criticalities.

(1) The first and probably more intuitive reason why a “problem-solving” - based understanding of effectiveness can hardly reach empirical utility is the fact that regimes (even when formalized in one single international treaty) are complex endeavours with multiple objectives and goals. Under this perspective, they can be performant in one direction but not in others (or event they can produce negative externalities that negatively impact on the overall objective).

(2) Secondly, because most international problems, which are severe enough to lead to the creation of regimes, usually motivate actors to pursue solutions through multiple instruments, so that their solution may be provided by one or more of these collateral efforts. This makes it difficult to isolate the net effect of a single component (unless the hiatus between outputs/outcomes on the one side and impacts on the

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<sup>204</sup> Having accepted the indispensability of counterfactual reasoning in the analysis of regime effectiveness (Fearon, 1991) the main challenge up to know has been to find methods by which its speculative element can be minimized. (1) Many studies have employed process tracing to establish the causal effect of a treaty. (2) An alternative approach is to explicitly model treaty-regime and non-treaty-regime factors and thereby a tool to simulate different “states of the world” (3) Interviewing different groups of actors gathering the best knowledge available in a particular field (Helm and Sprinz 2000).

<sup>205</sup> Helm and Sprinz, “Measuring the Effectiveness of International Environmental Regimes.”

other is very limited). Consequently what may seem an effective tool may be only an irrelevant sideshow.

(3) The problem is made more acute by the fact that regimes (whether single treaty or complex networks of institutions) are by definition valued by issue-area. However, in real world, issue-areas are not neatly separated and regimes “broader consequences” anything but uncommon. As pointed out by Levy, Young and Zürn, development in one issue area often have consequences for other issue areas that were not envisaged or intended by those who have commissioned or designed, in the first place, the regimes producing such effects. Equally important these scholars notice, regimes focus on specific issue areas affect not only other issue areas but also the broader or deeper structure of the international society as a whole because regimes are linked by definition to the constitutive principles of international society (e.g. state sovereignty).<sup>206</sup>

It is clear that if on the one hand regimes have broader effects than the ones envisaged by their architects (on other issue-areas, on inter-state relations and on the international society) and on the other hand problems can be solved by contributions produced by regimes regulating diverse issue areas, isolating the effect of a single regime with regards to the problem he was born to tackle become a challenging task. It would require specialists with a sufficient technical knowledge to move easily across the diverse issue areas potentially impacting on that problem. As well, new variables need to be developed to account for regimes broader effects (that can have synergic or detractive effects) on the problem under investigation or a common dependent variable to be used in formulating generalizable statements. That said, the growing functional differentiation in international society and interactive complexities may have made impossible (as one strand of social theory maintains) for policy-makers and analysts to confront the interconnected networks of effects produced by the concurrent operation of specific regimes.

(4) A third element of concern is that since all definitions of effectiveness imply some causal connections between the institution and the relevant change (legal, behavioural, or systemic – (problem solving)). Measuring regimes effectiveness

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<sup>206</sup> Levy, Young, and Zürn, “The Study of International Regimes,” 308.

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implies a comparison between what it is and what would have happened if the regime had never existed.

“This would necessary require a demonstration of the causal links between the operation of the institution and the behaviour of the relevant actors. A regime that fares poorly in terms of simple before-and-after comparisons may look more successful when causal links and counterfactual are taken into account.”<sup>207</sup>

The method of counterfactual has proven to be fruitful but questionable.<sup>208</sup> The approach is based on a rigorous effort to reconstruct the flow of events, as it would have unfolded in the absence of the regime. The key of success in such endeavour involves framing counterfactuals as precisely as possible and delving deeply into behaviours of key actors at critical junctures. Under this perspective this research has tried to include a wide and thorough historical review in order to specify exactly what the initial conditions were, to look at decision-making process within regime members, to focus on important branching points where events might have taken a different course and to individuate if a different and how different path would have been followed if the regime had not existed. History matters because only by a thorough and complete analysis is possible to distinguish cases in which institutions made a difference from those in which it merely allowed external events to take their course.

A final consideration concerning the relationship among the three concepts (effectiveness, compliance, and implementation). On the one side, case studies have shown that high political outputs do not necessarily lead to countries’ behavioural changes because rules may prove to be inadequate or simply be neglected. The same way, success under both previous quoted conditions (outputs and behaviours) does not guarantee progresses in solving the problem relevant to the regime. If an international commitment matches current practices, degree of implementation is high and compliance automatic, but effectiveness can still be very This is the case with

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<sup>207</sup> Levy, Young, and Zürn, “The Study of International Regimes,” 22.

<sup>208</sup> Fearon, “Counterfactuals and Hypothesis Testing in Political Science.”



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many international agreements that reflect modest goals and ambitions low (as it will soon become clearer).<sup>209</sup> See Figure 1.10 for a prospectus.

**Rationalist and cognitivist perspectives on regime functioning and implications for the study of regime compliance and effectiveness**

In the late 1960s, Louis Henkin first published his notorious book “How nations behave: law and foreign policy.”<sup>210</sup> He argued that nations behave largely in compliance with international law and treaties: “it is probably the case that almost all nations observe almost all principles of international law in almost all their obligations almost all the time.”<sup>211</sup>

Henkin suggested that policy decisions respect for law structure in myriad ways that often escape attention because they are nearly “routine”. According to him this produces a selection bias that causes critics to focus on the rare case of non-compliance rather than the overwhelming cases of compliance. Once acquired such an assumption of a general propensity of states to comply with rules, a question immediately springs to mind: *why do states comply?*

*A rationalist perspective*

“A prudent ruler cannot keep his word, nor should he, where such fidelity would damage him, and when such fidelity would damage him, and when the reasons that made him promise are no longer relevant.”<sup>212</sup>

While nowadays neorealists have come to recognize that states do not stop observing treaties obligations every time it stops being in their close interest to do so, the sentence quoted above broadcasts the “utilitarian” drive of rationalist justifications for Regime Compliance. Rationalists maintain that both states’ interest in reciprocal observation of a treaty’s norms motivated by material and reputational concerns are

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<sup>209</sup> Raustiala and Slaughter, “International Law, International Relations and Compliance.”

<sup>210</sup> Henkin, *How Nations Behave*.

<sup>211</sup> Henkin, 47.

<sup>212</sup> Machiavelli, *Machiavelli*, 61–62.

to be counted in the trade-offs of costs and benefits on which cooperative decisions are based.

Nonetheless, rationalists privilege methodological individualism and consequentialist choice in their studies. Notwithstanding important differences between power-based and interest-based approaches, the arguments they raise to explain compliant behaviours build on common assumptions. According to these scholars, states nature won't be altered by the interaction occurring within the regime.

“compliance is most often a game of altering strategies and behaviour only, with agents leaving a regime (or its institutional home) as they entered it. The underlying ontology is decidedly individualist.”<sup>213</sup>

Consistently, rationalists envisage a cost-choice consequentialist mechanism for compliance to occur. Agents weigh up their actions in response to putative regime benefits or to threat of sanctions. Even in those instances where analysts concede that states interests are potentially changing (signalling/update beliefs variants) they argue that the change occurs slowly and as a function of new incentives structures the agents face (with states' identities kept constant)

These two assumptions contributed to erect a black box around the interaction context from which decisions about compliance emerge and to depict the role of language and communication in purely informational terms.

It is true that the “institutional bargaining” addendum, which we analysed as borderline to rationalism, has always granted a central role to interaction. However, the interaction that leads to compliance is again understood as strategic exchange among egoistic and self-interested actors. Faced with material brute facts, bargaining agents make decisions around compliance on the basis of cost/benefit calculations.

For rationalists, states' compliance stems from: (1) instrumental calculations of interests<sup>214</sup> (always), (2) coercion (sometimes), and (3) incentives, usually material but

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<sup>213</sup> Checkel, “Why Comply?,” 556.

<sup>214</sup> I interpret the notion of “interests” as broadly as possible: states may indeed sacrifice their immediate and myopic national interests in order to pursue long-term benefit.

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possibly reputational as well – with the latter two basically acting upon the first (utility calculation).

In line with the above, a state's decision whether or not to conform to a treaty-regime is the result of the mere calculation of costs and benefit the implication is that non-compliance is premeditated and deliberate violation of treaty obligation.

*A cognitivist perspective*

The first wave of cognitivists have focused on the later stages of compliance which come into play when the interaction with and internalization of norms was nearly complete. According to these scholars, at that late-stage of the process, compliance did not represent an issue of choice anymore and states' behaviour was governed by a logic of appropriateness.<sup>215</sup> Scholars have then devoted their attention to specific mechanisms through which states comply with norms, namely social learning and social mobilization. And more recently, studies have also started investigating how the normative message is internalized by states through the so-called microprocesses of socialization.

*Strong Cognitivism*

According to strong cognitivists regimes enjoy a constitutive dimension (and not only a regulative one). If the assumption holds true, it also poses a problem in term of "compliance", because effectiveness cannot be assessed in term of overt compliance alone.<sup>216</sup> Bringing the attention to the under researched precondition of constitutive role of regimes, strong cognitivists approach international cooperation problem by asking "*how is cooperation between state possible?*" and only later on "*why do state cooperate?*".

Hasenclever, Mayer and Rittberger have organized the contribution of strong cognitivists into 4 group. Contributions overlap here and there but are kept distinct according to the variable they consider as prominent in accounting for states compliance to regimes.

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<sup>215</sup> Checkel, "Why Comply?"

<sup>216</sup> Kratochwil and Ruggie, "International Organization."

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Some scholars call upon the power of “legitimacy”, some others refer to the power of “arguments”, and some more bank upon the power of “identity”. A last group mention “history”. The first three will be considered below.

*The power of legitimacy*

The first group of scholars, which include Thomas Franck and Andrew Hurrell as major proponents, rely on the notion that, at a fundamental level, states are dependent on the existence of a rule-governed international society.<sup>217</sup>

They suggest that the *degree of correspondence between the specific norms* that constitute regimes and the broader normative structures underlying the international society strongly affects cooperative ventures among states (legitimacy). This group of scholars had indeed pull for renewing the focus on a normative foundation of international society, characteristically belonging to the so call English school.

Strong Cognitivists, elaborating on the power of legitimacy in international relations, have taken the solidarity of states as a fact and assume a sense of we-ness,<sup>218</sup> which would motivate governments to respect the fundamental principles and norms of international system/society. They argue that states all share a primitive and common interest in the survival of the society where the leave in. Such interest to large extent matches with self-interests, even though the latter cannot be reduced to the first. The interest in the system/society is justified by the fact that the pursuit of one’s individual interest as defined by rationalist theory presupposes statehood and statehood depends on membership in a functioning community of states.<sup>219</sup> Since the breach of legitimate norms and rules is a potential threat to “the fabric of the community’s rule system as a whole”, the violation of such norms is conflicting with the interest of state in preserving the system/society itself. This unleashes a “*sense of obligation*” and a “*compliance pull*” for norms and rules.<sup>220</sup> In other words, states would tend to comply even with temporarily inconvenient norms and rules (if legitimate) because acting

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<sup>217</sup> T.M. Franck, *The power of Legitimacy Among Nations*, New York, Oxford University Press, 1990 and A. Hurrell, “International Society and the Study of Regimes”, in Rittberger (ed.), *Regime Theory and International Relations*, Oxford, Clarendon Press.

<sup>218</sup> B. Buzan, “From International System to International Society: Structural Realism and Regime Theory Meet the English School”, *International Organisation*, n. 47, 1993, p. 335.

<sup>219</sup> The stance is in sharp contradiction with Kenneth Waltz, who vigorously denies an interest of states in the system.

<sup>220</sup> T.M. Franck, *The power of Legitimacy Among Nations*, cit.

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opportunistically would involve the risk of undermining their own existence in that system/society in the long run.

“ [...] states that need an international society have to respect the needs of this society. Among these needs, “*pacta sunt servanda*” is a key obligation because “no society can exist without the generalized confidence that obligations incurred its members are honoured”.<sup>221</sup>

Ignoring this sense of obligation as an independent source of compliance, as realists do, produce a distorted picture of international relations.<sup>222</sup>

Under this perspective not all the norms potentially inserted into a regime display an equal strength in terms of the compliance pull they raise with only norms and rules which are perceived by state actors as legitimate can be attributed a compliance pull on their own.<sup>223</sup> Under this perspective regimes, which encompass rules that are considered as illegitimate, can be upheld only if positive or negative sanctions are attached. *Legitimacy* can be thus conceptualized in terms of a quality of prescriptions that make state actors abide by them voluntarily. This quality varies across norms and rules and, according to Frank, is dependent on four dimensions, which he refers to as *determinacy*, *symbolic validation* *coherence* and *adherence*. The concept of *coherence* refers to the interconnectedness of individual’s rules through higher order principles. *Symbolic validation* refers to the rituals of recognition that express the extent to which a given rule has taken root in the tradition of international society. *Determinacy* refers to textual clarity with which the content of a rule is communicated. A rule has the property of *adherence* when it is validated by an infrastructure of rules that defines how rule are to be made interpreted and applied.<sup>224</sup>

A legitimacy-based approach is illuminating when dealing with compliance issues but it shows a main problem that concerns empirical research: how is it possible to decide whether an observable tendency for states to comply agreed upon international rules

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<sup>221</sup> Bull, *The Anarchical Society*.

<sup>222</sup> Henkin, *How Nations Behave*, 42.

<sup>223</sup> Franck, *The Power of Legitimacy Among Nations*; Hurrell, “International Society and the Study of Regimes: A Reflective Approach.”

<sup>224</sup> Franck, *The Power of Legitimacy Among Nations*.

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result from the working of a sense of obligation rather than from utilitarian calculations involving considerations of sunk costs or reputation?

*The power of arguments: the communicative approach*

This second group include comments and contributions from scholars as Kratochwil, Ruggie and Müller, inter alia.

The focus of the analysis is placed on the importance of the intersubjective meanings which characterize international cooperation. These scholars have investigated the communicative dynamics of rule-interpretation and rules-application practices which they regard as inseparable from international regimes. For scholars belonging to the “communicative-action” strand of strong cognitivism, regimes fundamentally depend on the success of practical discourse among states.<sup>225</sup> They hold that that communication in international relations serves to produce and maintain the convergence in expectations that regimes live by.

Building on Jürgen Habermas thoughts and reflections, Kratochwil<sup>226</sup> and Müller make a fundamental distinction between strategic action and communicative action as alternative mechanisms of social coordination. *Strategic action* is success oriented (consequentialist) and can be defined as a selection of means to control, in an efficient way, the social environment of actors so that they are induced to respect normative arrangements. In a regime context, strategic action can take place and aims at keeping the behaviour of others in line with agreed upon norms and rules by establishing a system of positive and negative incentives. This is basically how rationalist analyse regimes.

On the contrary, *communicative action* is oriented to mutual understanding and it aims at coordinating social behaviour by persuasive arguments. In this case behaviour is not coordinated by external incentives but by those common understandings of what a given situation requires social actors to do: “the only force that should prevail in such a discourse is the force of “better argument.”<sup>227</sup> The objective of

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<sup>225</sup> A “practical discourse” is a debate conducted by members of a community aiming at establishing and re-establishing a consensus on common norms of conduct as well as on their interpretation and proper application in concrete situations.

<sup>226</sup> Kratochwil, *Rules, Norms, and Decisions*.

<sup>227</sup> R. Bernstein, “Introduction” in Bernstein (ed.), *Habermas and Modernity*, Cambridge, Polity Press (1985) p. 19.

*communicative discourses* is to convince the other participants of some position and to make them see things as one sees them by producing a *common interpretation*.

Thus, strong cognitivists assume that in situation of power inefficiency and when complex issues are at stake, *persuasion* tends to replace compulsion as the medium policy of coordination.

This line of reasoning has important implication in compliance's studies. "Taking the power of arguments seriously sheds new light on the phenomenon that states often put up with apparent violations of agreed upon norms and rules, without engaging in sanctioning behaviour."<sup>228</sup> Confronting a prima-facie defection, states habitually ask the offender to provide reasons for having left up with its obligations. Subsequently, they evaluate the reasons that are offered by the violator in the light of principled and shared understanding of what regimes under consideration requires its members to do under certain circumstances. The process may even lead the "surveyors" to accept that conforming to a particular injunction would have been unduly hard for the offender and that it could not be reasonably expected to comply in this situation.<sup>229</sup>

On other occasions of apparent non-compliance, states may come to the conclusion that the rules under question need reformulating to continue to be in accordance with the original purpose of the regime.<sup>230</sup> And on other situations, they may, on the contrary, reject justifications proffered and engage in some sort of sanctioning.

Basically, this variety of reactions to instance of formal non-compliance with norms and rules indicates that: "what constitutes a breach of an obligation undertaken within a regime is not simply an "objective" description of a fact, but an intersubjective appraisal."<sup>231</sup>

Traditionally, the different responses to non-compliance are explained in two ways: on the one side, there may be no sufficient capabilities of the would-be regime defenders to take action against the violator or no sufficient willingness so that no actor wants to bear the costs of sanctioning (typical collective action problem).

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<sup>228</sup> Kratochwil and Ruggie, "International Organization," 1986, 765; Chayes and Chayes, "On Compliance," 1993, 187–97.

<sup>229</sup> Kratochwil and Ruggie, "International Organization," 1986, 756.

<sup>230</sup> Kratochwil, "Regimes, Interpretation and the 'Science' of Politics," 277f.

<sup>231</sup> Kratochwil and Ruggie, "International Organization," 1986, 774.

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Strong cognitivists instead offer new tools for analysis. Because states do not retaliate, it doesn't mean they do nothing: a variety of possible reactions may be deployed as alternatives because what constitute a breach of an obligation undertaken within a regime is not simply an objective description but an intersubjective appraisal. So, principled and shared understandings, underpinning the norms and the rules at issue, are of paramount importance for the evaluation of actions. In a certain sense distinction between compliance and non-compliance turns out to be a communicative phenomenon. According to these authors, international regimes are not objectively given set of principles norms and rules and procedures but are "the product of an on-going process of community self-interpretation and self-definition in response to change context."<sup>232</sup> This makes normative arrangements essentially dynamic phenomena, which depend on evolving international discourses.

In explaining success and failure of international discourses, these scholars underline the importance of two factors, one formal and one material. (1) The formal refers to a set of basic norms, which are considered constitutive features of the practice argumentations and have to be respected by the parties; (2) the material element instead, is the one that "links the success in practical discourse to the embeddedness of particular arguments in a framework of uncontested background knowledge concerning the right conduct of states in international relations."<sup>233</sup>

In other words, to engage in a communicative action as a mode of policy coordination requires that the parties respect certain basic norms of social interaction. Whenever they enter into the practice of arguments, they have to recognize each other as equal and they have to respect the binding nature of agreements based on good reasons.

Under the condition that constitutive norms are respected, discourse between states can be described as an iterative process involving interpretation and evaluation of particular actions. Arguments are put forward to classify a move in a rule-governed context *and* claims are made concerning the legitimacy of this move.<sup>234</sup> The more explicitly and the more clearly formulated the rules of international conduct in an issue-area, the easier is an intersubjectively shared specification of behaviour.

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<sup>232</sup> Neufeld, "Interpretation and the 'Science' of International Relations," 55.

<sup>233</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 180.

<sup>234</sup> Kratochwil, *Rules, Norms, and Decisions*, 11.



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According to Kratochwil, clarity enhances the compliance pull of rules, because “actors can no longer use ambiguities in formulations of rules to mask the regime adverse character of their behaviour.”<sup>235</sup> The problem, however, is that a further specification of norms entails considerable costs. Overregulation seriously hamper smooth rule management.<sup>236</sup>

These considerations lead theorists to conclude that agreed-upon dispute settle mechanism which operate on the basis of commonly accepted principles can be important safeguard the compliance pull.

Müller has made a further and notable contribution to the communicative approach.<sup>237</sup> He focused on the politics of compliance with inconvenient regime injunctions in three security cases: the challenge to the ABM treaty as a part of the strategic weapons nuclear control regime posed by the US government’s strategic defence initiative (SDI); the Soviet Union deployment of early radar in Krasnoyarsk; and the West Germany’s nuclear export control policies which was incompatible with the non-proliferation regime.

In each case the government, influential parts of the administration or the military sought to implement measures or pursued policies, which would have violated or actually did violate central regime norms. Müller finds that regime proved to be a critical resource to those domestic groups, which wanted to oppose such measures by enabling them to get the upper hand in the subsequent controversy. And Müller concludes that “regimes exert pressure on governments, even on those with reservations about the regime: the sheer existence of regime puts an extra burden of proof to regime opponents”.

In brief, three of Müller’s results are particularly noteworthy. First, he noticed that regimes themselves provide substantial barriers to non-compliance by virtue of their connection with both international and domestic law. Secondly, not only the regime defenders but also the proponents of policy change do not deny that the obligation to

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<sup>235</sup> Kratochwil, “Contract and Regimes: Do Issue Specificity and Variations of Formality Matters,” 84–93.

<sup>236</sup> Chayes and Chayes, “On Compliance,” 1993, 189.

<sup>237</sup> Müller, “The Internalization of Principles, Norms and Rules by Governments: The Case of Security Regimes.”

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keep treaties (*pacta sunt servanda*) exist and is strong. Finally, he shows that branches of a particular agreements are regarded as acceptable by the community of states provided that they can be justified with reference to shared higher-order principles which would be violated if the particular agreements were implemented.

*The power of identity: constructivism*

This perspective is provided for by Wendt and emphasizes the role of states identities.<sup>238</sup>

In Wendt's formulation, identities, are defined as "role-specific understanding and expectations about self". Identities are at the same time constitutive of rational choices and shaped by the normative patterns of international politics.<sup>239</sup> Needless to say, how much this interpretation may impact on compliance analysis of regimes. According to Wendt, actors' conception of "self" and of the "others" as well as the actors' understanding of their reciprocal goals are always in process during interaction. So, identities and interests can never be taken for granted. Scholars and practitioners need to constantly interrogate about their origins.

In Wendt's view identities cannot be defined in substantive terms and indeed are inherently relational. Thus it makes a great deal of difference for interaction whether an actor-state considers itself as a friend or a foe of its counterpart. Elaborating on this difference, Wendt develops two opposing ideal types which form the poles of a continuum ranging from positive to negative identification with the welfare and the security of other actors. On the one hand, identities can be "collective". Collective identities are "other-regarding" and the "other" is seen as a cognitive extension of the "self". Under this perspective, actors respect each other as members of the same community. At the other opposite side of the continuum, identities are described as "egoistic": "alter" is detached and separate by the "self", becoming an object to be manipulated for the gratification of "self". This second conception of identity underlines the rationalist interpretation. It is worth noting that Wendt do not deny cooperation among egoists but adds that an evolution of cooperation might lead to an evolution of community. Egoistic motivations may play an important role in early

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<sup>238</sup> Wendt, "Anarchy Is What States Make of It," 1992, 391–425; Wendt, "Collective Identity Formation and the International State," 181–85.

<sup>239</sup> Wendt, "Anarchy Is What States Make of It," 1992, 397.

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stages of regime building but over time and with the proliferation of cooperation institutions in world politics the parties acquire a more “collective identity”: a process which “discourages free-riding by increasing diffuse reciprocity and the willingness to bear costs without selective incentives.”<sup>240</sup>

To illustrate this “self-stabilisation hypothesis” of cooperation developed under anarchy, Wendt referred to the active discussion about European security institutions. After decades of cooperation the Western European states form a sort of “Deutschean pluralistic security community” (see next chapter for a deeper analysis).

Wendt, Kratochwil and Koslowski derive the “self-stabilisation” hypothesis of international cooperation from a more encompassing theoretical framework that is constructivism.<sup>241</sup>

Constructivism adopts a “systemic communitarian perspective” on international relations and focuses on social construction of world politics and state identities.<sup>242</sup>

International behaviour is interpreted both as a consequence of knowledge (action presupposes knowledge) and as a modifier of knowledge (action create new situations which lead to a re-evaluation of traditional cognition). In other words, action and knowledge are mutually constitutive.<sup>243</sup>

Behaviour is thus dependent on what the world appears to be (actors’ perceptions) and how individual states conceive their own role in this world (actors’ self-understanding). These meanings are organised in overarching intersubjective structures which consist of the “shared understandings, expectations, and social knowledge embedded in international institutions”<sup>244</sup> which embody them. At the same time interests are dependent on these structures.

While socialization into intersubjective structures constitutes actors and form identities, at the same time it may happen that changes in these identities might (at least in the long run) transform structures and thereby modify international practices.

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<sup>240</sup> Wendt, “Collective Identity Formation and the International State,” 386.

<sup>241</sup> The central tenet of this stream is that international reality, as well as the self-understanding of states and states’ international behaviours, is constituted by intersubjective knowledge.

<sup>242</sup> Wendt, “Anarchy Is What States Make of It,” 1992, 393.

<sup>243</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 188.

<sup>244</sup> Wendt, “Collective Identity Formation and the International State,” 389.

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Such reorientation may drive the disappearance of interests related to the former structures and the emergence of new ones. To account for this process of transformation, Wendt argues that the distribution of knowledge which forms the basic structure of the international system basically depends for its existence on its reproduction in the practice of states. Only as long as this structure actually shapes international behaviours, can it be considered to be in existence. In this sense Wendt talks about the ontological dependence of structure over processes.

Under this perspective, micro behaviours can change macrostructures.

The emergency of collective identities strengthens the readiness of the actors to cooperate even in case where the dominant strategy of a self-interested actor is to defect. Additionally, the interplay of cooperation and identity formation might also trigger a sort of positive echo effect, which may even culminate in structural transformation.<sup>245</sup>

Until recent, rationalist (especially functionalist) theories have prevailed in empirical regime analysis and cognitivists contributions have been used mostly as supplements/complementary addenda to interest-based approaches. Nonetheless, recent constructive analysis over microprocesses, like the one performed by Johnston, can have important implications for the study of regime compliance and effectiveness also from an empirical side. Functionalist tend to consider an efficient institution one that reflects the nature of the cooperation problem that determined regime's formation in first instance. This thesis, as anticipated and better analysed further still, produces strong implications in term of institutional design (endogenous factors). For example, a PD-type problem requires information (monitoring) and sanctions. An assurance problem primarily requires reassurance information. The danger of these approaches lays in approaches that tend to identify inefficient institutional design the same way.

Social theories introduce relevant (and sometime contradictory) insights to institutional design, especially when we look at the microprocesses through which the internalization reach completion.

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<sup>245</sup> Wendt, 391–93; Dessler, "What's at Stake in the Agent-Structure Debate?," 1989, 469.

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*Mimicking* for example suggests that institutions where many members acting uniformly make the participation of novices (in the form of an initial non-conscious level) easier and simpler. *Social Influence*, as outlined above, suggests that backpatting and opprobrium are more likely to be at work when membership is large and franchise is equally allocated (so that there is no obvious source of information). This findings counter contractualist principles according to which, *ceteris paribus*, more actors make cooperation more difficult (collective action problems, problems of monitoring and punishment of defectors etc.). Additionally, social influence's analysis suggests that majoritarian rules might be more functional since actor's behaviour and consistency is on record, thus reinforcing backpatting and opprobrium. On the contrary, under a *persuasion* perspective, social environments particularly conducive for persuasiveness should share the following characteristics: First, novel environments, where actors are highly cognitively motivated to analyse counter attitudinal information, are extremely conducive ones. Persuasion is also extremely powerful when (1) persuaders are highly authoritative members of a small intimate, high-affect in-group to which the persuadee also wants to belong, (2) when the persuadee has few prior ingrained attitudes that are inconsistent with the counter-attitudinal message and when she/he is exposed to counter attitudinal information repeatedly over time. Consequently, when decision rules are based on consensus and an institution mandate is deliberative (triggering more cognitive evaluation) and when the issue is narrow or technical (authoritative role of members) persuasion is expected to be more effective.

We see that social influence and persuasion mechanisms prompt different and even opposing indications regarding an efficient institutional design and, under this perspective, Johnston's research raises more questions that the answers it provides us with. Other criticalities also emerge, from the need of a new definition of socialization that really fit International Relations framework to a deeper understanding of the mutual links between microprocesses (and between each of them and internalization). For a summary see Table 1.8

Still Johnston gives an important message to scholars involved in international regime analysis: explanatory tests that ignore social context and social motivations in political behaviours are incomplete. The IR field needs to consider including sociological and

social psychological arguments about actors' motivation and motivational change in the standard list of independent variables used for explaining regime effectiveness.

*The managerial approach*

A dated" but crucial contribution to the research on compliance and effectiveness is the one elaborated by Chayes and Chayes in between 1991 and 1995.<sup>246</sup> The two scholars introduce a descriptive method, to which they add prescriptive overtone. They start from a propensity-to-compliance assumption (in line with Henkin's statement) and argue that states have a "propensity to comply" with their international commitments. Foreign policy practitioners, as well, operate under this conviction. According to the authors, it would not be reasonable for decision-makers to devote so many energies to treaty drafting, monitoring and negotiation unless they expect they (and especially others) will then feel constrained.

In Chayes' view, states' propensity to comply stems from three factors: interests, norms, and efficiency. Regarding *interests*, the most basic principle of international law is that states cannot be legally bound except with their own consent. There is no need for states to enter in a treaty which does not conform its interest. Moreover important treaties do not present the state with a simply binary alternative, to sign or not to sign - long negotiation process can take years to complete, states can always introduce reservations, some of which really substantially change the content of the treaty provisions for those states (the concept is not dissimilar from Snidal's "graduation" of the 2X2 PD-like situation). Accordingly, the process by which international agreements are formulated and concluded is designed to ensure that the final result will represent, to some degree, an accommodation of the interests of the negotiations states.<sup>247</sup> Surely not all actors will be satisfied to the same extent and at the same time, maybe they won't get gains in the same issue area (or at the same time) but certainly the states signing the treaty will have some benefits in participating. The authors here wed a functionalist models accepting that issue and time-linkages can change the utility calculations of state-actors.

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<sup>246</sup> Chayes and Chayes, "Compliance Without Enforcement"; Chayes and Chayes, "On Compliance"; Chayes and Chayes, *The New Sovereignty*.

<sup>247</sup> Young, *International Governance*, 1994, 24.

Nonetheless the Chayes maintain that the structure of international system heavily affects negotiations accepting a neorealist framework as equally worthwhile. In their view, it is no secret that some states are more powerful than others and that “power let the United States to get its way most of the time in the negotiations over the post War II economic structure”. On the other hand, they admit that multilateral forum provides opportunities for weaker states to form coalitions and organize blocking position

Finally they welcome the (weak) cognitivist supplement when they describe modern treaty making as a creative process through which the parties may also explore, redefine and sometimes discover their interests. It is at its best a learning process in which not only national positions but also conceptions of national interest evolve and change principally by creating the conditions for diverse national agencies and teams to work together and, more recently, by involving the greater public. Putnam has described the process on a two-level basis, making reference to the fact that starting from the end of the 1960s, negotiation processes tend to go on not only at the international level but more and more within each state involved.<sup>248</sup> Such two level-game in which the negotiations with foreign parties must eventuate in a treaty that is acceptable to interest domestic constituencies, is supposed to give some assurance that the treaty is based on considered and well-developed conceptions of national interest. Such an “optimistic” understanding of treaty-bargaining process has at least one main implication in terms of compliance and effectiveness.

Compliance problems and enforcement issues should be likely to be manageable if the process leading to the treaty had been comprehensive, long and articulated with a practical eye to probable patterns of conduct and infractions. In other words, if issues of non-compliances are endemic the real problem is likely to be sought in the negotiation process itself maybe it didn't succeed in incorporating a broad enough range of parties' interests' rather than wilful disobedience.<sup>249</sup>

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<sup>248</sup> Putnam, “Diplomacy and Domestic Politics,” 427.

<sup>249</sup> Some have argued that states' incentives (and interests) at the treaty negotiating stages may be different from those they face at the stage of performance. Partners, especially when they give more than they receive might have reason to betray their obligations. However, the sheer act of finding themselves committed through international agreement also changes the calculus at the compliance stage, if only, because it generates expectations of compliance from others.

Probably crossing the ontological boundaries between rationalists and strong cognitivists, Chayes and Chayes maintain that interests can change over time, not only when the international system changes or the distribution of power of capacities and power changes. In their view, treaties must be able to adapt. Adjustment maybe accomplished by formal amendments or by adding a protocol (that are usually cumbersome processes) or by vesting the power to interpret the agreement in some organ established by the treaty. A number of treaties establish authority to make regulations on technical matters by vote of the parties, usually by a special majority which are then binding on all, though often with the right to opt out. In other words, treaties characteristically contain self-adjusting mechanism by which can be and in practice are commonly adapted to responding to shifting interests of the parties.

Chayes and Chayes place the second determinant of compliance in “norms” about which they align to constructivists’ stances.

The third “propensity-to-compliance” element included in the analysis by Chayes’ is “efficiency” - which they describe in terms of “recalculation costs”. Since organisational decision-making is costly and actors seek to conserve resources for the most urgent and pressing matters, in the absence of convincing elements that circumstances have changed since the original decision, withdrawal from a treaty is not worthwhile. The alternative to recalculation is to follow the established rules. Compliance saves transactional costs and it is “efficient” from an internal, decisional perspective.

### **Considerations about non-compliance**

In Chayes’ model compliance is not treated as “on-off” phenomenon. The example they make to explain the matter is high way speed limit. Most communities are perfectly comfortable with situations in which the average speed in the interstate highways is perhaps ten miles above the limit. These limited and random violations do not threaten the rule’s existence and validity. As for national law enforcement with regards to speed limits violations, the problem with international norms is to agree on an acceptable level of compliance. The threshold cannot be seen as an invariant



standard. It may change over time and depend on different factors, for example the significance and the cost of the reliance that members place on other performances. Under this perspective, we expect treaties implicating national security commitments to demand the stricter compliance of participants because of high stakes and unforgiving nature of security consequences. The U.S emphasis on the importance of verifications of arms control agreement during the cold war is consistent with what above reported.

According to the authors, it is verisimilar that treaty-regimes are subject to a “critical mass phenomenon” so that only when defection reaches a certain level, or in face of a particularly egregious violation by a major player the regime might collapse. Either the particular character of violation or the identity of violator may pose different threats to the regime and evoke different demand of compliances.<sup>250</sup>

According to Charles Lindblom, since compliance is determined by state-interests which in turn are the result of an ongoing political process, they can also change the level of compliance accepted (which usually rise over the life of a treaty).<sup>251</sup>

Formal organisation may serve as a focus for mobilizing the political impetus for higher level of compliance and as a forum for continuing negotiation among the parties about acceptable level of it. A strong secretariat can sometimes exert compliance pressure, as I already pointed out.

Starting from a general propensity to compliance and from the assumption that a treaty-regime may tolerate a certain degree of non-compliance without its survival being menaced, it remains to be seen why state should decide to “not” comply with regime rules.

According to rationalists, non-compliance is always intentional. Chayes and Chayes drawing from different sources identify four roots of “non-compliance behaviour” or “defences” (under lawyer’s perspective).

*Ambiguity.* Treaties, like other canonical statement of legal rules frequently do not provide determinate answers to specific questions and treaty language may come in varying degree of specificity.<sup>252</sup> The broader the language is, the wider the ambit of

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<sup>250</sup> Chayes and Chayes, *The New Sovereignty*, 21.

<sup>251</sup> Chayes and Chayes, “On Compliance,” 1993, 202.

<sup>252</sup> Chayes and Chayes, “On Compliance,” 1993, 202.

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permissible interpretation it gives rise. It is worth noting that exist many reasons to choose for a more general formulation over a precise regulation (political consensus) with perilous implications in terms of compliance: “the very meaning of a line in the law is that you intentionally may come as close to it as you can if you don’t pass it.”<sup>253</sup> *Capability*. Capacity consideration usually rise when the treaty involves active/affirmative obligations. By signing a treaty-regime the state should rapidly implement decree or legislations in order to prevent the single citizen to trespass, but establishing the proper legislation and (especially) enforcing a full blown domestic regime to secure the compliance is not an immediate, neither direct process for advanced nations with significant resources and can become an impossible task for a fragile and/or developing country which of course would necessitate accommodation because of already existing large deficit in financial technical and bureaucratic apparatus.

*The temporal dimension*. Treaty-regimes are legal instruments regulating state behaviour for managing a major international problem area over time.<sup>254</sup> Significant changes in social or economic systems mandated by regulatory treaties take time to accomplish. If the regime is bound to persist over time indeed, adaptation to changing conditions and underlying circumstances requires a shifting mix of regulatory instruments to which state and individual behaviour cannot instantaneously respond. Often, the original treaty is only the first one in a series of agreements addressing the issue area.

Not surprisingly the managerial school, to which Chayes and Chayes belong, takes a dim view of formal and even informal enforcement measures. Punishment is considered inappropriate because of the absence of any exploitative intent but it is also related to as too costly, too political and too coercive.

“Retaliatory non-compliance often proves unlikely because the costs of any individual violation may not warrant a response and it cannot be specifically targeted, imposing costs on those that have consistently complied without hurting the targeted violator enough to change its behaviour.”<sup>255</sup>

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<sup>253</sup> Chayes and Chayes, 191.

<sup>254</sup> Chayes and Chayes, 195.

<sup>255</sup> Mitchell, “Compliance Theory,” 330.

This is the reason why according to Oran Young “arrangements featuring enforcement as means of eliciting compliance are not of much use in international society.”<sup>256</sup> Since sanctions are more often successful against economically and political weak countries and unilateral sanctions can be imposed only by the major powers their legitimacy, as device for treaty enforcement, is deeply suspect.<sup>257</sup> A recent publication on UN targeted sanctions (which covers 23 sanctions since 1991) seem to confirm this insight concluding that UN’s targeted sanctions are effective, on average, 22% of the time. When broken into the three types of mechanism they activate, researchers have observed that sanctions are much more effective by constraining (27%) and signalling (27%) than coercing (10%).<sup>258</sup>

Chayes and Chayes also issue warning on the retaliation’s option because of the possible future costs it may entail: it may be dangerous to prejudice the possibility of support from the violator at some point in time in the future, when it may be needed. Managerial models address non-compliance as problems to be solved rather than violations that have to be punished. According to Chayes:

“as in other managerial situations the dominant atmosphere is that of actors engaged in a cooperative venture, in which performance that seems for some reason unsatisfactory represents a problem to be solved by mutual consultation analysis, rather than an offense to be punished. Persuasion and argument are the principal motors of this process.”<sup>259</sup>

The process works because modern states are bound in a tightly woven fabric of international agreements, organisations and institutions that shape their relations with each other and penetrate deeply into their economics and politics. “For all but a few self-isolated nations, sovereignty no longer consist in the freedom to act

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<sup>256</sup> Young, *Global Governance*, 74.

<sup>257</sup> Chayes and Chayes, “On Compliance,” 1993, 29.

<sup>258</sup> The editors also noticed that 59% of the UN’s targeted sanctions episodes are primarily associated with an armed conflict, followed by counter-terrorism (14%), nonproliferation (11%), democratic support (10%), among others. [Thomas J. Biersteker, Sue E. Eckert, and Marcos Tourinho. *Targeted Sanctions: The Impacts and Effectiveness of United Nations Action* (Cambridge: Cambridge University Press, 2016)]

<sup>259</sup> Chayes and Chayes, “Compliance Without Enforcement,” 303.

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independently following their perceived self-interest, but in membership and in reasonably good standing in the regimes that make up the substance of international life". To be a player, the state must submit to the pressure that international regulations enacts.

According to Chayes and Chayes, policy makers interested in increasing compliance level should concentrate their resources on: (1) improving dispute resolution procedures; (2) technical and financial assistance; and (3) increasing transparency. The latter is especially important "for a party deliberately contemplating violation, the high probability to be discovered reduces the expected benefits rather than increasing the costs and would thus deter violation regardless of the prospect of sanctions."<sup>260</sup>

Review of hypothesis over regime compliance and effectiveness

This final paragraph attempts an appraisal of what make regimes more or less effective according to what reported above

As far as the ways regime work as intervening variables, diverse school have suggested, privileged and supported different mechanisms:

*Endogenous/exogenous factor contributing to regime consequences*

The theoretical debate over regime effectiveness has produced several hypothesis about the behavioural causal mechanisms through which regime reach their scope. Most of them, specified deductively and then elaborated through empirical investigations have been summarized before in the chapter. There is a general agreement on the fact that regimes achieve effectiveness by carrying out 3 central tasks (Haas' Three Cs): (1) improving the contractual environment; (2) increasing concern; (3) increasing the capacity of governments.<sup>261</sup> Nonetheless I have shown as different schools and diverse authorship have sponsored different mechanisms describing regime as (1) enhancer of cooperation (mitigation of collective action problems); (2) utility modifiers (issue-linkage); (3) bestowers of authority; (4) learning facilitators; (5) role definers (constitutive level) (6) agents of internal realignment.

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<sup>260</sup> Chayes and Chayes, "On Compliance," 1993, 18.

<sup>261</sup> Haas, *Institutions for the Earth*, "conclusion."

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When these mechanisms operate effectively, regime make use of *endogenous facts* (norms, rules, and procedures) to alter exogenous facts (pattern of influence and interests and behaviours of actors). As showed in the previous paragraphs much of the earlier contributions to the study of regime effectiveness had focused on *exogenous factors*. In a rationalist perspective, exogenous factors comprehend (1) the distribution of influence among participants; (2) the pattern of interests; (3) and structural constrains. *Distribution of influence*. There is a line of inquiry that examines how the distribution of influence among the participants affects the ability of an institution to succeed at its task. Generally speaking a concentration of power in the hands of one state acting as regime advocate is a desirable circumstance and tend to positively impact on regime consequences for at least two reasons. As I anticipated in a previous section, according to some scholars, the presence of a concentration of coercive power in a state that supports institutional goals is a condition a virtually necessary condition for institutional success.<sup>262</sup> This conclusion is based on the argument that in situations characterised by mixed-motives, enforcement is required to prevent free-riding. According to other scholars a concentration of influence is required for institutions to be successful, but less coercive forms of enforcement are envisaged. This soft enforcement takes the form of a “leadership.”<sup>263</sup>

*Pattern of interests*. The behavioural changes that international regimes seek to promote almost always have negative consequences for some sets of interests independently by the objectives the regime prosecutes. The configuration of those interests that end up being negatively affected by the institution can constraints the ability of international institutions to affect behaviour.

*Nature of the issue (benign and malicious contexts)*. Some institutions may do better than others because they operate in a relatively benign issue area. It is the case of those international problems marked by unambiguous shock and crises. Regarding arms control it is worth noting how the Cuban crisis opened up of a path towards non-proliferation commitments. Similarly, even if the connection is not as direct as in the nuclear case, the widespread use of herbicides and defoliants in Vietnam War raised

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<sup>262</sup> Gilpin and Gilpin, *The Political Economy of International Relations*.

<sup>263</sup> Young and Osherenko, *Polar Politics*.

the international demand for a biological and chemical weapons conventions. Another factor that can influence effectiveness positively is the availability to monitor the behaviour of relevant actors. Where such ability is high (and it is not the case of biological weapons), actors will be more willing to engage in mutual self-restraint, knowing that they will be able to detect violations on the part of others and respond accordingly.

In a “strong cognitivist” ontology distribution of influence is still relevant although from a different perspective (leadership) and the presence of collective identities (versus self-oriented ones) assumes greater importance.

Endogenous factors regard treaty-texts, and for this reason they impinge on effectiveness entirely through the way and in so far, they affect compliance.

The search of *endogenous factor* is based on the assumption that there are good and bad ways of structuring international institutions formally and there are good and bad ways to administer them operationally. Getting the rules right, engaging energetic and creative secretariats, and initiating the right kind of programmatic activities may be crucial determinants of effectiveness. It is important to underline that according to Levy endogenous factors are “derivative” from interests and power capabilities of relevant actors (exogenous factors). Building on earlier empirical researches on effectiveness pertaining to environmental regimes (see Table 1.9), Levy et. al. classify endogenous factors in design features and programmatic activities on the other hand. (a) Design features. Scholars as Elinor Ostrom, Chayes and Chayes, Ronald Mitchell have all come to support the idea that an institution’s form shapes its destiny. They have identified factors as “ambiguity and indeterminacy of treaty language”<sup>264</sup>, “lack of participation provisions”<sup>265</sup>, “lack of monitoring and verification measures”<sup>266</sup> and “lack of dispute resolution provisions”<sup>267</sup> as main reasons of non-effectiveness.

A number of authors interested in effectiveness have also emphasized the importance of the ways in which scientific and technical advice is institutionalised. Among them,

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<sup>264</sup> Chayes and Chayes, “On Compliance,” 1993, 175–205.

<sup>265</sup> McGinnis and Ostrom, “Design Principles for Local and Global Commons.”

<sup>266</sup> McGinnis and Ostrom.

<sup>267</sup> Chayes and Chayes, *The New Sovereignty*.

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Edward A. Parson found that the design of the Montreal Protocol's scientific and technical committees fostered the development of productive scientific consensus, creative problem solving, and lowered political posturing. Anyway, it is a widespread opinion that effective institution responses require organisational designs giving agenda-setting power to individuals who share a common, scientific approach to knowledge and problem solving.

(2) *Programmatic activities*. Kay and Jacobson, Mitchell, Chayes and Chayes and many others list a number of operational factors that contribute to organisational success and, by the way, crucial (since missing) as far as the BWC discourse is concerned.

These factors, which are expected to make far more effective regimes, include adaptability and flexibility, performance reviews, mixture of binding and non-binding instruments, professionalism (the absence of cronyism, patronage and corruption), and secretariat activities (including submitting questionnaires prompting specific government officials to provide the required information). More recently studies on rational design of international institutions have broadcast conjectures that highlight five key main dimensions of institutions: membership, scope, centralization, control, and flexibility (See Table 1.10).<sup>268</sup>

### Conclusions

The first chapter has shown that the concept of international regimes has survived the passage of time and is today a central tenet of key schools of thought within mainstream IR devoting their attention to international cooperation (especially for those who have sought to undertake a more sociological direction).

Yet, after diving into the burgeoning literature which cover regime definitional and conceptual issues, the chapter has also made clear that, notwithstanding several contributions and some improvement with respect to original definitions and operationalization procedures, the general approach remains worryingly vague and unstable. To escape conceptual tangles, most empirical investigations has sought to solve the issue by devising tighter definitions, drawn from an extremely abstract theoretical literature. In most cases, this has meant the use of stipulative taxonomy

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<sup>268</sup> Abbott and Snidal, "Hard and Soft Law in International Governance."

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and working approaches which still fail to broadcast social reality and unveil important limitations (limited attention devoted to soft law, informal networks and non-state actors; marginalization of nested regimes and contested multilateralism; downgrading of international practices and inter-paradigmatic matters). Under this perspective, the present research has suggested to embrace a more grounded stance, firmly committed to the social reality of practitioners' intersubjective understandings and experience (in sociological parlance to the "participants' standpoint"). Therefore, the analysis has made the case for a "grounded theory" of international regimes inspired by Chicago School of Sociology which will indeed inform the inclusion criteria for the regime's individual components under consideration in chapter three. Consistently, the present approach builds on a broader definition of regimes that can accommodate diverse phenomena 1) internationally legally binding treaties and protocols; 2) networks of states that have succeeded to endorse formal policy agreements and non-binding policy initiatives; 3) multilateral forums of discussion and other informal channels producing explicit actions to address specific issues around which states have raised concerns.

The second section of the first chapter has taken into exam the three main schools of thought that have shaped the theoretical and empirical research around international regimes (namely power/interest/knowledge- based models). Building on a solid and prolific literature on the topic, the chapter has investigated the metatheoretical orientation of the three schools and thus framed their contributions within mainstream IR theories (neoliberalism, neorealism, and constructivism). The differences among power, interest and knowledge-based approaches has been measured across multiple dimensions (key explanatory variable, epistemology, ontology, behavioural models of players, specific requisites and working mechanism for regime formation, regimes' prospective effectiveness and resilience). Besides mainstream contributions, other precious addenda are included in the analysis (institutional bargaining, epistemic communities, socialization microprocesses). The main advantages, limitations and enduring problems of existing stances (especially linked to their value for empirical investigations) are also considered and scrutinized in this section as the effort to formulate an inter-paradigmatic synthesis has also been



described. The analysis has shown that power and interests-based approaches can be valuably integrated by “contextualized-rationalist theory”. According to this perspective, context accounts for variables (both at the systems and unit level of analysis) that influence the strategic environment where decisions are taken (strength of relative gains over absolute ones). The analysis has also demonstrated that rationalist models can benefit from incorporating weak-cognitivism variables, namely “ideas” and “knowledge” either causally prior or posterior to rationalist ones. Along the same lines, recent contributions aimed at investigating the microprocesses of socialisation, the so-called “strong” variant of cognitivism, seem able to incorporate also typically social mechanisms (mimicking and social influence) without calling into play processes of full internalization that would be incompatible with rational models. By refusing the positivist theory, which informs realist and neoliberal approaches, and by making totally different assumptions regarding the actors and their interrelationships than the ones rationalists make, strong cognitivist adopt epistemologies and ontologies that are de facto intrinsically diverse from rationalists. Nonetheless, as it is the case for International Relations as a discipline,<sup>269</sup> Regime Theory would hardly benefit from “academic sectarianism” that most probably fuel self-affirming research and wage unfruitful debates. The critical analysis of pros and cons of the three main approaches and their corollaries have rather shown that no one earn “hegemony” and all variables deserve attentions. Thus, the present works weds a communicative dialogue with the three schools within Regime Theory. Diversities of theory and methods seems necessary at this stage of intellectual development, not only to get to contingent and mid-level explanations for specific phenomena, but also to reach a better understanding of real problems of world politics.

The conclusive part of the chapter is dedicate to regime consequences. The section tries to provide some guidance for reasoning on regime effectiveness and its determinants in general and analytical terms building on three bodies of literature (RT, Environmental Policy, International Law/Governance). It offers an inclusive

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<sup>269</sup> [Lake, “Why ‘Isms’ Are Evil.”](#)

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conceptualization of the notion (as separate although almost probably influenced by implementation and compliance), examines how the topic of effectiveness has been addressed in IR literature and beyond, introduces several analytic tools (output, outcomes, impact, vs. process performance), and explains the trade-offs associated with each measurement's choice. More specifically the analysis sees in the broader (and cross-issue areas) effects of regimes and in the interactive complexities of current international relations what makes a full assessment of effectiveness (in terms of problem-solving) inevitably deceptive. Under this perspective, this work privileges' a multi-layered/complex definition of effectiveness. Finally, the chapter has investigated the causal bases of effectiveness and review main hypothesis about the behavioural mechanisms through which regimes operate. A special consideration has been assigned to constructivist accounts and to the microprocesses of socialization, especially because recent empirical studies on microprocesses have been developed with regards to security institutions. The section finally tries to isolate and organize, from within the dense scholarly production on the topic, those determinants of effectiveness believed to be associated with positive/negative regime outcomes (exogenous, endogenous, and dynamic factors).

Persistent challenges haunt the study of regime effectiveness and the road ahead is long especially if researchers aspire to move beyond structured and focused case studies towards more generalizable findings.

## Chapter 2: Non-proliferation regimes and the Securitization of Health

“Cooperation under the security dilemma”

### *Main problems of state interaction in security-driven contexts*

The lack of any authority which can successfully uphold the claim of a legitimate use of material forces has several implications for states' behavioural outcomes in the international arena.<sup>270</sup> In the international system, the term anarchy is employed precisely to describe the absence of one (or more) central agencies which can guarantee the correct circulation of truthful information, ensure the enforcement of promises and provide protection when the later are betrayed. International anarchy not only permits war to occur (working both as a permissive factor and/or a positive and independent induce)<sup>271</sup> but more in general “makes it difficult for states to achieve the goals that they recognize as being in their common interest.”<sup>272</sup> The latter (and undesirable) situational outcome often takes place even when external conditions seem favourable to mutual collaboration, or when states are satisfied with the status quo, or even when attempts are made to stabilize and arrange possibly existing coordinative/cooperative drives. Jervis is clear in catching the dilemma which lies behind international cooperation: “Because there are no institutions or authorities that can make and enforce international laws, the policies of cooperation that will bring mutual rewards if others cooperate may bring disaster if they do not.”<sup>273</sup> Anarchy by generating what international relations scholars often referred to as the two (interrelated) problems of “commitment” and “private information” can induce states to overstate their (or others') claims and/or resolve making the development of reciprocity-driven dynamic more difficult.

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<sup>270</sup> Weber, *From Max Weber*, 77.

<sup>271</sup> Anarchy represents a permissive factor leading to war in the sense that may propel states to initiate wars by “giving free ride to individual-level and state-level factors that push a state towards war (Walts, 1959). At the same time anarchy can work as a direct war inducer in the sense that it may independently and positively bring states to war (Fearon, 1995)

<sup>272</sup> Jervis, “Cooperation under the Security Dilemma,” January 1978, 167.

<sup>273</sup> Jervis, “Cooperation under the Security Dilemma,” January 1978, 167.

Unrequited cooperation is particularly “frightening” in the realm of national security because stakes are higher (up to the very existence of states/players) than in other issue areas with potentially dreadful consequences in case of miscalculation.

This chapter addresses exactly the problem of international cooperation in relation to security studies and, more specifically, tries to figure out whether and in which way the concept of regime can be applied with acceptable reward to issues of national security, as well it speculates on the analytical framework that can provide the more insightful contribution.

As explained in the previous chapter, three schools of thought have traditionally characterized regime theory (interest, power, and knowledge-based approaches). These schools depart from different assumptions over regimes’ formation and attributes, and reach diverse conclusions concerning regime effectiveness. Nonetheless, as already explained consensus exist on the fact that regimes (however defined) work as “intervening variable standing between causal forces (interests, power, ideas – depending on the approach) on the one hand, and outcomes and behaviours, on the other hand.”<sup>274</sup> When connections between outcomes and causal forces (which inform states’ preferences) are indirect, some room exist for institutions to restrain and regulate states’ behaviour. Research (deductive/inductive/empirical) in both security and non-security areas have shown that these connections (between power/interests/ideas and outcomes) are more direct in the security arena than they are in other issue-areas, implying that the room for manoeuvre which security regimes do enjoy, in order to influence states behaviours, is a very restricted one. This outcome can be explained by the fact the two typical problems linked to anarchy in the international system become more acute.

Normally the problem of private information develops because, in the absence of an international authority to force states to reveal their true capabilities, intentions, and preferences, states have all the incentives to overstate their resolve and capabilities during a diplomatic or military crisis. Likewise, due to the absence of a protection

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<sup>274</sup> Krasner, “Structural Causes and Regime Consequences: Regimes as Intervening Variables,” 185–205.

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provider states must fear that any diplomatic agreement they reach with a counterpart (for example to stave off a war) might be violated at some point in the future when the counterpart is in a position to be deadlier or more demanding (problem of commitment).

Scholars have identified a set of typical, or at least typically prominent, features that are responsible for making the problem of private information and commitment more acute and consequential in the security realm and for making cooperative/coordinative outcomes so difficult to be achieved and maintained in the security arena: (1) Relative gains dominated strategic situations and related interaction model; (2) Security Dilemma; (3) High Stakes

(1) Relative gains thinking can inhibit cooperation in two ways: by limiting the range of viable cooperative agreements (because states will disregard deals that provide greater benefits to others) and by changing states' incentives. The impact of relative gains over states decision has been widely studied. What is relevant to point out here, however, is that when dealing with security concerns, states tend to show higher sensitivity to relative gains. According to Grieco's interpretation of political realism, which was introduced in the previous chapter, a states' utility function should incorporate two distinct terms: a payoff "V" which reflects absolute gains motivations, a term integrating both a state's individual payoff and the partner's pay off "W", and a coefficient of sensitivity to gaps in payoffs (either to its disadvantage or advantage). One function he finds useful to describe this realist understanding of state utility is  $U = V - k(W - V)$ , in contrast with neoliberal theory compatible function of  $U = V$ .<sup>275</sup>

Since military power meets its test when states engage with each other, security-related issues have been considered substantively "relative" in nature so that security considerations themselves are bound to lose much of their relevance when measured in absolute terms.

Security policies tend to frankly modify the distribution of power among states and, for reasons that are easily understandable they involve a greater and more direct competitiveness than other relationships which states can enjoy in the international settings (for example economic or the environment related). In a trade regime, if a

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<sup>275</sup> Grieco, "Anarchy and the Limits of Cooperation," 1988, 500.

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state decides to free-ride (or cheats) leave the others worse-off than they would have been in the case mutual cooperation had occurred (no cheating). But those “worse-off” states can nonetheless achieved some good profits (higher than the ones they would have made if cooperation, even if unrequited, had not occurred at all). In other words, in economics, the fact that a state in the group cheats on its commitments does not automatically make the others regret their decision to cooperate.

On the contrary, in the security realm, “one’s gains are the others’ losses.”<sup>276</sup> In other words, in the security arena, there would be no room for the type of egoist/negative altruist states that are described by Keohane. Negative altruists’ only aim is the one of maximizing their absolute gains and they are mutually uninterested and insensitive to another player’s performance. Grieco translates these understandings by envisaging a coefficient accounting for a state’s sensitivity to relative gains ( $k$ ) when he contends that:

“the level of  $K$  will be greater if the issue involve security rather than economic well-being; if the if the issue involves security rather than economic well-being; if the state's relative power has been on the decline rather than on the rise; if payoffs in the particular issue-area are more rather than less easily converted into capabilities within that issue-area; or if these capabilities and the influence associated with them are more rather than less readily transferred to other issue-areas” and again “ $k$  will increase as a state transit from relationships in what Karl Deutsch termed a ‘pluralistic security community’ to those approximating a state of war.”<sup>277</sup>

It is worth here to make a couple of very important qualifications. On the one side, it need to be underlined that the relative gains hypothesis applies also to economy as well as security (although less directly). Snidal is clear in explaining why. In part, he writes, this is because economic gains can ultimately be transformed into security gains, so that in the long run, security and economics are inseparable. In part because there are domains (pure mercantilism and economies of scales) that present states with incentives to interfere in other states activities; in these situations, relative gains thinking would occurs directly in economics (independently of security

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<sup>276</sup> Jervis, “Security Regimes,” 1982, 359.

<sup>277</sup> Grieco, “Anarchy and the Limits of Cooperation,” 1988, 501.

considerations). On the other side, although relative gains-related problems make cooperation more difficult with regards to security concerns, they do not totally prevent the possibility of its development (as it has been explained in the previous chapter and will be further detailed below).

(2) A second key feature hampering security cooperation/coordination is represented by the “security dilemma”. The concept was first proposed by John Hertz in the 1950s and describes how self-help strategies - which guide the behaviours of states acting under a condition of anarchy - can fuel conflict and, in particular, boost arm race.<sup>278</sup> The “security dilemma” statement assumes that many of the policies adopted by states in order to increase their own security automatically and accidentally decrease the security of others. The situation is clearly very different in the domestic arena. In practical terms, within national boundaries, there are various ways to increase the safety of one’s person and property without endangering others’ possession. As Jervis explains, if one wants to feel more secure, he/she can simply move to a safer neighbourhood or put bars on the window. These measures may not be convenient nor cheap, but no one, save criminals, need to be alarmed if a person relocates. In international politics, however, “one state’s gains in security often inadvertently threatens others”.<sup>279</sup> One of the examples that Jervis brought about to elucidate this specific condition, is the British policy on naval disarmament during the inter-war period (especially in the 30s). United Kingdom made the Japanese feel apprehensive and anxious concerning the British’s intentions, even though Ramsey MacDonald expressively said that “nobody wanted Japan to be insecure”. China and South East Asia makes a contemporary case. Many countries identify China as a powerful state rising to a great power status. China on its side, sees the US as the most powerful state, and a one that may be willing to diminish China’s regional influence also throughout its allies in the area. In this context, Japan that is technologically more advanced than China and a country with which China shares a history of enduring conflict, as well as many South East Asian states, conspicuously increased their defence spending (in

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<sup>278</sup> Herz, “Idealist Internationalism and the Security Dilemma,” 157–80.

<sup>279</sup> Jervis, “Cooperation under the Security Dilemma,” January 1978, 170.

particular Singapore and Thailand). Under this perspective, for China the modernization of its military capability is a prudent and defensive step given the uncertainty of its region, however is a move that makes its neighbours nervous and more prone to prepare for conflict.

When it comes to security-related decisions, a state may seek arms to threaten other actors, not only if aims at changing the system in its favour (and actually engage warship) but also in those cases where the only wants to ensure that the status quo is not altered to its detriment (defensive realism). Although having nothing but the best intentions, the decision to increase military expenditures and arms production may be in any case perceived as an aggressive one in fact oriented to an active pronouncement towards status quo overturning. The problem appears less severe in non-security matters, where states may prepare for the danger that others will seek to take advantage of its restraints, without automatically impacting on others' affairs. States may get protection in ways that not necessarily threaten or menace others, for example by purchasing of insurance.

(2.1) The offence-defence theory by Jervis helps deciding over the intensity of the "security dilemma".<sup>280</sup> Indeed the problem becomes more or less acute according to how defensive and offensive security measures are characterized. More specifically, the issue mainly depends on (a) whether (and to what extent) offensive measures differ from defensive ones, (b) the capacity which states' intelligences and secret services have to appreciate such differences (intelligence and technology), and (c) the relative might of offensive and defensive tools. If defensive measures are both distinct and powerful, individualistic security policies will be relatively less threatening for others states and consequently cheap, safe and effective. When offensive and defensive weapons and policies are indistinguishable, and when attacking is more effective than defending (which, I want to anticipate, is exactly the case of bioweapons), the security dilemma is more intense and there is a great need of cooperation inducers/catalyser like regimes for the cooperation to be successful. According to Jervis, the technical capability of a state and its geographical position are

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<sup>280</sup> Jervis, "Cooperation under the Security Dilemma"; Gortzak, Haftel, and Sweeney, "Offense-Defense Theory"; Nilsson, "Offense-Defense Balance, War Duration, and the Security Dilemma."



two essential factors in deciding whether offensive and defensive actions are more or less advantageous.

(2.2) Even when offensive and defensive strategies greatly differ one another, uncertainty around other intentions survive. Detecting what other states are doing and measuring one's own security are difficult skills. In other issue-areas this is not necessarily the case: it is not essentially problematic to evaluate tariff increases, monetary manipulation or illegal fishing. Of course, also these activities can be disguised, but they are in general more transparent than military laboratories. This reasoning also applies to the effect produced by specific state behaviours; while in non-security areas, outcomes may not be completely clear they are usually clearer than analogous military activities. Under this perspective, according to some scholars, security issues pose a further problem linked to the fact that they enjoy a very subjective dimension. No states can predict how much security other states require to satisfy their own needs or can hardly predict how much other players are predisposed to see others as adversaries or potential allies. Decision-makers act in term of the vulnerability they feel, which can differ from the actual situation. This line of reasoning involves two dimensions. First, even if states agree about the objective situation (and it is not frequent), they may probably differ about how much security they desire – or about the price they are prepared to pay in order to gain increments of security. The second dimension refers to the acuity of threats that the states perceive, this is the estimate of whether the other will cooperate.<sup>281</sup>

(3) A third peculiar element of security interactions (compared to non-security ones) is that they imply higher stakes when cooperation is left unrequited. This is due to a combination of factors.

(3.1) On the one hand, security is understood as a prerequisite for “so many other things” that it is indeed valued as a primary/pilot objective in itself. Consistently, Bull identifies three goals for his international society that are elementary and primary: (1a) preservation of the system and the society; (1b) independence of individual

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<sup>281</sup> The question of when an actor sees another as a threat is important, a valuable contribution is given by Raymond Cohen, “Threat Perception in International Relations” PhD Diss., Hebrew University 1974.

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states; (1c) peace, which is, however subordinate, to society and system preservation. With reference to the second one (independence or external sovereignty) he articulates:

“from the perspective of any particular state what it *chiefly hopes to gain* from participation in the society of states is recognition of its independence of outside authority, and in particular its supreme jurisdiction over its subjects and territory. The chief price it has to pay is recognition of like rights to independence and sovereignty on the part of other states”.<sup>282</sup>

Interestingly enough, the freshly nominated Prime Minister Winston Churchill shortly before his country entered the Second World War spoke in the following terms:

“You ask, what is our policy? I will say: it is to wage war, by sea, land and air, with all our might and with all the strength that God give us; to wage war against a monstrous tyranny, never surpassed in the dark and lamentable catalogue of human crimes. That is our policy. You ask what is our aim? I can answer in one word: Victory. Victory at all costs - Victory in spite of all terror – Victory, however long and hard the road maybe, *for without victory there is no survival*”.<sup>283</sup>

(3.2) On the other hand, stakes are high with regards to security issues because of the “unforgiving nature” of the security arena. “Temporarily falling behind others may produce permanent harm”.<sup>284</sup> Indeed even if the other problems above discussed were solved in a specific moment, in security relations, incentives to defect tend to survive extant cooperation, because the temporal dimension violently intrudes (in terms of a fear for the future evolution of inter-states relationships). Even if states can accommodate their divergences in a specific moment, it is hard to predict how they world would look like in the future rendering it difficult for states to bind themselves (and their successors) to the same fixed path.

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<sup>282</sup> Bull, *The Anarchical Society*, 17.

<sup>283</sup> Winston Churchill, “Blood, toil, tears, and sweat”, First Speech as Prime Minister to the House of Commons, 13 May 1940

<sup>284</sup> Jervis, “Security Regimes,” 1982, 359.

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In conclusion, empirical evidence has shown that decision makers usually act and react first and foremost by unilaterally driven behaviour rather than by going for cooperative solutions when they confront security relevant challenges:

“usually statesmen think that they should play it safe by building a position of own strength without seriously considering that such a policy will increase the risk of war instead that lessening it (e.g. arms race).”<sup>285</sup>

Regardless of what inform security decisions (states unawareness of security dynamics or misperceptions of other behaviour), the latter usually fuel insecurity dilemmas and of course reinforce the reliance on unilateral solution rather than cooperative arrangements.

*Perspective for cooperation*

Notwithstanding the dismal picture unveiled, the twentieth century was marked by the proliferation of security regimes of any type. This paragraph tries to explain why by summarizing the major contributions pertinent to the present discussion.

The fact that cooperation in the security realm have become possible (and even a valuable alternative to self-help strategy) was already under examination when Jervis published his “Cooperation under the Security Dilemma” in 1978. The basic idea informing the article was the fact that states are not as vulnerable as human beings are in the Hobbesian state of nature.

(1) In other words, since international life is not as “nasty, brutish and short” as human life is, the cost of being exploited may be tolerated by states temporarily, without their immediate annihilation.<sup>286</sup> This substantial resilience implies that, even in PD-like situations, if an actor cheats the play, the game is not necessarily finished with that move. Consequently, in a condition of uncertainty, Jervis noted that each actor in the system did not have necessarily to immediately defect out of fear that the other will, but can wait and see what the other will do.

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<sup>285</sup> Jervis, “Security Regimes,” 1982, 360.

<sup>286</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 172.

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In a human-led stag hunt (see below), the failure to eat that day means that the player will starve. Consequently, the poor guy will be likely to defect even if he really like stags (over hare/rabbits) and even if he has a high level of trust in his colleagues. By contrast, states do not starve in one day, and consequently they can afford to take a less dramatic view of threats. Even the ultimate and greater cost of CD (loss of sovereignty) can be mitigated when the adversary is a state with compatible ideologies and the two are ethically similar.<sup>287</sup>

A relatively acceptable cost of being exploited (cost of CD) has the effect of transforming the game from one in which both players make their choice simultaneously to one in which an actor can make his choice after the other has moved – in other words bring reciprocity in. The opportunity to reciprocate that changes the calculus of preferences. The “relatively tolerable” costs of CD buy states an amount of time and space where regimes can intervene and make some stable cooperation still possible. Interestingly enough, this analysis brings in a salient consequence: the less a state is (or perceives itself) as vulnerable, the more it will be prone to take the risk of cooperation.

Because individualistic actions are not only costly but also dangerous, regimes could be an exceptionally valuable tool in the security arena. According to Jervis cooperation is possible in either of those cases in which the costs of risk of individualistic security policies are great enough to provide status quo powers with incentives to seek security through cooperative means, and the dangers of being taken by surprise by an aggressor are not so great as to discourage the states from reliance on joint measure.

(2) If on the one side the study international cooperation (problem of commitment) in general and of political institutions, in particular was beneficially influenced by the PD game model, scholars rapidly realised that in factual world scenarios there were limits to its applicability. Already in the previous chapter, it has been explained - by using Snidal account - how the problem of relative gains is mitigated in the case of real problems (versus heuristics like a pure PD-like game) in particulars with regards to the occurrence of (1) multidimensional and complex preferences (graduation); (2)

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<sup>287</sup> Jervis, “Cooperation under the Security Dilemma,” January 1978, 174. An example of this could be the annexation of Austria by Nazi German (Anschluss, 1938).

multiple players (or asymmetries among players), (3) reiterated interaction (discount rate).<sup>288</sup>

(3) Furthermore, beyond cooperation under a PD-scheme also called, in Snidal's terminology, the problem of assistance, other collective action problems can be identified in the security realm which are potentially more prone to cooperative outcomes: coordination, suasion, and assurance.<sup>289</sup> It was already clear back in the early '80s that different histories, contexts, underlying strategic situations could vary at a great length (especially across issue areas). Nonetheless the impact of such differences, in terms of regime variation they implied, was generally less understood. As Snidal noticed in 1984, this "delay" was attributable to the fact that a particular model of interaction (the Prisoner's Dilemma indeed) come to be treated as "the" problem of collective action.<sup>290</sup>

Actually, two years before in 1982, Stein had structured cooperation issues in two macro categories: (1) The "dilemma of common interest", which included PD-like situations, where independent rational decision making lead to suboptimal outcomes (this is what the author properly defines as a "collaboration problem", for example the provision of collective goods and/or non-proliferation efforts). (2) And, secondly, the "dilemma of common aversions", that occurs when actors have interest in avoiding a particular outcome (which are de facto "coordination problems"). Such coordination problems were then classified in those in which players have no preference between coordination points, and those in which players have divergent preferences between coordination points.<sup>291</sup> Building on this first insight, Snidal analysed the great diversity of problems of international cooperation and the institutional (regime) variation which is likely to result from there. He described the different strategic structures (in particular PD versus Coordination) and the different contextual variation (graduation, multiple players, asymmetries, time) within strategic structures as well as the important consequences for regime characteristics the

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<sup>288</sup> Snidal, "Relative Gains and the Pattern of International Cooperation."

<sup>289</sup> Martin, "Institutions and Cooperation."

<sup>290</sup> Snidal, "Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes," 924.

<sup>291</sup> Stein, "Coordination and Collaboration."

differences imply. In his view, there is no ontological difference between the two problems apart from those pouring from the relaxation of the relative gains hypothesis.

In *prisoner's dilemma*, the rational pursuit of self-interests leads to a solution that is not pareto-optimal. States benefit by setting up institutions and rules to control the competition among them. However, even when cooperation is established, the risk of cheating does always exist since the best option for each player corresponds to a "DC" outcome (defeating while the other cooperate). In brief, there is no solution that is in the best interests of all participants: there are offensive and defensive incentives to defect from the coalition with the others and the fear of being exploited (that is the cost of "CD") most strongly drives the security dilemma (see Figure 1.1).

The incentives for establishing such a regime, and the obstacles to so doing are especially great in the security arena because of the "security dilemma" (as explained in the first paragraph of the present chapter).

According to a functionalist perspective, Prisoner's Dilemma-like situations which involve security dynamics, in order to be successfully addressed, require the collaboration to be mediated by very specific regimes which define proper standards of cooperation (e.g. clear-cut injunctions that specify/clarify behaviours that are illegitimate under the regime are compulsory). Furthermore, high degree of formalization is a desirable attribute of these types of regimes. They should involve international organizations to collect and disseminate information, to reassure the partners about other actors' compliance with the central provision of the regime and provide a way of ensuring that cheating is visible and some punishment dispensed.

Coordination (battle of sex) regimes have sometimes been considered less useful (if compared with more confrontational approaches) in order to explain security dynamics. This perspective has been challenged by Knopf, with specific reference to non-proliferation regimes (see chapter three).<sup>292</sup> Notwithstanding the fact that treaties to control WMD have been frequently addressed as cases of collaboration (PD-like situations),<sup>293</sup> the author argues that both the NPT and the other nuclear arms

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<sup>292</sup> Knopf, *International Cooperation on WMD Nonproliferation*, 2016, 8–11.

<sup>293</sup> For example: Weber, *Cooperation and Discord in U.S.-Soviet Arms Control*; Barrett, *Why Cooperate?*, chapter (5).

control treaties of the Cold War seem to better fit under the rubric of coordination-games models. Nonetheless, Knopf maintains that albeit departing from within a coordinative framework, non-proliferation regimes are moving towards higher degree of collaboration among their members.

Knopf recalls Stein's taxonomy according to which coordination would be required when states want to avoid a particular bad outcome (including not spending the night together in the battle of sex or the car crash outcome in a game of chicken), but do not need to jointly settle their actions beyond that. Collaborations games, in contrast, materialize when states have to specify more concretely that they will take joint actions to ensure a particular good outcome to materialize (such as how to achieve the CC payoff in the PD). Under this perspective, Knopf argues that non-proliferation agreements, by requiring states to act separately to align their policies around a common objective seem closer to coordination, as the dictionary would define the term, than to collaborative efforts, which would indeed require states to act side by side in a shared endeavour (although he observes a tendency to move in that direction).

In coordination games, cooperative solutions tend to be stable once reached and consequently self-enforcing (this is because solutions represent pareto-equilibria, see Figure 1.2). Since there is no problem of cheating, coordination regimes do not need as many compliance mechanisms as PD-like regimes do. Consequently, coordination regimes tend to be less formalized and less centralized than cooperative ones. Likewise, organizations may be relevant particularly in the pre-regime stage thus providing a negotiation forum but they are no more indispensable in the regime stage. The stag hunt is a typical game that describes a conflict between safety and social cooperation, the problem is also known as "assurance game" and "trust dilemma". This approach is particularly relevant because Robert Jervis himself has analysed the security dilemma in terms of assurance situations.<sup>294</sup> The game, he points out, fits very well when dealing with arms proliferation in general (and I would say biological weapons in particular).

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<sup>294</sup> Jervis, "Cooperation under the Security Dilemma," January 1978, 167–214.

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Robert Jervis makes use of the man in the Rousseau's "Stag Hunt" specifically to explain the reasons why anarchy may encourage behaviours that leave all actors worse off than they could be, even in the extreme cases in which all states desire to freeze the status quo.

Jean-Jacques Rousseau describes a situation in which five individuals go out on a hunt. Each hunter can individually choose to chase a stag or a hare (as usual, each player must choose without knowing the choice of the others). The stag is what all them would like to eat but the success with the stag may be reached only by a joint action of the hunters.

Players can still get some food if they hunt individually, but they can only get a hare by means of individual actions; the animal nonetheless is worth less than a stag. The difference with Prisoner's dilemma is that here there are two Nash equilibria: when all players cooperate or all players defect.<sup>295</sup> In other words if they cooperate to trap the stag, they will eat, but if one person defects to go for the rabbit none of the other will get anything. Thus, all actors have the same preference order: (1) Cooperate and trap the stag; (2) chase a rabbit while others remain at their posts; (3) all chase rabbit (4) stay at the original position where another chase a rabbit. Jervis applied this pattern to cooperation and disarmament. The preferences will come out as follows: (1) cooperation and disarmament; (2) maintain a high level of arms while other are disarmed; (3) arms competition and high risks of war; (4) being disarmed while other are armed (figure 1.3)

The main point is that although actors may know that they all seek a common goal, they may not be able to reach it.

In summary, assurance game is quite similar to battle of sex in that the game shows two equilibria outcomes. The crucial difference is that only one of the two (mutual cooperation) is pareto-efficient and consequently preferred by both/all actors. Even if it does not seem a problem of collective action, it becomes such in two cases.

First when at least one actor fears erroneously that the other's preference ordering is not really "assurance" but a PD-like. Second, when at least one actor doubts that the other can be trusted to act rationally on the given issue. In both situations, it may be

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<sup>295</sup> Rousseau and Cole, *The Social Contract, and Discourses.*, 14.



reasonable to opt for defection especially when stakes are high and uncertainty is pronounced. Indeed, defection in assurance game is the only possible way for actors to avoid (unilaterally acting) ending up with their worst possible outcome (CD). In other words, “assurance” poses collective action problems because under specific circumstances choosing the maximin strategy may be individually rational, even though bound to a collectively sub optimal result. In the case of a stag hunt situation, Zürn and Martin argue that regimes may help to solve assurance problems by facilitating communication among states especially when the assurances are treated as if they were PD-like games.<sup>296</sup>

A last category of games that structuralists usually take into consideration in describing security relevant situations, are suasion games known colloquially as Rambo games (see figure 1.4)

The typical feature of a suasion game is a single equilibrium outcome, which leaves only one actor satisfied while the other is aggrieved. This implies that one actor receives the most preferred outcome and the other one does less well. Unrequited cooperation is the only possible outcome. Rambo games include two variants. In the first one, one actor has a dominant strategy to cooperate, which the other can exploit. In the second variant, one actor has a dominant strategy to defect, while the other must cooperate in order to avoid an even worse outcome, here the privileged player has to be persuaded to cooperate.<sup>297</sup>

In term of security studies the most relevant scenario is the second one. What can the “dissatisfied actor” do to convince the privileged one to cooperate? He can try to manipulate the preferences of the privileged one by making menaces: for example, by threatening to act irrationally in order to decrease the other utility of defection. Alternatively, he may make promises in order to increase the other the utility in cooperation. The use of threats always poses a problem of credibility, and even when we take credibility for granted, the “threats-trick” will work only if the privileged actor has not a dominant strategy not to cooperate. Regimes in suasion games may help

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<sup>296</sup> Zürn, “The Effectiveness of International Institutions: Hard Cases and Critical Variables.”

<sup>297</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 51.

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states to organize their threat and promises in “side-payments” to secure the cooperation of the actors that are privileged by the situation.

Regimes and international organisations can also help states to correspond the side payments necessary to secure cooperation of the actor that are privileged by the situation. Likewise, through their principle and norms they may institutionalize the issue-linkage on which cooperation depends. Since incentive to defect continue to exist on the part of the “persuaded” actors, suasion regimes may display some features of the collaboration regimes (especially monitoring capacities).<sup>298</sup>

Lisa Martin suggests that suasion-games related regimes are often sponsored by a hegemonic power. The first argument she uses to defend her position is that a dissatisfied actor, if also a hegemon, will be more probably able to put in place threats and promises in order to elicit cooperation from their partners. The second argument is that asymmetry between players is what characterize suasion-game situations, likewise asymmetry is what hegemonic relations, par excellence, display.<sup>299</sup>

Finally, it is worth noting that in all the situations analysed, functional equivalents to regimes (but less costly substitutes) may exist in concrete real-world scenarios. In some case “the mutual transparency that comes with democratic domestic institutions may be sufficient for assuring states of the nature of the game at hand (and for the appreciation of this nature by their partners)”.<sup>300</sup>

#### Rational determinants of security regimes

Among scholars of international regimes who have been more productive in assessing, describing and discussing security institutions are neoliberals (functionalists) and cognitivists (both weak and strong variants), despite some relevant exceptions in the ranks of realism exist (Krasner and Grieco, in particular). As anticipated in chapter 1, neoliberal perspectives focus on how structures can affect the instrumental rationality of actors. More specifically, functionalists do believe that international conflicts – including the ones that involve security relevant issues – can be ameliorated through

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<sup>298</sup> Hasenclever, Mayer, and Rittberger, 52.

<sup>299</sup> Lisa Martin, “The Rational State Choice of Multilateralism,” 103f.

<sup>300</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 50.

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collective management and institutions.<sup>301</sup> Institutions, including regimes, play a role in security relations mainly because they mitigate the private information problem, by reducing uncertainty, and the problem of commitment by decentralising cooperation. Because states' choices are the result of both what they desire, and what they believe other states desire, governments may find it worthwhile to pay some pre-emptive cost to get information and gain a better understanding of others' intentions ex-ante in order to design strategies that will better fit real case situations. Under this perspective, institutions "reduce uncertainty by providing credible information".<sup>302</sup> If uncertainty is the main cross-sectoral and fundamental problem of international relationships, as seen in the previous paragraph, collective action problems can be created by different specific situations: collaboration, coordination, suasion, and assurance.<sup>303</sup>

Structure-functionalists argue that diverse collective actions problems account for different regimes. In other words, these scholars envisage a link between the function and the institutional form that the regime exhibits and provide that the basis for explaining the variation in the institutional form is to be found exactly in the function these institutions absolve insofar individual features characterize regimes across types of situational structure.

As far as the likelihood of regime formation is concerned, functionalist's analysis turns up to be an instrumental one: the benefit regimes provide is sufficient to account for their very formation and maintenance. Moreover, functionalists have derived hypothesis about the varying likelihood of regime formation on the assumption that the creation of a regime is more likely the less demanding the interaction problem is. It is reasonable to believe that cooperation is more difficult (and less performing) when incentives to defect persist even after actors have decided to cooperate and also when actors disagree on how and whether to cooperate.

Zürn ranks the "situational" propensity for regime formation in a continuum from high probability to lowest: "assurance situations" (high probability); "coordination"

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<sup>301</sup> Axelrod and Keohane, "Achieving Cooperation under Anarchy"; Oye, *Cooperation Under Anarchy*; Young, *International Governance*, 1994.

<sup>302</sup> Haftendorn, Keohane, and Wallender, *Imperfect Unions*, 4.

<sup>303</sup> Martin, "Institutions and Cooperation."

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(medium-high); “collaboration” (medium-low); “suasion” (low probability).<sup>304</sup> The author has suggested to refine his regime classification by the use of secondary variables: (1) the expected frequency of interaction through time, (2) the density of interaction, (3) the type of foreign policy that is parasitized by the actors, (4) the distribution of issue-specific resources, (5) the presence or absence of salient solutions; (6) the number of actors in the issue area, (7) the state of overall relationship of the actors involved. Zürn has stressed the relevance and the precise effect of individual secondary variables (relative weight) with regard to the prospect of regime formation vary across types of situation structures.

Thus, for example, he has argued that the distribution of resources among actors is not relevant for assurance situations whilst it is for the other three situations.

Based on the assumptions detailed in the previous paragraph, Jervis identified some additional conditions (with respect to the underlying “context” (collective action problems, issue-area, typology of conflict)) that can contribute to create a propitious setting for the establishment of security regimes. His reasoning supplement functionalist variables accounting for security regime formation and effectiveness, nonetheless partially transcending rationalist boundaries.

(1) First, great powers must want to support their creation. Key actors in the system must prefer a more regulated environment in a specific area, to one where all states behave individualistically.

(2) Second, the actors in the system must also believe that the others share the same value they assign to mutual security and cooperation. In practice, this is not an easy task and probably decision makers tend to overestimate (instead of underestimate) other states’ aggressiveness.

(3) Third, even if all major actors would settle for the status quo, security regimes cannot form if one (or more) actor(s) believes that security is best provided for by aggression.

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<sup>304</sup> Zürn, Michael, *Interessen Und Institutionen in Der Internationalen Politik: Grundlegung Und Anwendungen Des Situationsstrukturellen Ansatzes*.

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(4) Fourth and concerning the offensive-defence balance; a condition favourable to regime formation is one in which offensive and defensive weapons and policies are distinguishable but the former are cheaper and more effective than the latter, or in which they cannot be told apart but it is easier to defend than attack (again this is not the case of biological weapons, which do not satisfy this requisite and on the contrary show opposite characteristics).

(5) Fifth, the belief that individualistic pursuit of security war is a costly option also represents a relevant regime inducer. On the contrary, if states believe that war is good in itself, they will not be motivated to form a regime to prevent it. If they believe that building arms is something to be welcomed (e.g. because it funds domestic industries), cooperation won't be pursued. Likewise, if states think that arms procurement and security policies can be designed carefully enough to reduce the chance of unnecessary wars, then a major reason to avoid individualistic policies disappears. And finally, if hostility in security area is not believed to spill over into hostility in other issue-areas like the economic one, another important motivation to cooperation will be absent (for a summary see Table 2.1)

As far as security regimes' demise is concerned, Jervis identifies three reasons that may have intervened in a specific case (the "Concert of Europe" existed in Central Europe from 1815 to 1823 - which he describes as a best example of a security regime): (1) the reduced salience of the contention, the faded memories of the events that brought to regime formation; (2) states' exhaustion, as time moves, each state is most sharply aware of the sacrifice it makes than it is of others restraints; (3) change in the structure of the system

"since world politics did not seem so dangerous, pushing harder seemed sensible to individual states. The structure seemed stable enough to permit states to impose a greater strain on it. But seeking individualistic gains raised doubts in others' minds as to whether moderation and reciprocation would last, thus giving all states greater incentives to take a narrower and shorter-run perspective."<sup>305</sup>

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<sup>305</sup> Jervis, "Security Regimes," 1982, 369.

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Social determinants of security regimes

Social theories of security regimes maintain that both mainstreams and critical theories have proved unable to explain the dramatic changes the world has witnessed starting in the second half of the 80s.

More specifically and with regard to functionalism, cognitivists believe that neoliberal theories have devoted too much of their attention to the conditions that shape whether or not cooperation is possible (“if”), but less about the factors and processes involved in the bringing about cooperation in practice (“how”).<sup>306</sup> In fact, functionalists, especially in early times, were concerned particularly on demonstrating the possibility of cooperation in an anarchic system. Once demonstrated that the possibility for regime creation was there, institutions would have come into existence because of their utility and service. So, as we have seen, leading works from this stream have focused on studying the conditions/situations that made/make security cooperation possible, the underlying collective action problems that regimes are expected to address, and the consistent type of institutions that will result from those problems. Functionalists also posit that a rational self-interest for states to engage in cooperation does exist because of the interdependence which characterize international life. When states are interdependent, non-mediated behaviours can leave all states with suboptimal outcomes and this represent the first incentive to establish cooperative links. Under this perspective, a second critique to neoliberals builds exactly on the idea that interests cannot be left unproblematized because they are themselves constructed by a process of social interaction. The opening, in constructivists’ account, comes not by denying that “people often behave rationally, but by trying to understand how people’s beliefs enable them to concert their expectations and reach solutions to problems where no game theoretic equilibria exist.”<sup>307</sup>

A part from scholarly divides, however, variants of neoliberalism and to some extents realism have acknowledged in many ways the importance of social facts. Interalia, Gilpin’s distinction between revisionist and status quo power – which requires some

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<sup>306</sup> Knopf, *International Cooperation on WMD Nonproliferation*, 2016, 3.

<sup>307</sup> Haftendorn, Keohane, and Wallender, *Imperfect Unions*, 337.

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concept of identify; Walt's recognition of threats over power, Keohane's reasoning on "how people and organizations' define self-interest,"<sup>308</sup> Krasner's account of sovereignty which relies heavily on the concept of punctuated equilibrium and historical path-dependence.<sup>309</sup>

Nonetheless social determinants never acquired center stage in power and interest-based approaches to security regimes, being instead the core of knowledge theories. The latter made the cultural-institutional context of policy, on the one hand, and the constructed identity of states, on the other hand, important determinants of national-security related policies.<sup>310</sup>

### *Learning*

Even if national interest is usually ascribable to considerations of power's distribution, in the view of cognitivists, it cannot be reduced to that. In line with the knowledge-based tradition of regime theory reviewed in the previous chapter, Nye argues that even in the security arena, under which considerations of military capabilities tend usually to prevail, states perception of self-interest cannot be reduced to systemic and/or power-based concerns and fixed interests.

National interest may change because of several factors. It can be redefined after a domestic shift in power, because of a normative or a cognitive change. This latter option is particularly relevant in dealing with arms control regimes.<sup>311</sup> Nye describes cognitive change as a sort of "learning". In this sense, to learn is "to develop knowledge by study or experience." New information alters prior beliefs about the world. Nye uses the term "simple learning" when new information are used to adapt means, without changing the ultimate goals. He describes "complex learning" as the process which lead to new priorities and trade-offs.

Nye finds remarkable instances of "complex learning" in the bilateral relationship of the post-war superpowers. He believes that only after the United States and Soviet-Union had changed their initial beliefs about the usability of atomic weapons and their

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<sup>308</sup> Keohane, "Empathy and International Relations," 277.

<sup>309</sup> Krasner, "Sovereignty."

<sup>310</sup> Katzenstein, *The Culture of National Security*, 1996, 5.

<sup>311</sup> Nye, "Nuclear Learning and U.S.-Soviet Security Regimes," 378.

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mechanism of nuclear deterrence, a cooperation in highly-sensitive issue areas (such as strategic arms control and nuclear non-proliferation) became possible.

In the early 1960s the two Superpowers became aware of the destructive power of nuclear arms and the impossibility of protecting one's population unilaterally from the horrors of an all-out nuclear war. They "understood" that nuclear proliferation might disrupt the precarious balance of threat (which granted stability to the overall international system) and increase the likelihood of a nuclear war. They "learned" the need for crisis management to minimize the danger of escalation and for robust command and control systems to help central decision makers-control the risk of such an escalation. In the same period a (new) common knowledge, has developed with regard to the spread of nuclear weapons to more countries. The consensual knowledge that both side had acquired, over time led them to accept that nuclear risks could be managed by a change from "purely" unilateral to "more" cooperative security strategies. In other words, new information, which did not affect the distribution of power among actors, contributed to transform a zero-sum game into a mixed-motive one, in which both actors could gain security through cooperation. In this perspective, the NTP/SALT/ABM regime for the control of nuclear armament could be developed to solve the remaining "collective action" problems thus resting on the emergence of a new contextual knowledge.

Learning has been particularly impressive in informing efforts to slow the spread of nuclear weapons to new countries (horizontal proliferation). Although it seems that this objective would have obviously been a common interest for the two superpowers, Nye highlights that it took nearly a decade to appreciate it as such. It is not they had not enforced unilateral initiatives supporting restrictions before attempting a joint venture. Only when these unilateral efforts - in mid-1950s and early 1960s - did fail, the two sides turned to exploring cooperative solutions and developed international institutions to slow the spread of nuclear weapons. Nye's perspective has relevant consequences for our understanding of regime performance. Within rationalist accounts, security regimes have been treated as cooperation "enzymes", factors able to facilitate and accelerate the cooperation process. If learning lead to the creation of security regimes, in turn regimes may promote further learning. In other words, regime can have feed-back power. Krasner himself attributes a similar role to regimes



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when he refers to the “feed-back” effects they produce on actors’ beliefs (update belief variant of contractualism).

This effect may take place by helping to “lock in” states and to further develop the learning that had prompted regimes’ creation. By stabilizing actors’ mutual expectations in an issue-area, regimes can reshape their perceived self-interests.<sup>312</sup>

More specifically, the institutionalisation of regimes can: 1) change standard operating procedures for national bureaucracies; 2) present new coalition opportunities for subnational actors and improved access to third parties; 3) change participants’ attitudes through contacts within the framework of institutions; and 4) provide means to dissociate a particular issue from changes in the overall political relationship by regular, formal meetings.<sup>313</sup>

*Epistemic Communities in international Security Regimes*

If knowledge is an autonomous variable shaping national interest,<sup>314</sup> if new information and learning can lead to regime formation and if regimes themselves may promote further learning,<sup>315</sup> it is obvious that knowledge managers must play a role in the creation of security regimes (as well as they do in other kinds of regimes).

Epistemic communities are defined as a “network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy relevant knowledge within that domain or issue area.”<sup>316</sup>

The members of such communities are expected to share a common understanding of particular problems in their field of research as well as awareness and preferences for a set of technical solutions. Most importantly, they are not satisfied with a passive role of “information providers” – who only speak out at the request of decision makers. Through the benefits of modern communications system, epistemic communities often operate transnationally. Peter Haas has established three central requirements for knowledge as provided by scientists and other experts to have an

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<sup>312</sup> Nye, 385.

<sup>313</sup> Keohane and Nye, *Power and Interdependence*, Chapter 1.

<sup>314</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 147.

<sup>315</sup> Nye, “Nuclear Learning and U.S.–Soviet Security Regimes,” 398.

<sup>316</sup> Haas, “Introduction,” 27.

impact on processes of international cooperation and regime formation and effectiveness: (1) first, a high degree of uncertainty among policy-makers; (2) a high degree of consensus among scientists; (3) a high degree of institutionalisation of the scientific advice enhanced is, as well, very important. If these requirements are satisfied, “epistemic” coordination is likely to occur and it is exerted in four phases: innovation, diffusion, selection and policy persistence.

Hasenclever, Mayer and Rittberger, with regard to policy innovation maintain that epistemic communities can influence the framing of issues for collective debate. Subsequent negotiations are then conditioned by the information initially provided by the epistemic community. Furthermore, in situations of pronounced uncertainty, “epistemic communities may not only succeed in exerting strong influence on debate, but also help states identify their very first interests in a particular situation”.<sup>317</sup>

Epistemic communities are also important as agents of policy diffusion, experts can communicate new ideas and policy innovations to their colleagues in other countries who in turn influence their government. Adler has traced this process of policy diffusion in the case of nuclear arms control.<sup>318</sup> He found that American epistemic communities played a key role in creating the international shared understanding and practice of nuclear arms control. The members of the community were able to influence not only the U.S. Government but also, through their Soviet counterparts the Soviet government to the extent that their ideas were finally embodied in the ABM treaty. As it will be clear from the next chapters, the civil society was also key in leveraging UK and US political establishment to Biological Warfare’s renunciation.

By contrast, the impact of an epistemic communities on policy selection is very difficult to assess. Still there is some evidence that epistemic communities can exert considerable influence at this stage, particularly when they provide integrative formulas in complex negotiations.<sup>319</sup>

Finally, epistemic communities may operate as effective advocates of established regimes by defending them as best-suited means to eliminate the problems which have prompted their creation.

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<sup>317</sup> Hasenclever, Mayer, and Rittberger, *Theories of International Regimes*, 1997, 151.

<sup>318</sup> Adler, “The Emergence of Cooperation.”

<sup>319</sup> Adler and Haas, “Conclusion.”

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Security regimes vs. security cooperation (security communities, collective security, alliances, security complexes)

Robert Jervis describes “security regimes” as “principles, rules and norms that permit nations to be restrained in their behaviour in the belief that other *would reciprocate*.”<sup>320</sup> The definition is relatively broad and still consistent with those adopted by scholars who work with reference to different issue areas of international relations (for example economics or environmental protection). Nonetheless, in his definition, the author assigns (and rightly so) a special emphasize to the reciprocity requirement, in consideration of the highly consequential outcomes that unrequited cooperation broadcasts in security-driven relationships. Furthermore, in Jervis’ perspective, in line with IR mainstream approaches, the term “regime” does not apply to all the norms and expectations that facilitate interaction in general (as a simple transaction would do), but refers only to those cooperative relations which go well beyond the pursue/satisfaction of a very short-run and incidental interest. Consequently, unless a more complex and deeper dimension exists around and beneath a specific arrangement, this won’t be considered, from Jervis’ standpoint, a proper regime, even if some other regimes-related criteria are satisfied (for example repetition and convergence of expectations).<sup>321</sup> Jervis makes a couple of very clear examples to explain the drawbacks of excessively formal and simplistic approaches:

“to comply with a robber’s demand to surround money is not participate in a regime even if the interaction occurs repeatedly and all participants have the same expectations [over the outcome of the interaction]”

and – with reference to the Cold War bipolar system –

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<sup>320</sup> Jervis, “Security Regimes,” 1982, 357.

<sup>321</sup> Puchala and Hopkins, “International Regimes,” 1982.

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“the fact that neither superpower attack the other is a form of cooperation, but not a regime. The link between restraint and their immediate self-interest are to direct and unproblematic to involve the concept.”<sup>322</sup>

In fact, in the original volume on International Regimes (1982), Jervis was very tentative in his assessment on the possibility that security regimes have ever existed since 1945. The author suggested caution in drawing conclusive assessments over security regimes and wondered which form of cooperation could be creditably considered a regime in the security domain. In a later essay, the author revamped his suspicious on the actual possibility for relatively high levels of cooperation (between states confronting a security dilemma) to rise and consolidate in international politics.<sup>323</sup>

These reflections bring to the floor one of the most relevant, and too often overlooked, aspect in the study of international security regimes which is the one of distinguishing security regimes from other forms of cooperation in the security realm. On the subject, Amitav Acharya - in the first chapter of his book dedicated to the Association of Southeast Asian Nations (ASEAN),<sup>324</sup> provides some helpful insights. Acharya’s objective is to study regional security communities. His contribution, however, becomes useful to the present analysis since the author starts his essay by defining and describing what make security communities different from other similar forms of security cooperation (including security regimes). It is my opinion that any attempt aimed at reaching a fully consistent taxonomy and to get to precise categories, (although necessary for providing heuristics and analytical tools) is bound to be inconclusive. First of all, many features which are critical in distinguishing institutions are de facto common to all the categories in question; to the point that sometimes the boundaries blur between them - especially when a category is seen as

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<sup>322</sup> Jervis, “Security Regimes,” 1982, 357.

<sup>323</sup> Jervis, “From Balance to Concert.”

<sup>324</sup> Acharya, *Constructing a Security Community in Southeast Asia*.

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an intermediate step to reach another category;<sup>325</sup> second, states often display overlapping memberships so that multiple network of institutions develop and interlock one another making it hard to isolate patterns; third and most important, practitioners - and sometimes even scholars, tend to use the terms interchangeably making academic debate of modest utility. Finally and pouring from the above, even if a precise categorization could ever be achieved, it may not be clear - in the end - if participants that belong to multiple institutions would act under the flag of one or another security arrangement they belong to.

Nonetheless, based on existing literature, it is still possible to identify (at least in theory) some peculiar elements which characterize security cooperation, for a summary see Table 2.2.<sup>326</sup>

As explained in the previous paragraphs, in *security regimes*, a group of states cooperate to manage their disputes on specific issues. Through regimes, states try to mitigate the problems of private information and commitment (for example by muting the security dilemma) in order to subtract that policy area from mere self-help strategies. For example, in the case of non-proliferation regimes, what it is expected to be “silenced” is “arm race” – a typical manifestation of the security dilemma. As a consequence of the many mechanisms through which they operate, we expect regimes to raise the security profile of its participants.<sup>327</sup>

The latter doesn't mean that war stops being an option among a security regime's members, neither that participants stop preparing for a possible material conflict that could erupt between/among them. Consistently, some kind of arms' acquisition and contingency planning for a possible confrontation continues.

Another typical feature of security regimes (versus other forms of security cooperation) relates to the fact that regimes tend to cope more often with risks than

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<sup>325</sup> This could exactly be the case between international regimes (referred to as “no-war communities” in Deutsch's classification) that have been seen and described as a step towards security community.

<sup>326</sup> From here to the end of the paragraph, references include: Keohane, 1999; Daase 1992; Herz 1951; Jervis 1978; Wolfers 1962; Fearon, 1994; Powell 1996.

<sup>327</sup> depending on the IR school standpoint adopted, regimes are believed to intervene between states preferences and outcomes in diverse ways – as it has been explained in the first chapter

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with threats.<sup>328</sup> The difference is crucial because threats, which are usually associated with collaboration problems, can't be controlled; threats can only be answered to when they materialize. On the other side risks, which typically characterize coordination or coordination-like situations can be mitigated. As it is exemplified in the formula below, government can potentially deal with risks by lowering their countries vulnerability or their overall impact/consequences (by means of countermeasure and response).

$$Risk = \frac{P(Threat) * Consequences * Vulnerability}{Level\ of\ preparedness * Response}$$

Under this perspective, security regimes tend to be inclusive, to involve all states that can pose a risk, and inevitably embrace countries where some adversarial relationships survive (outside the area that is expected to be governed).<sup>329</sup>

Although building upon some common interests (mixed motives) a sense of "we"-feeling among participants doesn't need to pre-exist when security regimes develop (in the first instance).<sup>330</sup>

Security regimes do not even require that participants enjoy some previous degree of cooperation, interdependence, or integration.<sup>331</sup> In most regimes' accounts, interdependence (states' system) seems to be a sufficient requirement to create the conditions for a regime to develop. It is exactly the fact that each regime member is willing to avoid a specific outcome, blind of others' intentions, that creates the possibility for regime development. Consistently, it is often the case that security regimes are equipped with some sort of written norms and tend to display medium to high degree of institutionalization (a treaty is usually the baseline, often linked to

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<sup>328</sup> Haftendorn, Keohane, and Wallender, *Imperfect Unions*, 24–27; Keohane, *Power and Governance in a Partially Globalized World*, 88–89.

<sup>329</sup> A security regime may indeed develop within otherwise adversarial relationship where the use of force is inhibited by the existence of a balance of power or a situation of mutual deterrence (Concert of Europe or the Non-proliferation regime championed by the US and the Soviet Union in the 60s with regard to nuclear and biological weapons).

<sup>330</sup> Usually the interests of actors are neither "wholly compatible nor wholly competitive", Stein 1985.

<sup>331</sup> For this reason, the Concert of Europe and the CSCE have been taken as examples of security regimes in Haftendorn, 1999.

some security management arrangements and organizations). As explained in the first chapter, explicit norms are not (by definition) a requirement for security regimes in order to be considered as such, and some security regimes appear in minimally institutionalized forms (e.g. diplomatic conferences) (see Table 2.3). Nonetheless, it is very likely (and in the view of some scholars, it is inevitable) that regimes will produce, as the time goes by, a convergence of interests, ideas and identities among its members. Finally, regimes are characterized by high degree of commonality and functional differentiation and mixed degrees of specificity. Examples of security regimes in past and present times include the Concert of Europe, the Conference on Security and Cooperation in Europe, and the Non-proliferation regimes.<sup>332</sup>

Although possibly an intermediate step towards them, security regimes shall not be treated as Security communities (in Deutsch understanding).<sup>333</sup> Security communities are indeed characterized by strict and observed norms concerning the non-use of material force so that the peaceful resolution of conflicts rising among between and among members is granted. Security Communities' main focus is war-risk management. More specifically the participants of a security community display a pre-existent sense of community and rule out war which stops being an option (within the community). Arm race (or the set-up of contingency planning or war oriented mobilization against other actors in the community) does not take place; The reasonable certainty exist (within and outside the community) that all members share a common belief in the undesirability of war (harmony-like situation) and there is a long-term perspective of war avoidance. Formal or informal institutions and processes for the pacific settlement of disputes can usually be identified with reference to a specific security community. Security Communities are exclusive in the sense that usually develop on a geographical basis as in the case of pluralistic regional security communities. Commonality is obviously very high as it is specificity. On the contrary,

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<sup>332</sup> Commonality refers to the degree to which expectations about appropriate behaviors are shared by members. Specificity refers to the degree to which specific and enduring rules exist, governing the practice of officials, obligations of states, and legitimate procedures (grater specificity is usually reflected in more detailed and demanding primary rules). Functional differentiation refers to the extent to which the institution assigns different roles to different members (different participants -> different functions within the institution).

<sup>333</sup> Adler and Barnett, *Security Communities*.

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functional differentiation is low. Existing examples of Security Communities are the European Union and the Gulf Cooperation Council.

Security regimes are also not comparable to collective security arrangements. The mechanism employed by the collective security arrangements to achieve their objective (which is, as in the case of security community, war deterrence/avoidance) is a very specific one. A collective security system usually deters the threat of war within a group of states by threatening to punish any act of aggression by a member against the others (although the aggressor is not pre-identified, as it is often the case with alliances). The sanctioning element is one of the two features that really distinguishes collective security from a regime. While in collective security, the focus is on the reaction to a violation or a possible violation, in the security regimes - as seen above - the accent is to be placed on the principles and norms embodied by the regime to the point that perfect compliance can become of secondary importance into the whole framework and often it is left unpunished. On the contrary, the credibility of the collective security institution itself builds on the credibility of its punishment mechanism so that war against an intramural aggressor remains a legitimate instrument in a collective security system. A second element of distinction between security regimes and collective security arrangements is that the latter are legalistic devices which do not require cooperation, interdependence, or shared norms (the *we-feeling* is modest and restricted to general considerations of peace and security). Collective security claims a "peace role" (vs. a security role) aimed at controlling the forceful settlement of conflicts among its own members through its peace-keeping machinery and diplomatic techniques. Collective security implies the use of force (through a collective enforcement action) to maintain or restore international peace and security. Commonality and functional differentiation are low, specificity can vary. Well-known examples of these types of arrangement are the United Nation and the League of Nations before them.

Finally, security regimes are not collective-defence tools (e.g. alliances, alignments, and security complex). Alliances are usually conceived as directed above a pre-recognised and commonly-perceived external threat that enjoys a specific orientation. Threats can materialize when a state face a real or perceived-as-real probability that another state will seek to use military force for political reasons. Threats pertains



situations where some actors in the system have the capabilities and willingness to harm the security of others. The focus of a collective defence arrangement is often a pre-emptive one that (1) aims at protecting the territorial integrity of member states from the adverse use of military force, (2) involves efforts to guard states' autonomy against the potential effects of the adversarial use of military force and (3) can encompass policies designed to prevent in general the emergence of situations damaging one's territory or vital interests.<sup>334</sup>

Alliances are sometimes referred to as "defence-communities" in order to highlight that participants de facto establish a common military front against an outside threat. Because they deter and defend against identified threats, alliances are usually designed exactly to exclude some other actors, either the ones/e that represent/s the threat, either those that would make the alliance weaker (since the objective is the one of sending a strong, consistent, and credible signal of resolve (as in classical balancing alliances)). Under this perspective, whereas collective security is a much more open-ended commitment which is seen as absolute in character (inward looking and inclusive), a military alliance implies a limited and restricted membership covering a defined geographical area (outward-looking and exclusive). The exclusive character distinguishes collective security from security regimes. Conversely, alliances and the so-called "security-management-institutions" affect participants' security relations by mechanisms which are similar to those that are activated by security regimes. Collective defence not always take the form of alliance (a major example being NATO), but can also result into alignments and security complexes. Unlike alliances, which are coalitions characterized by high degree of institutionalization - feature that to some extent share with security regimes - alignments are minimally institutionalized (e.g. the 1967 Arab coalition against Israel). In Security Complexes members are kept together by an "interdependence of rivalry" among participants rather than on an interdependence of shared interests, which is instead the typical feature of security regimes.

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<sup>334</sup> Security can be defined much broadly than this, with important implications for regime formation, attributes, and consequences.

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Arms control theory, arms race, non-proliferation, and disarmament

A specific type of security regimes is represented by arms control arrangements. The relationship between national armament/disarmament policies, arms control agreements, and regimes is neither simple nor straightforward.

Arms Control Theory (ACT) makes reference to a pool of premises and concepts that scholars and practitioners developed between 1958 and 1962. Consistently, it is clearly recognised in IR literature that “traditional ACT was the product of a unique confluence of factors and reflected the assumptions, analysis, and policy priorities of defence analysts and policy makers of that era.”<sup>335</sup> In Larsen’s view, the 1958 Surprise Attack Conference represents the turning point which sanctioned the beginning of a this new type of understanding over the management of strategic assets. The vision elaborated back then was bound to last and flourish in the following four decades. Already in 1955, the Geneva summit, along with Eisenhower’s Open Skies proposal, had broadcasted a new concept of military strategy which was not ascribable neither to arms race nor disarmament (which have a longer legacy and were common themes in IR studies during the 1950s). Irrespective of the precise starting date for this new trend to begin, it is unquestioned that the 60s represented an incredibly productive and prolific time for the definition and growth of the arms control community with the publication, in 1961, of three crucial works on the subject: “Strategy and Arms Control” by Schelling and Halperin; “The Control of the Arms Race” by Hedely Bull; and “Arms Control Disarmament and National Security” by Donald Brennan.<sup>336</sup>

Since then, IR literature has elaborated complex arms control theories and formulated various assessment of arms control strategies. Hedely Bull defines arms control as the “cooperation between antagonist pairs of states in military affairs”.<sup>337</sup> In his recent assessment, Larsen have re-defined arms control as “cooperative endeavours

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<sup>335</sup> Larsen, *Arms Control*, 6.

<sup>336</sup> Schelling and Halperin, *Strategy and Arms Control*; Bull, *The Control of the Arms Race*; Bull, “Arms Control and World Order”; Donald G. Brennan, *Arms Control Disarmament and National Security*.

<sup>337</sup> Bull, “Arms Control and World Order,” 22.

between conflicting parties which presuppose joint action among the participants regarding their military programs.”<sup>338</sup>

Building on the above mentioned contributions and other works, arms control arrangements can be reasonably/consensually described as “agreed restraints upon armaments (usually towards a reduction of them), exercised by actors in the international arena, involving joint-doings of some sort, usually occurring in conditions of peace, and dealing with national security strategies (de facto they-themselves represent security-strategy options). More specifically, arms control agreements attain the military dimension and are aimed at enhancing national (and international) security.”<sup>339</sup>

Arms control can regulate military capability and potential by intervening on the location, amount, readiness, and types of military forces, weapons, and facilities.

Arms control analysts of the early 1960s were in agreement that arms control had to fulfil two main objectives. (1) The first objective was the one of making war (and especially nuclear war) less likely or, should war take place, at least mitigate its consequences rendering the conflict less catastrophic in terms of death and destruction (“reduce the drift of war” and “promotion of international security”); (2) The second (indirect) objective of arms control commitments would have been the one of releasing economic resources (“reduce the burden of armament”);

Besides these two primary objectives, Hedely Bull identifies two additional objectives. These include: (3) prompting moral purposes consistently with a logic according to which war, or certain kinds of war, is morally wrong (as it is wrong to prepare for and/or threaten those types of war) and (4) reducing corruption of liberal and democratic institutions due to the fact that “the presence in society of military men,

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<sup>338</sup> Larsen, *Arms Control*.

<sup>339</sup> On the positive role of unilateral or small- group actions can have on a regime in formation or settled, see *Imperfect Unions*, p.261. The conditions under which unilateral stabilization efforts are successful remains understudied. Of particular relevance to the present discourse have been the non-proliferation campaigns engaged in the US and UK in the late 50s and 60s both with regard to nuclear, biological and chemical disarmament. At the same time, also the reasons behind a unilateral renunciation to some armament’s category remains unclear and seem compatible with situations where (1) the renunciation doesn’t imply a loss of strategic advance (because other strategic equalizer do exist) or (2) when unilateral renunciations come one after the other serially.

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power and ethic stunts the growth of liberty and stifles the prospects of parliamentary and popular rule”.

The four objectives listed above are quite general in their contents. The first one, in particular, translates an extremely comprehensive provision. The maintenance of international peace and security has been the flag under which many different theories have been purported (hegemony, balance of power, great powers politics), and a countless number of diverse international foreign policy actions have been and still are justified and undertaken (promotion of development, manipulation of force and so on and so forth). Even when the focus of the provision is restricted to the only management of material forces (military dimension), the menu of available options remain large ranging from complete disarmament, non-proliferation, limited proliferation, etc..

Nonetheless, specific policies and actions sponsored by scholars and policy makers in the 60s fuelled the idea of a perfect overlapping between arms control agreements and disarmament and non-proliferation intents. Larsen clearly highlights the issue:

“In the early 1960s international security specialists began using the term arms control in place of the term disarmament, which they believed lacked precision and smacked of utopianism. The seminal books on arms control published in that era referred to this semantic problem. They preferred arms control as a more comprehensive term.”<sup>340</sup>

Additionally, first generation of arms control theorists shared the common assumption that in order to reach successful arms control, policy makers should have oriented their efforts towards the creation of specific types of agreements: global instruments, aimed at curbing the spread of specific categories of weapons (WMD). These would have become non-proliferation and disarmament “regimes”, characterized by inclusive membership, comprehensive provisions, and verification measures, and formalized in terms of international treaties, or other legally-binding equivalent. Consistently, the NPT, the BWC, and the CWC became the paradigm for

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<sup>340</sup> Larsen, *Arms Control*, 3.

and synonym of “arms control”. In parallel, other arms controls and disarmament measures (of different kind) did not receive such broad acceptance.<sup>341</sup>

The identification between arms control and a specific type of arms control (non-proliferation regimes) laid down the basis for some confusion, in the years to come. It should be clear instead that in order to achieve the objectives listed above, arms control strategies and their related practices can take many forms, may use diverse instruments and address various weapons. Among these alternatives, non-proliferation and disarmament of WMD are just two, although extremely relevant options. Different understandings rely mistakenly on the incorrect idea that an inevitable connection exists between armaments and the eruption of war, and indeed translates the belief that the link existing between the absence of arms and peace is straightforward as well as necessary. This is obviously false since, if it is the case that wars are made possible by armaments, the latter do not by themselves produce war. Anything that happens in international politics is a matter of will as much as a matter of material capacities: the two dimensions may and actually do affect one another (in the majority of real world scenarios) but are far from being each the expression and inevitable consequence of the other. In fact, arm-race itself mirrors the belief that a mutual persistent increasing of military resources represents the better way to deter an adversary to wage wars, finally promoting national and international security. Consequently, what characterizes arms control strategies is not the content of its provisions (the quantity and quality of armaments they allow), but rather the “control” dimension it entails. To be more precise, control is to be understood in terms of a “*restrain internationally exercised*”. In line with this reasoning, disarmament and non-proliferation are just two possible mid-level security objectives out of other possible outlines that can be brought about. Arms control can and often do intersect with both, though not being necessarily equal to one specifically. In other words, we can have disarmament, which is not mutually “controlled” (e.g. unilateral declarations); and control that does not involve the reduction or rejection of armament (disarmament), but for instance envisages just a limitation of their spread

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<sup>341</sup> Bailes, “The Changing Role of Arms Control in Historical Perspective,” 16.

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to non-possessor countries (horizontal non-proliferation) or even foresees a limited increase of some assets to reach a condition of parity. In fact, if arms control involves setting lower levels of arms than what would be the case under a strict arm race competition, it is also true that arms control can lead actors to agree to increase certain categories of weapons if such increase would contribute to arms control objectives, in primis, international security. An example of this drive is provided by the Strategic Arms Limitation Treaty (I), under which Soviet Union was acknowledged the opportunity to raise the number of ICBM from 1530 to 1618.

As said, the “internationally/reciprocally exercised” dimension of restrain/control is anything but unimportant since it allows us to introduce the concert-like dimension of arms control. Because of the security-dilemma, unilateral (complete) disarmament or non-proliferation stances like the ones accepted by states in the late ‘60s would be hard to understand, without a reciprocal commitment. Unilateral disarmament would expose states to an insane amount of national insecurity and this is why unilateral renunciations/restrains have traditionally occurred only with regards to some category of arms whose absence would have not impaired the overall material distribution power of the renouncing state.<sup>342</sup>

The counterpart of arms control, is considered to be arm race. Arm race is an abiding feature of international relations; yet IR scholarship has still to produce one universally accepted definition. At the most basic level, scholars agree that arms races are “intense armaments competition between two or more rival states,” which can qualify either qualitatively (technological advancements) or quantitatively (numerical superiority), and which may or may not result in war. Nations’ armament policies consistent with arm race-scenarios are such that national efforts to participate into the military dimension are theoretically limited only by actors’ capacity (funding and technology) to produce or build some weapons. This description doesn’t shape up in practice and a caveat is necessary. Even USA and URRS at the peak of their military Cold War competition tired their hands in this venture. The resources they have allocated to the amassing of military force was deliberately limited and, in the case of

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<sup>342</sup> Bull, *The Control of the Arms Race*, 30–32.

the US, never exceeded one-third the proportion of the gross national product assigned to that purpose during WWII. Nonetheless in arms races, political decisions over military commitments mainly depend on national material capabilities and mirrors self-help strategies (and are of little interest in the study of international regimes).

In conclusion, both unlimited and limited increase in armaments are possible nation's armament policies with the difference that the first is typically pursued outside any arms control framework, while the latter often develop under it.

On the other side of the spectrum with respect to arms race, there is disarmament which is the reduction or abolition of armaments. Disarmament can be generalised or local, comprehensive or partial, drastic or modest, unilateral or multilateral, controlled or uncontrolled. I here endorsed the idea that for some disarmament to occur, some kind of armaments' reduction needs to be registered. Under this perspective, the upholding of armament at pre-existing level (in quantity and quality) or the non-acquisition/non-development of new armaments are described as non-proliferation (respectively vertical and horizontal) and not as disarmament. Actions falling under the rubric of partial or modest disarmament are abiding features in international relations. This kind of disarmament does not impair the capacity of actors' vis-a-vis their competitors in the international arena; these initiatives belong to the realm of each nation's armament policy choices and can be unilateral or concerted multilaterally.

When it comes to drastic disarmament, not to mention comprehensive and complete stances, things change drastically. In Bull's perspective, arguments supporting unilateral and unconditional actions of disarmament can only lie on a moral upbringing.<sup>343</sup> The author maintains that those who support such views fall into two categories. On the one side, there are those who want to register a personal note of disavowal of responsibility. On the other side, there are those who chain the moral case for their position to higher principles, which should inform the conduct of governments (including abstention from war and specific types of war) whatever the

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<sup>343</sup> Bull, *The Control of the Arms Race*, 32–40.

consequences. An accurate analysis of these stances exceeds the scope of this chapter. However, the first group de facto positions itself outside of the real-world society without any thought to the soundness and feasibility of its uptake while the second one acknowledges the existence of some principles that can take precedence over the continued existence of human society. In the author's view, the second group can be equated to the pacifism of Tolstoy or Gandhi. At the core of that perspective is the idea that the short-term pursuing of the right means (no weapons) will eventually lead to the right ends (no habit to the use of them). In real world situations, unilateral actions of the type described above appear risky at best and hopeless at worst. It is no coincidence that we cannot produce any real-world case example for none of them.<sup>344</sup> On the contrary partial/qualified disarmament can occur and a number of cases represent valid examples. Nonetheless, as pointed out by Frankland in his review article, Bull sees disarmament proposals as inevitably aimed at increasing the relative strength of the promoter and "disarmament, like re-armament, in a world which is governed by the system of the balance of power is a strategic manoeuvre."

Consistently, the more extended and demanding is the commitment to disarmament, the more "incomplete" and/or "concerted" the reduction in actors' armaments should be. Consistently with the above, in the mid 50s and in the late 60s respectively, United States and United Kingdom assumed very strong international commitments towards disarmament by unilaterally announcing what was referred to as "complete renunciation" to an entire class of armament, namely biological and toxins weapons. Are these examples of unilateral and complete disarmament? Absolutely not. And the answer is "no" because both countries could rely on a sound and autonomous nuclear capacity. What I mean is that, although the decision actually implied the full abandonment of an entire category of weapons along with their development for offensive purpose (defensive research was noticeably left aside), both states could have retaliated any attack by means of their nuclear arsenals. The renunciation was indeed focused on a specific class of weapons whose absence could have easily been

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<sup>344</sup> However, if unilateral actions of this type would be taken by *all actors* playing in the system at the same time, results would be impressive because if weapons do not by themselves are responsible to war, they are obviously the means by which war is performed in practice.



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balanced by recurring to the nuclear option. Not only, UK and US were not jeopardizing their international position, but it turned out that they were making it stronger. At that time, it was believed that biological weapons could represent an advantage for developing countries more than it could be for developed ones. It was indeed shared agreement that BW could have served as strategic equalizers where nuclear technology was not available, basically becoming the poor men's atomic bomb. The hope was that that once Britain and US would have given a "moral lead" the world would have followed. That was a totally reasonable idea, which in the end served its purpose. The Biological and Toxins Weapons Conventions was signed in 1972 preventing signatories' states to develop and stockpile biological weapons as well as contributing to consolidate the corresponding international norm.

A second example is the potential renunciation of nuclear weapons that British officials sized in the '60s. Unlike the case of Biological Weapons, a similar commitment would have dramatically impacted on British security and consequently must be considered as a drastic move towards disarmament. The argument then made in favour of nuclear disarmament was that Britain's reliance on nuclear power was actually increasing her importance as a target and that the security of Great Britain could be better served by the renunciation of an *independent* British strategic nuclear force. If such a decision had been made, however, this would have been only seemingly "complete." The United Kingdom could have had in any case relied on the nuclear umbrella offered by NATO and the US bilateral alliance/special relationship. If this would have not been the case any nuclear weapons renunciation by UK should have been nothing but an act of surrender, positioning UK at the mercy of whatever opponent possessing them.

Much has been written on the question of why states should desire *less* weapons in the world: lack of checks and balances, accidents, environmental concerns, risk of pre-emptive (nuclear), possible acquisition by terrorist (by definition non-deterrable) are just some of them.<sup>345</sup> The expression "non-proliferation" is no doubt the most controversial, problematic and misunderstood within arms control debate.

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<sup>345</sup> Sagan and Waltz, *The Spread of Nuclear Weapons*.

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In the field of International Relations, the expression was not developed explicitly as an issue-matter until the '60s, when the term was coined with reference to the spreading of nuclear weapons (with a slinking negative connotation). It is relevant to mention here that, in 1962 Lefever doesn't even include non-proliferation among the dedicated sections of his chapter "the new language of arms control" within his "Arms and arms control".<sup>346</sup> Once entered into usage, the term was quickly turned in its reverse, "non-proliferation" because of the concurrent efforts aimed at limiting the spread of nuclear weapons. The term proliferation comes from bioscience, where it is associated to the positive growth or propagation of something (cells, in most cases). With this in mind, when transferring the concept to describe nuclear issues, it becomes pretty obvious to think in terms of "growth" and "propagation" of nuclear weapons. Notwithstanding what seems to be a straightforward parallelism, many inconsistent and incorrect interpretations have taken the floor over the years among experts and practitioners. The most insightful contribution to a discussion of definitional and conceptual issues results from the work of T.C. Robinson.<sup>347</sup> In his paper on the meaning of non-proliferation, the scholar starts by clarifying what proliferation is and what proliferation is not. Building on the etymology of the word and its double content of "growth" and "propagation", organize stances into two threads. He understands "propagation" as "weapons' spread among countries (that is actually known as "horizontal proliferation")" and use "growth" to refer to those circumstances where states "breed" their nuclear capacity by increasing the number of warheads or by refining the technology behind them (making them somehow more sophisticated and efficient). This latter notion corresponds to so-called "vertical proliferation". After clarifying the meaning of the word proliferation, the author highlights the specificity of its opposite. In his view, non-proliferation shall describe the absence of any increase in the quality and quantity of existing arsenals (vertically) and a lack of weapons' diffusion to the other units composing the system (horizontally). An interesting example of action, aimed at impeding vertical proliferation is the Limited Test Ban Treaty that was signed and ratified only by USA,

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<sup>346</sup> Lefever, *Arms and Arms Control*.

<sup>347</sup> Robinson, "What Do We Mean by Nuclear Proliferation?," January 2, 2015.

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UK and URRS when it went into effect (October 1963). The Nuclear Non-Proliferation Treaty (1968) represents an effort to counteract horizontal proliferation.

Robinson's definition of non-proliferation remedies many controversial issues and solves the problem of drawing a line between non-proliferation and both disarmament on the one side, and arms control, on the other side. In fact, it is clear that a definition and conception of non-proliferation as the one described above does not entail at any point a reduction or abolition of weapons, that would be indeed disarmament. Finally, as far as the relationship between non-proliferation and arms control is concerned, the same discourse already made in the case of disarmament policies at the present case. The cessation of further production of weapons as well the limitation of their spread to other countries is desirable for the same reasons that a reduction of them (disarmament) is desirable, plus one - from the only perspective of possessor - states. Considering the double nature (horizontal and vertical) of proliferation, hindering the horizontal "component" would contribute to the inhibition of the expansion of the possessors' club without necessarily impairing the possessors' capacity. Like disarmament, non-proliferation is also restricted by the very same limitations disarmament suffers; when they are "drastic" and "severe" non-proliferation measures need to be linked to some form of regulated cooperation to mitigate the risks of injury. Arms control provides the framework within which reasonable disarmament and non-proliferation goals can be pursued in practice and the "winning" format which international cooperation (aimed at armaments' dismissal or reduction - including the so-called non-proliferation regimes) has de facto adopted from the 1960s onwards.

Weapons of Mass Destruction proliferation and non-proliferation

The previous paragraphs has described the first generation of arms control arrangements as legally-binding treaties (often framework conventions), inclusive in membership, comprehensive in scope and aimed at enhancing peace and security by implementing disarmament and non-proliferation strategies.

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A second aspect they share is the type of weapons whose proliferation try to constrain. Although prospective limitations concerning the use, possession and development of weapons is virtually applicable to all existing armaments, it is nuclear, biological and chemical (CBRN) weapons, along with their means of delivery, that have dominated arms control theory and practice from its inception. To the point that in the second half of the 20th century, the term has been applied almost selectively to these specific weapons.

A similar approach entails a division of warfare into nuclear, biological, and chemical, on the one side and conventional, on the other. The difference between nuclear and conventional warfare was reflected clearly in the division of the UN disarmament negotiations taking place from 1946 to 1952 between the Atomic Energy Commission and the Commission for Conventional Armaments.

Although under many perspectives the separation holds, its implications deserve further discussion insofar entails positive and negative externalities.

On the one side, treating nuclear, biological and chemical weapons altogether is beneficial to the analysis of military choices. It is apparent that any unlimited war where CBRN were massively developed would be a disaster in every possible way and no effective defence (active or passive) or offense strategies exist that would enable any actor to achieve victory in a similar context. The failure of URRS and US to achieve either disarming capacity or an effective defence (in the nuclear case) facilitated the convergence on a common interest towards nuclear war avoidance and an international restraint in the field. Likewise, understanding that an effective defence from a biological attack would have been extremely complex - if not virtually impossible to build - was one of the main drive leading to their disarmament.

On the other side, the political discourse and public image of nuclear, biological and chemical weapons as compact group of like-weapons (to be contained and eliminated) may be risky. I acknowledge a couple of primary reasons why this is so, plus a series of misunderstandings usually derived from former two.

(1) The first reason is linked to the fact that the division between CBRN and other weapons overemphasizes the distance between them (as a group) vis-a-vis conventional armament. This understanding is problematical for at least three reasons. (1.1) First, a clear-cut division does not take into account the extent to which

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nuclear weapons have become conventional, nor the fact that continuous innovation in science and technology shows that the most revolutionary military developments belong as much to conventional that to non-conventional warfare. (1.2) Second, the “CBRN” joint approach fuels the idea that these are uniquely immoral compared to conventional weapons, as it will better explained in the following chapter. (1.3) Third, in so far as there are two varieties of warfare, CBRN-like (morally not acceptable) and conventional (acceptable), the latter becomes something which nowadays exists alongside the former and it is shaped by it. Tellingly, the possibility of use and development of non-conventional weapons is part of the background against which conventional war is now carried, prepared or threatened. This has been the case for Iraq (2003) and (theoretically) for Obama’s redline on Assad’s alleged used of chemicals in Syria.<sup>348</sup>

(2) The second reason why a strict division between CBRN and conventional weapons can become troublesome is that it inevitably underestimates the difference existing between them. Most of the discourses which consider the three weapons altogether, descend from and build on the statement from the Commission on Conventional Armaments, mandated by the Security Council to determine what was to be covered by its mandate and what shall be more appropriately located within the purview of the Atomic Energy Commission; inter alia the answer made clear that because of their destructive power nuclear, biological, and lethal chemical weapons should be defined as Weapons of Mass Destruction (WMD). Nonetheless, the destructive power the three enjoy is still quite dissimilar, if only because biological and chemical hit life and not things (with the exception of C/B contamination that is a reality, with important public health consequences). Also in terms of casualties, if it is true that 8oz of specific strain of botulin toxins may be enough to destroy mankind, the condition for that to happen is that mankind queue up one by one for injections.<sup>349</sup> Nuclear weapons are still the most efficient and effective tools in any warfare theatre mankind can possibly imagine (different considerations may be made in the case of crime and terrorism). This does not change the fact biological and chemical claims are serious: if more

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<sup>348</sup> Mauroni, *Countering Weapons of Mass Destruction*, 2016.

<sup>349</sup> Anderson, “Bioterrorism.”

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suitable weapons (nuclear) were not available, they would become strategically very important. The limited attention paid to the individual features which characterize these weapons was committed at the expenses of our understanding of chemical and biological proliferation. For example a relevant amount of literature, as it will become clear from the next section has been produced on the causes and drivers of nuclear proliferation. The same cannot be said of chemical and biological weapons' proliferation. An exception to this dearth of study, is the work of Horowitz who investigated specifically BC proliferation drivers. Interestingly enough he finds that nuclear, biological, and chemical weapons generally function as complements at the pursuit stage. On the contrary, once states acquire nuclear weapons, also become less interested in pursuing biological weapons and are even willing to give them up in some cases. Considering the three weapons as a whole, underscores these types of analysis.<sup>350</sup>

Over the past 15 years, the world has witnessed a sort of intellectual renaissance within the field of security studies especially with regards to WMD (Weapons of Mass Destruction) proliferation.<sup>351</sup> If on the one side, the evolving international context, marked by the end of the Cold-war and the exhaustion of the extraordinary level of stability it did bring through, triggered the impulse; on the other end, emerging real-world policy concerns have contributed extensively to keeping the interest alive (Iran, North Korea, Libya). One way of seeing the intensification of general interest on proliferation issues is the expansion of published work on the topic. The launch of a very basic research from the database ProQuest Political Science provide clear evidence to what claimed above, reflecting the growing attention scholar have devoted to nuclear and biological weapons with a number of results (in the decade 2000-2009) that is many times higher than the one registered during previous years. As expected, nuclear weapons undoubtedly ruled the roost when it comes to non-conventional weapons debates, nevertheless studies on chemical and biological

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<sup>350</sup> Horowitz and Narang, "Poor Man's Atomic Bomb?"

<sup>351</sup> Feldman, "Is There a Proliferation Debate?," 790; In his comment to Waltz and Sagan's "The Spread of Nuclear Weapons: A Debate", the author claimed that nuclear proliferation debate was dead or dying.

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weapons have acquired raising popularity as the threat of international terrorism has grown stronger together with the widespread belief that terrorists or “new powers” (if equipped with) could use CB weapons void of those ethical concerns “civilised” nations seemed to have been constrained by during the last fifty years.<sup>352</sup>

The intellectual renaissance of these type of studies has been also motivated by the significant investments assigned to the field. In order to give substance to the present analysis, some few numbers follow.

As long as fifteen years ago, the World Bank estimated that an annual investment of just US\$40–60 billion, or roughly half the amount currently spent on nuclear weapons, would have been enough to meet the internationally agreed Millennium Development Goals on poverty alleviation by the target date of the past year (2015). Globally, annual expenditure on nuclear weapons is estimated at US\$105 billion – or \$12 million an hour.<sup>353</sup>

In 2008, it was estimated that in the nine-year period from FY2010-2018 (for which the U.S. Government has provided well-defined cost projections), the United States would have spent at least \$179 billion to maintain the then-current nuclear triad of missiles, bombers, submarines, and associated nuclear weapons, and to begin the process of developing their next generation replacements.<sup>354</sup>

Regarding biological weapons (that is the case study take into consideration in the framework of the present research), an even clear trend can be identified. Since 2001, the United States government has spent substantial resources on preparing the nation against a bioterrorist attack and the FY2014 federal budget for civilian biodefence totals \$6.69 billions.<sup>355</sup>

This funding is intended not only to cover the production and stockpiling of improved defensive weapons (since offensive are outlawed) but also, to support R&D on nuclear detection strategies (made necessary among other things by recent events in North

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<sup>352</sup> Lavoy, Sagan, and Wirtz, *Planning the Unthinkable*.

<sup>353</sup> <http://www.icanw.org/the-facts/catastrophic-harm/a-diversion-of-public-resources/>

<sup>354</sup> <http://www.nti.org/analysis/articles/us-nuclear-weapons-budget-overview/>

<sup>355</sup> Sell and Watson, “Federal Agency Biodefence Funding, FY2013-FY2014”; Boddie, Sell, and Watson, “Federal Funding for Health Security in FY2015”; Boddie, Watson, and Sell, “Federal Funding for Health Security in FY2017.”

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Korea and Iran),<sup>356</sup> but also to enhance dismantlement operations (required under non-proliferation treaties like the New-START), or as it is in the case of biodefence funding, to address concurrent sectors: science, public health, healthcare issues that go far beyond the development of purely bio-defensive goals and applications.

This scholarly renaissance, have affected both historians and political scientists with the latter adopting a wide range of different research methodologies and a survived and persisting focus on the causes and consequences of proliferation postures.

As far as qualitative studies are concerned, these have been dominated by the contributions of historians fuelled, interalia, by the opening up of new archives. Nonetheless some relevant cases from political sciences deserve attention. These include studies aimed at examining the domestic political and sociological determinants of proliferation. Jacques Hymans' "Psychology of Nuclear Proliferation" brings about interesting findings regarding prospective political and psychological determinants of nuclear proliferation. He uses a national identity concept as a base model to enhance the role of personality characteristics and emotional perceptions of leaders in explaining proliferation choices. Six years later, Hymen while exploring why some determined proliferators take so long to build nuclear weapons argues that the answer could be found looking at the way programmes are managed cross-nationally. In his view, Weberian legal-rational states, supporting a motivated and autonomous work-force, are able to get to the weapon better and quicker than neo-patrimonial states that are more prone to engage in short-sighted and impractical programs.

In his "Nuclear Logics", Etel Solingen argues that when liberalizing coalitions govern a country, nuclear weapons' pursue tends to be sacrificed on the altar of free trade and international investments' commitments.<sup>357</sup> On the other hand, states ruled by inward-looking nationalistic coalitions, having less to lose when going nuclear, tend to travel the road more easily. Picking up on this theoretical starting, the edited volume "Sanctions, Statecraft and Nuclear Proliferation," explores the role economic sanctions exercise in dissuading states from pursuing nuclear weapons.<sup>358</sup> Some

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<sup>356</sup> SEN. BYRON L. DORGAN HOLDS A HEARING ON A REVIEW OF THE FY2010 BUDGET FOR THE NATIONAL NUCLEAR SECURITY ADMINISTRATION.

<sup>357</sup> Solingen, *Nuclear Logics*, 2007.

<sup>358</sup> Solingen, *Sanctions, Statecraft, and Nuclear Proliferation*, 2012.



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authors have performed complex studies providing innovative normative and constructivist analysis of states' and individuals' nuclear identity and ethical taboos, like Nina Tannenwald "the Nuclear Taboo" and Alastair Ian Johnston, whose work "Social States" has been discussed above. Some others have privileged new theoretic models of proliferation and preventive war decisions - Debs and Monteiro, "Known Unknowns" - and the use of public opinion survey experiments as Sagan with his "Atomic Aversion: Experimental Evidence on Taboos, Traditions and the Non-Use of nuclear weapons".

New nuclear weapons research in political science have also included important quantitative studies which include large-N statistical work that have tested prevailing scholarly hypothesis.<sup>359</sup>

Regarding determinants of nuclear proliferation, although some differences are reported in the coefficients' size, authors have generally found that the capability to proliferate (in terms of both latent nuclear production capacity and economic power), the presence of a major conventional security threat, "major power" and "regional power" status all correlate with a greater pre-disposition towards development of nuclear programs.

Some of these features (economic capacity and conventional threat), seem responsible also for driving the passage from a nuclear weapons-program condition to a nuclear weapons-possession but some others are not, and are instead replaced by other elements, like the absence of a nuclear defender.<sup>360</sup>

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<sup>359</sup> Important quantitative works on the causes of nuclear proliferation include Sonali Singh and Christopher R. Way, "The Correlates of Nuclear Proliferation: A Quantitative Test," *Journal of Conflict Resolution* 48, 6 (December 2004): 859-885; Dong-Joon Jo and Erik Gartzke, "Determinants of Nuclear Weapons Proliferation," *Journal of Conflict Resolution* 51, 1 (February 2007): 167-194; Robert Rauchhaus, Matthew Kroenig, and Erik Gartzke, eds, *The Causes and Consequences of Nuclear Proliferation* (London: Routledge, 2011); Other relevant works in the field focusing specifically on non-proliferation's consequences (instead of its causes) are: Kyle Beardsley and Victor Asal, "Proliferation and International Crisis Behaviour", *Journal of Peace Research*, 44(2):139-155, 2007; "Winning the Bomb", *Journal of Conflict Resolution*, 53(2):278-301, 2009; "Nuclear Weapons as Shields", *Conflict Management and Peace Science*, 26(3): 235-255, 2009. Matthew Kroenig, "Nuclear Superiority and the Balance of Resolve: Explaining Nuclear Crisis Outcomes," *International Organization* 67, 1 (January 2013): 141-171; and Todd S. Sechser and Matthew Fuhrmann, "Crisis Bargaining and Nuclear Blackmail," *International Organization* 67, 1 (January 2013): 173-195. As far Bio/Chemical weapons are concerned, the most recent contribution is Michael C. Horowitz and Neil Narang "Poor Man's Atomic Bomb? Exploring the Relationship between "Weapons of Mass Destruction"", *Journal of Conflict Resolution* published (November 2013).

<sup>360</sup> Jo and Gartzke, "Determinants of Nuclear Weapons Proliferation."

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Domestic variables produce contrasting result of modest magnitude (under this perspective, potential improvements may be offered by the on-going work of Lisa Langdon Koch, Arizona State University).

As far as “norms-driven” effects are concerned, Gartke initial work only tested for NPT’s potential role in curbing the spread of nuclear weapons program. He finds, as expected, that NPT membership decreases states’ likelihood of having nuclear programs, but he could not find any statistical significance for NPT when modelling for nuclear weapon status. NPT’s systemic effect also appears not to be statistically significant both when modelling for programs and possession. Building on these findings, the author derives that the NPT has not influenced proliferation incentives since the 1970s and that states might have simply joined the treaty because they didn’t plan to acquire nuclear weapons anyway. Furthermore, he suspects that nuclear protocols requiring the dissemination of nuclear knowledge and materials might have even contributed to the quickening pace of nuclear diffusion (hypothesis apparently well formulated, as shown by Brown and Kaplow’s findings).<sup>361</sup>

From this generation of quantitative studies onward, a bunch of articles testing different hypothesis about the consequences of nuclear proliferation and possession flourished in recent years. Kyle Beardsley and Victor Asal contributed much to the debate, examining many of key traditional assumptions over these issues. The authors substantiate the idea that nuclear weapons do confer observable benefits to their possessors (by making them less likely to be targets of violent aggression). Nonetheless, they confirm that proliferation intents (programs) are destabilizing move within the international system as nuclear program states tend to be the target and source of much hostility. They observe that nuclear program states have some heightened tendencies toward aggression, despite the incentives to lie low during the development stage.

Regarding the role of nuclear weapons in influencing crisis outcomes (from 1945 to 2000), the authors demonstrate that crisis involving nuclear actors are more likely to end without violence and, as the number of nuclear actors involved increases, the likelihood of war continues to fall. On the same subject, authors’ evidences confirm

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<sup>361</sup> Brown and Kaplow, “Talking Peace, Making Weapons,” 204.

the idea that nuclear actors are more likely to prevail when facing a nonnuclear state and that the duration of crisis in asymmetric directed dyads tend to be substantially smaller (in time) than for actors involved in a nonnuclear symmetric confrontation (2007, 2019). Matthew Kroenig (2013) gives further evidences that states that enjoy nuclear superiority over their opponents are more likely to win nuclear crisis. In the same year, Sechser and Fuhrmann give strong support to the idea that compelling threats from nuclear states are no more likely to succeed than those coming from non-nuclear ones.

In 2014, Brown e Kaplow explain that receiving “technical cooperation” related to the nuclear fuel cycle is a statistically and substantively significant factor in state decisions to seek nuclear programs. Matthew Fuhrmann and Benjamin Tkach (2015) finally provide preliminary evidence that nuclear latency reduces the likelihood of being targeted in militarized disputes, guaranteeing the same deterrence benefits usually associated with possessing a nuclear arsenal.

As far as bio-chemical weapons are concerned, the only “quantitative” assessment, to my knowledge, is Horowitz and Narang (2013 and 2014) “Poor Man’s Atomic Bomb? Exploring the Relationship between Weapons of Mass Destruction”, where the authors demonstrate that biological and chemical weapons generally function as complements to nuclear weapons at the pursuit stage and as substitutes in the following stages (with nuclear being the more desirable option).

In parallel to this burgeoning literature over the causes that lead to proliferation, studies over non-proliferation have also progressed and advanced nonetheless displaying three main limitations.

(1) The first limitation is linked to the fact that, for the reasons already covered in the first section of this chapter and consistently with researches on proliferation, also non-proliferation studies have generally focused on nuclear weapons. Analysis of the proliferation of chemical and biological weapons do exist but are limited in number and quality (mainly due to the lack of debate and mutual criticism among scholars). (2) The second main problem regarding non-proliferation studies is the overwhelming emphasis given to core global treaties around which the non-proliferation regimes have developed with very little attention to other forms of regulatory cooperation aimed at non-proliferation and disarmament. (3) Finally, especially when it comes to

the study of non-proliferation efforts effectiveness (beyond mere descriptive attempts) analysis are tentative and not conclusive even when performed with reference to the NPT where researches abound.

Despite the enduring debate over whether and how international arms control treaties (and the NPT in particular) influence states policies, a full understanding is still elusive. The main reason for this, is that research on the NPT cannot determine conclusively whether membership in the treaty restrains states from developing weapons or simply mirrors existing preferences. The situation reflects indeed some methodological problems. On the one side, case-studies although providing interesting insights usually explain specific cases without providing generalizable conclusions. On the other side, large n-quantitative studies are not designed to infer causal connections - interalia because they are not able to account for the factors that motivate states to ratify the treaty in the first instance (with two important, but tentative exception Kaplow forthcoming,<sup>362</sup> and Fuhrmann and Lupu<sup>363</sup>). As said, scholars concerned with the study of NPT effectiveness have reached two divergent conclusions. Some have argued that the treaty has substantially curbed the proliferation of nuclear weapons, while others has suggested that treaties have only served as screeners (whether or not a country ratify the treaty it provides others with useful information concerning its intentions).

(1) According to the first group – which include Nye, Sagan, Rublee, Dai, Coe and Vaynman NPT ratification reduces the likelihood of nuclear proliferation by means of several mechanisms.<sup>364</sup> These (rational and social) mechanisms have been widely described in the previous chapter and include: increase transparency; reduce uncertainty about others (behaviours, capabilities' and intentions); increase the cost

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<sup>362</sup> Selective Enforcement and Revealed Preferences in International Security Organizations; Paper prepared for the ninth annual conference on the Political Economy of International Organizations (PEIO); <http://dl.jkaplow.net/KaplowCh3.pdf>

<sup>363</sup> Fuhrmann and Lupu, "Do Arms Control Treaties Work?"

<sup>364</sup> Nye, "Maintaining a Nonproliferation Regime"; Sagan, "Why Do States Build Nuclear Weapons?"; Rublee, *Nonproliferation Norms*, 2009; Dai, "Information Systems in Treaty Regimes," December 12, 2002; Coe and Vaynman, "Collusion and the Nuclear Nonproliferation Regime."

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of cheating<sup>365</sup> and the cost of abandoning a non-proliferation policy (cost of exit);<sup>366</sup> learning; socialization etc..

Additionally, verification measures (including allowing AIEA inspectors to visit nuclear facilities and verify that no diversion occurred with nuclear material) are expected to deter members from retreating their commitments. Perspective punishments (reputational or material sanctioning), if a violation is detected, is also believed to dissuade states from going down the proliferation path because of the material and reputational cost they would face.<sup>367</sup> International agreements can empower domestic minorities or other groups to pressure leaders to respect the commitment so that civilian facilities are not disrupted.<sup>368</sup> International treaties also facilitates transnational actors activities to persuade governments to refrain from violations and impose costs on those who violate international norms.<sup>369</sup>

(2) On the other side of the conundrum, there are those scholars who believe that the NPT has done little to curb the spread of nuclear weapons.<sup>370</sup> According to some of them, the NPT is itself a consequence of non-proliferation attitudes and indeed reflects pre-existing decisions and choices. In their view, the correlation between non-proliferation stances and the NPT ratification exists, but the two are not causally connected.<sup>371</sup> A second argument which builds on the institutional weakness of the non-proliferation regime, is the one according to which states would never jeopardize what they believe to be in their national security interests if this should collide with the commitment undertaken under the NPT. Neither the prospect of detection nor the threat of punishment can suffice to deter firm proliferators.<sup>372</sup> As it has been the

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<sup>365</sup> Dai, "Information Systems in Treaty Regimes," December 12, 2002.

<sup>366</sup> See the case of Australia after India nuclear test in 1974. Australia maintained, who had ratified the NPT, on year before maintained the status quo. This posture according to Walsh (1997) is ascribable to the created costs of a policy reversal the NPT have determined.

<sup>367</sup> interalia, Rublee, \iNonproliferation Norms, 2009; Stokke, "Qualitative Comparative Analysis, Shaming, and International Regime Effectiveness."

<sup>368</sup> Sagan, "The Causes of Nuclear Weapons Proliferation," 2011.

<sup>369</sup> Linos, "Diffusion through Democracy"; Simmons and Hopkins, "The Constraining Power of International Treaties."

<sup>370</sup> Mearsheimer, "The False Promise of International Institutions," 1994; Betts, "Universal Deterrence or Conceptual Collapse? Liberal Pessimism and Utopian Realism"; Hymans, *Achieving Nuclear Ambitions*; Solingen, *Nuclear Logics*, 2007; FUHRMANN, *Atomic Assistance*.

<sup>371</sup> Betts, "Universal Deterrence or Conceptual Collapse? Liberal Pessimism and Utopian Realism."

<sup>372</sup> Hymans, "Theories of Nuclear Proliferation."

case with Iran, Iraq, North Korea, Romania, South Korea, and possibly other NPT members.<sup>373</sup>

As it has become clear from the literature review presented above, it is possible to confirm that the majority of studies trying to describe and assess the role of the non-proliferation regime have stopped to its framework convention: The Non-Proliferation Treaty. With no doubt, the latter along with the BTWC and CWC and their associated international organizations represent crucial instruments in the non-proliferation menu. However, they do not anymore comprehend the full spectrum of international non-proliferation (cooperative) efforts. A number of other international arrangements, organizations, agencies have flourished alongside the core non-proliferation treaties. The end of Cold War on the one side, and the raise of international terrorism on the other side, have created openings for developing other and new kind of cooperative arrangements. The idea is that new transnational problems have created interests in and for “new responses”. If it is common opinion that these responses could develop because existing framework conventions were already in place and provided the legal and normative formulation that make these solutions possible, the new-generation of non-proliferation efforts actually developed outside those treaties as complementary and supplementary tools. Sagan has called scholars to devote more attention to non-proliferation efforts beyond the NPT especially because these efforts have grown in number and diversity and currently incorporate a wide set of initiatives (e.g. the PSI, Res 1540, the Global Partnership).<sup>374</sup> There are no equivalent studies of the origins, development and effectiveness of such institutions to the ones produced for the NPT. Recently, some of these new forms of non-proliferation efforts have attracted the attention of scholars and there are growing studies which cover one or the other initiative in isolation. Some had made the attempt to discuss multiple examples altogether producing a comparative analysis and drawing some conclusions concerning the evolution of cooperative disarmament and non-proliferation efforts. In *Arms Control in the 21<sup>st</sup> Century*, Meier and Daase argue that recent initiatives have been more informal and coercive in nature than past

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<sup>373</sup> Fuhrmann and Berejikian, “Disaggregating Noncompliance.”

<sup>374</sup> Sagan, “The Causes of Nuclear Weapons Proliferation,” June 15, 2011.

efforts and interpret the shift as a move away from cooperation.<sup>375</sup> This view has been challenged by Knopf who, in its interesting and rich comparative analysis of post 9/11 non-proliferation efforts, gets to the contrary conclusion that new cooperative initiatives are instead characterized by an increasing collaborative nature over previous coordination-like profiles. His volume, contains case studies for a wide range of non-proliferation initiatives which involve interstate cooperation. Each case study has been guided by a common analytical framework and common conclusions and lessons learnt are drawn from the analysis.<sup>376</sup>

Müller and Wunderlich had already emphasized the importance of norms in effective multilateral arms control; in a follow-up work the two scholars compared six initiatives with respect to their perceived legitimacy concluding that states are more likely to embrace initiatives inclusive in membership and which underscore management (persuasion and capacity building) over coercion.<sup>377</sup>

### Biological weapons and biosecurity

Like the nuclear non-proliferation regime, the one aimed at governing the possession, development, and proliferation of biological weapons (BW) has evolved tremendously in the last fifty-years. As it has been the case for the nuclear counterpart, its evolution has encompassed a number of initiatives characterized by diverse degrees of institutionalization, inclusiveness, and operational capacity which have complemented and supplemented the regime's core treaty: The Biological and Toxin Weapons Convention (BTWC/BWC). Nonetheless, research and studies covering biological weapons and agents face a peculiar element of complexity with respect to other non-proliferation regimes (chemical and nuclear). The complexity is not (or at least not only) derived from biological agents' dual nature – feature which to some extent BW share with nuclear and chemical agents and precursors – but mainly results from the fact that on biological agents converge distinct regulatory networks attaining

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<sup>375</sup> Meier and Daase, *Arms Control in the 21st Century*.

<sup>376</sup> Knopf, *International Cooperation on WMD Nonproliferation*, 2016.

<sup>377</sup> Müller and Wunderlich, *Norm Dynamics in Multilateral Arms Control*.

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extremely diverse issue areas of international relations (global/public health, in particular).

Throughout history, diseases had a powerful but overlooked influence on international security. Although many cases are recorded from antiquity and well-known bioweapons state programs have been run by major and middle powers throughout the twentieth century, biological weapons (although elevated to the status of WMD) never gained a critical or prominent role in military/security affairs until end of the XX century.<sup>378</sup>

As weapons, biological agents enjoy very specific characteristics. NATO defines them as “microorganisms (or toxin derived from), which causes diseases in men, plants or animals, or cause deterioration of material.”<sup>379</sup> Today, biotechnology and nanotechnology advances have induced a progressive enlargement of the BW menu which would require a separate discussion. The Biological and Toxin Weapons Convention doesn’t provide a list of pathogens of concern, since most of them do exist in nature and are endemic in some areas of the globe. The United States, by its national law, has identified a group of agents called “Select Agents”, which include 39 pathogens characterized by having “the potential to pose a severe threat to public health and safety.”<sup>380</sup>

The list, which served as a basis for following inventories (e.g. the Australia Group one) has been revised every 2 years. In 2010 (following an Executive Order issued by the Obama administration) a subset of regulated agents that pose “the highest risk for misuse with a resultant significant impact” has been identified and titled Tier 1.<sup>381</sup> Biological weapons include bacteria, viruses, fungi and toxins. Toxins are chemical compounds produced by the metabolic activities of specific organisms or artificially

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<sup>378</sup> Prior and during WWII, state programs have been started in France, UK, USSR, Canada, Japan, Germany, Italy, USA, Hungary. During the Cold War the following countries pursued (or possessed) biological weapons: Algeria, Bulgaria, China, Cuba, Egypt, France, Germany, India, Iran, Iraq, Japan, Laos/Lao PDR, Libya, North Korea, Rhodesia/Zimbabwe, South Africa, Soviet Union/Russia, Syria, Taiwan, UK, USA, Vietnam.

<sup>379</sup> US Department of Army, NATO Handbook on the Medical Aspects of NBC Defensive Operations (Washington, D.C.: US Department of the Army, 1996, HQ, DA: AMedP-6(B), part 2, p. 1-1.

<sup>380</sup> Additional Requirements for Facilities Transferring or Receiving Select Agents, Title 42 CFR Part 72 and Appendix A; 15 April 1997 (DHHS)

<sup>381</sup> Agents, Near-Term Milestones for Consideration.



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synthesized in laboratories (as it increasingly often the case). Under this perspective, toxins do not include the biological agents from which they are derived, do not reproduce (as bacteria, viruses and fungi do), are not transmissible from person to person and cause poisoning rather than infection. Because of their hybrid nature, toxins are considered as positioned halfway between biological agents and chemical agents.

Some of them are the deadliest substances known to exist, with a toxicity that is several orders of magnitude greater than nerve agents.<sup>382</sup> Theoretically, less than 1 kg of anthrax would, if optimally distributed, be enough to deliver a lethal dose to every man, woman, and child in the world.<sup>383</sup>

Because they have been determined to have the potential to pose severe threat to both humans, animals and plants, a sizeable group of toxins (along with the corresponding agents) have been included in Tier 1 Agents within the HHS and USDA Select Agents and Toxins List. As said, besides traditional agents, biotechnology and nanotechnology discoveries have opened the floor for new agents to raise concern. Consequently, alongside traditional agents, emerging ones have acquired growing importance: bioengineered microorganisms, biomolecular components, bio-technical hybrids, etc.

As weapons, biological items display specific characteristics. An attack using biological weapons may be more sinister than an attack using conventional, chemical or nuclear weapons, whose effects are more immediate and obvious. Effective early detection is very difficult for two reasons. First, biological weapons display the same type of infection of the naturally spread contagion and insidious symptoms can mimic endemic diseases. Second, by the time the first casualty is recognized, the agent may have already ingested, inhaled, or absorbed by many other victims and more casualties may be inevitable despite the adoption of prompt countermeasures.

Biological Weapons are also unique in their ability to inflict large numbers of casualties over a wide area with minimal logistic requirements and by means that they can be virtually untraceable.<sup>384</sup> Under this perspective, BWs have been described as “mass

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<sup>382</sup> Solingen, *Sanctions, Statecraft, and Nuclear Proliferation*, 2012.

<sup>383</sup> Primmerman, “Detection of Biological Agents,” 2000.

<sup>384</sup> NATO (North Atlantic Treaty Organisation), *Handbook on the Medical Aspects of NBC Defensive Operations AMed P-6(b)*, February, 1996.

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casualty weapons ... [that] do not destroy buildings, cities or transportation. They unfortunately just destroy human lives.”<sup>385</sup> The sparing of property and physical surroundings (compared with conventional or nuclear weapons) has several important implications in warfare.

The ease and low cost of production of some of these biological agents is a further relevant element. The cost advantage of biological weapons was clearly illustrated by a 1969 United Nation report that estimated the cost of operations against civilian populations at \$1.00US /Km<sup>2</sup> for biological weapons, versus \$600.00/Km<sup>2</sup> for chemical, \$800.00/Km<sup>2</sup> for nuclear and \$2000.00 for conventional armaments.<sup>386</sup>

The ease and low cost of producing an agent, the difficulty in detecting its presence and protecting (and treating) its intended victims, and the potential to selectively target humans, animals, or plants make defence against these class of weapons particularly difficult.

Another aspect of biological warfare to an enemy is that defensive programs always tend to lag behind the current offensive. This is due to three major factors: (1) defensive efforts are not initiated until the threat is evident, (2) defensive system generally require longer development times in comparison to offensive systems, (3) medical defences may be even more problematic and take even longer to field due to important regulatory requirements that impose strict guidelines on the development of vaccines and prophylactic drug for use in human being.<sup>387</sup>

Notwithstanding some attractive features, biological weapons have been considered of limited importance in battlefield for practical reasons. The first and foremost important drawback of BWs is the concrete danger that biological agents could affect the health of the aggressor forces. The possibility that secondary aerosols of the agent will be generated as the aggressor moves through an area already attacked is far from being remote. The unpredictability of morbidity secondary to a biological attack is high, since casualties (including civilians) will be related to the quantity and the

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<sup>385</sup> Tucker, “Biological Weapons in the Former Soviet Union,” 1–10.

<sup>386</sup> NATO (North Atlantic Treaty Organisation) Handbook on the Medical Aspects of NBC Defensive Operations. A Med- P6, part 2, Biological, Final Draft, 1992.

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manner of exposure. The relatively long incubation period for many agents is a factor that drastically limits their tactical usefulness.

Furthermore, biological agents' survivability and dissemination tend to be subject to weather conditions, temperature, sunlight and effects of temperature. Last, and absolutely crucial shortcoming of BWs is the worldwide diffuse public's aversion to the idea of their actual deployment.

It is clear that the recent advanced in biological sciences ("biotechnology revolution") have already impacted dramatically on the redistribution of advantage and disadvantages.

With the advent of recombinant DNA technology (especially gene drives and CAS-9), researchers have developed standard methodologies for altering an organism's genetic makeup. Application of this technology to BW can radically change traditional biological warfare. Examples of potential modifications include gain of function research antibiotic resistance, increased aerosol stability, heightened pathogenesis, selectivity.<sup>388</sup> Ultimately, modifications introduced may serve to increase effectiveness of traditional BW agents or counteract known aspects of the target population's biomedical defence strategy without manipulating the parental organism in a manner that might compromise the natural properties suitable for biological warfare use.<sup>389</sup> The key implications of certain types of studies is clearly indicated by the intense regulation on life science research (as interalia the US Government DURC Policies and WHO guidelines).

It would impossible to summarize/review in few paragraphs the history of biological warfare and for this reason, the present section summarizes the most relevant aspects and recent developments. For a detailed description see interalia Seth Carus in "A short History of Biological Warfare".<sup>390</sup>

In the last century, the use of BW in warfare has been rare: Germany WWI (in Argentina), Japan WWII (against the Chinese), allegations have been moved both

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<sup>388</sup> Oye et al., "Regulating Gene Drives."

<sup>389</sup> Petro, Plasse, and McNulty, "Biotechnology," 162.

<sup>390</sup> Carus, *A Short History of Biological Warfare*.

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towards the United States (during the Korean War) and the Soviet Union (in 1984, Indochina) accused of having employed mycotoxins.

In terms of bioterrorism and biocrime in its dataset, Seth Carus acknowledges 27 ascertained uses and 5 cases of possession (within more than 270 alleged cases).<sup>391</sup>

Notwithstanding the few cases, the potential consequences of BW are immense as demonstrated by recent epidemics: the cost of SARS has been estimated at about 40-50 billion, the Foot and Mouth Disease epidemic was also extremely burdensome (30 billions).

Based on Horowitz and Narang dataset released in 2014 (which builds and improves on Horowitz 2004) we can count in the period 1945-2000 a total of 21 countries pursuing in different times and for diverse time-frames biological weapons, only 11 of those countries were reportedly able to achieve deployable arsenals.

Notwithstanding the few cases of use reported and the inevitably loose estimation of the risk of incidents or diversion linked to peaceful programs, the potential consequences of BW related events remain serious as demonstrated by the material and humanitarian cost of epidemics and pandemics in recent times. Oxford Economics has suggested that the burden of a global pandemic, including spill-over across industry sectors, could be as great as \$3.5tn – an impact far greater than the magnitude of the financial crisis of 2008.<sup>392</sup>

The new millennium marked a turning point in the consideration of the threat posed by biological agents as a prominent security matter.<sup>393</sup> In 2001 a number of worrying events – including the anthrax letters' attacks and a series of high profile experiments emphasizing potential misuses of life science advances – abruptly brought biological agents into the international security agenda.<sup>394</sup> Natural occurring infectious diseases (HIV, SARS, H5N1 avian influenza, and more recently Ebola or Marburg) started being perceived as linked not only to humanitarian emergencies, but also to actual security

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<sup>391</sup> Carus, *The Threat of Bioterrorism*.

<sup>392</sup> <https://pandorareport.org/tag/cdc/>

<sup>393</sup> Primmerman, "Detection of Biological Agents," 2000, 3–32.

<sup>394</sup> Lakoff and Collier, *Biosecurity Interventions*.

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crises in the sense that they proved able to threaten, besides individual citizens, the very institutions that define and defend the character of modern societies.<sup>395</sup>

This re-consideration came along with a new understanding of the scope and sources of the threat posed by biological agents.

A recent and systematic review of literature has identified at least 4 major trends, largely outside the control of nation states and international communities, as responsible for the increased risks posed by biological threats in our time.<sup>396</sup>

(1) The first trend is represented by the changed and changing nature of conflicts. If in the past, the possibility of wars among nation-states used to dominate any discourse and practice within security studies, current concerns come from very different sources: terrorism along with international crime are gaining centre-stage.<sup>397</sup>

If making a functional WMD out of a biological agent or a toxin is not an easy task even for states - considerable (and mostly “tacit”) knowledge and resources are necessary for scaling up, storage and develop suitable dissemination methods - the recourse to strains with less than optimal characteristics, through crude delivery methods, under imperfect conditions, is a real possibility.<sup>398</sup>

Whilst non-proliferation experts share the view that the risk for a sophisticated state-led and large-scale attack with bio-agents is very small,<sup>399</sup> they also believe that the risk for the misuse of readily-available agents or, more likely, toxins in a small/medium-scale terrorist or a criminal action is very real and very present. Toxins’ potential as agents of crime and terrorism lays in their invisibility, delayed effect, relatively easy access, and incredibly high lethality. Furthermore, terrorists tend to act free from moral constraints, so that the horror associated with the usage of unconventional tools (that may have refrained states from their use) make them even more appealing and attractive to them.<sup>400</sup> Toxins relevant to bioterrorism include

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<sup>395</sup> Panel, High Level. “A More Secure World: Our Shared Responsibility.” *Report of the Secretary-General’s High-Level Panel on Threats, Challenges and Change*, 2004.

<sup>396</sup> Koblentz, “Biosecurity Reconsidered,” 96–132.

<sup>397</sup> Brown, *Grave New World*.

<sup>398</sup> Jefferson, Lentzos, and Marris, “Synthetic Biology and Biosecurity,” 2015; Ouaghran-Gormley, “Barriers to Bioweapons,” 2012; Vogel, “Framing Biosecurity”; Vogel, “Intelligent Assessment”; Bigalke and Rummel, “Medical Aspects of Toxin Weapons”; Madsen, “Toxins as Weapons of Mass Destruction. A Comparison and Contrast with Biological-Warfare and Chemical-Warfare Agents.”

<sup>399</sup> Schep et al., “Ricin as a Weapon of Mass Terror--Separating Fact from Fiction,” 1267–71.

<sup>400</sup> Primmerman, “Detection of Biological Agents,” 2000.

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ricin, botulinum, *Clostridium perfringens* epsilon toxin, conotoxins, shigatoxins, saxitoxins, tetrodotoxins, mycotoxins, and nicotine.<sup>401</sup>

Quite tellingly, historical evidences give reasons to what argued above. The three more renowned realized or attempted “bio-attacks” in the past century happened to be operated by sectarian groups (or individuals) and saw the involvement of raw toxins: (i) Salmonella, by which members of the Rajaneeshee cult contaminated salad bars in local restaurants to sicken potential voters (1984); (ii) Botulinium toxin and anthrax, in the case of the attempted use made by Aum Shinriki in Japan; (iii) and the already mentioned anthrax letters sent to the media outlets and US Congress members in 2001.<sup>402</sup>

The disruptive effect these attacks can entail is huge; beyond casualties, economic and social consequences can be massive to the point of endangering not only individual citizens but also the institutions that define and defend the actual character of the society in its entirety.

(2) A second trend which characterize biological agents in the 21<sup>st</sup> century, derives from the accelerating pace of innovation in biotechnology, which has resulted in the growth of microbial threats to human health and nanotechnology applied to life science. For example, as far as toxins are concerned, growing research interest for application in medical treatment, pharmaceuticals and agriculture shows that S&T advances are changing the way toxins are being produced and used. Synthetic biology approaches already exist for biological agents and toxins modification that can make them more suitable as large-scale weapons and more selective in terms of their target (gain of function (GOF)).<sup>403</sup> There is also a mounting discussion on whether new technologies will one day enable the cost-effective production of large quantities of agents (an example being the increased synthesis and use of botulinum toxin both for therapeutic and cosmetic purposes). It comes without saying that performing specific type of research, GOF and similar, brings about new risks and challenges even in the absence of malicious purposes or intents. Accidental releases of dangerous substance

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<sup>401</sup> Anderson, “Bioterrorism,” 121–29.

<sup>402</sup> Tucker, *Toxic Terror*; Wheelis and Rózsa, *Deadly Cultures*.

<sup>403</sup> Barash and Arnon, “A Novel Strain of *Clostridium Botulinum* That Produces Type B and Type H Botulinum Toxins”; Dover et al., “Molecular Characterization of a Novel Botulinum Neurotoxin Type H Gene”; Relman, “‘Inconvenient Truths’ in the Pursuit of Scientific Knowledge and Public Health.”

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are always possible, especially if safety measures are not observed, as the dramatic leak of anthrax spores from military facilities has shown in past times (Gruinard Island, Sverdlovsk, etc.).<sup>404</sup>

Furthermore, the democratisation effect of synthetic biology and systems biology, with easier public access to data, analysis and materials may be a significant factor in reducing implicit knowledge and “entry requirements and resources” and enable, in the future, laypersons or single actors to get to more effective and dangerous results (especially because non-linear progress is to be expected in the field). This understanding has amplified the fear that humans might be able to create and manipulate life before the achievement of a real capability to prevent such technologies from being misused.<sup>405</sup>

Implications of cutting-edge researches (in the field of biotechnology and nanotechnology) over the regime covering the use and development of toxins for malicious purpose remain unclear; the “*convergence*” between biology and chemistry that these researches entail, may have already outpaced the capacity of the normative system to adapt and cover all possible externalities.

(3) The third trend is represented by the constantly enlarging basin of potential threat-agents emerging due to the natural and unremitting evolution of microorganisms, the identification of previously unknown infection disease agents and the return (often in drug-resistant forms) of well-known, but quasi-eradicated, strains. Since 1973, more than thirty previously unknown infectious disease agents such as HIV, Ebola and SARS have been identified. (4) A fourth major trend, not explored in its complexity here, is linked to the globalization of the pharmaceutical and biotech industries along with the diffusion of information about life sciences. These changing circumstances are also making the ingredients to misuse biological products more widely available.

These changes have come along together with the growing acceptance among the international political community of a more comprehensive understanding of biosecurity. The term biosecurity no longer refers exclusively to a traditional “military threat” posed by states to enemy-states, but it comprises multiple and varied

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<sup>404</sup> Leitenberg, Zilinskas, and Kuhn, *The Soviet Biological Weapons Program*, 2012.

<sup>405</sup> Oye et al., “Regulating Gene Drives,” 626–28.

potential perpetrators (sources of threat) and inevitably new and different “targets” (at-risks groups). Taken altogether this new complex of threats and targets provides for a new taxonomy for bio-insecurity. As far as the type of actors potentially responsible for posing the threat: states; non-states actors including terrorists; criminals; scientists and nature are all possible candidates. Traditional state-based biological warfare programs go hand in hand with actions carried out by non-state actors who have also demonstrated an interest in acquiring and using biological agents. On their part, scientists engaged in research on infectious diseases and biotechnology are increasingly capable of posing two different types of biological risks: through the accidental release of a pathogen outside the laboratory and the generation and enforcement of the tacit-knowledge necessary that could be misused for malicious purposes. Finally, the natural and human-influenced process of microbial evolution is a never-ending source of biological threats. In particular, a subset of infectious diseases, called pandemics, have the potential to pose direct threats to national and international security through a combination of their prevalence, transmissibility, virulence and lethality. With regard to the possible victims of bio agents, these can range from individuals to communities to society, and entire states. From the taxonomy here accepted it follows that bio-event can assume many different forms: biological warfare, terrorism, bio-crimes, laboratory accidents, and pandemic, endemic and epidemic diseases.

In conclusion, it is worth noting that from whoever it comes and whoever is the target of bio-agents, bio-attacks (or natural out-breaks) display the dramatic characteristic of being abrupt and “offensive” in nature. This makes preventive initiatives extremely demanding, expensive and, up to now, incapable to address effectively the problem. Early-warning, sound preparedness and a comprehensive response are acknowledged as valuable strategies to contain the negative consequences of bio-events

The analysis of programmatic documents from relevant agencies operating in the field (UNODA, UNCTIF, UNICRI, JRC, WHO, OIE interalia) confirm findings well documented in open literature.<sup>406</sup> Most importantly, the ongoing discussion clearly

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<sup>406</sup> Koblenz, “From Biodefence to Biosecurity,” 131–48.



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remarks that faced with international new challenges, a *new security culture* progressively has emerged which is hallmarked by:

(1) Greater emphasis on a smart preparation and response (across traditional IR issue-areas - security, health, and environment) by addressing those hazards that are feasible to target in order to reduce vulnerabilities and mitigate consequences of biological events.

(2) Deeper involvement of the *life sciences community*. On the one hand, this community (scientists) and its associate infrastructure of high bio-containment laboratories (Biosafety Level 3 and 4) represents a key source of expertise, information and material that could be misused. At the same time and more importantly, life scientists are best positioned to reinforce the norms against the misuse of biology, to detect suspicious activities and to identify emerging technologies that pose risks to biosecurity. Aside from some naturally occurring infectious diseases, these threats are rare and their assessments require great expertise in order to focus on real risks.

(3) *comprehensive and integrated approaches*. Experts and practitioners believe that, in order for cooperation to work in containing the full spectrum of biological threats, shared practices need to be established within countries (diverse institutions and agents) and among countries (biosecurity goes global). A broad definition of biosecurity (like the one here accepted) implies that, within each country, bio-risk assessments and response strategies need to be developed throughout multidisciplinary approaches. In their view, successful results can be reached only by means of a greater cooperation between public health, life sciences, national security and law enforcement communities. Early warning of potential risks and rapid identification will depend on tools such as microbial forensics and joint criminal-epidemiological investigation that rely on close cooperation: social and political institutions are believed to become increasingly dependent on experts as a consequence of the growing ambivalence and uncertainties that societies face.

Furthermore, as often repeated in public discourses addressing the topic, diseases know no borders, and cooperation (especially within response oriented actions) cannot be limited to individual countries' responses. In today's interconnected world, an outbreak of highly communicable disease anywhere in the globe increases the risk

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to everyone, particularly if the outbreak is of deliberate origin. Under this perspective, there is a strong conviction that efforts, whether for public health or against terrorism must be concerted internationally and inter-agency. On the practical level, the main challenge lays in the fact that different states tend to respond in diverse ways to the same emergency and deploy different actors to implement such response; this lack of uniformity makes domestic and international agencies' communication and coordination difficult and demanding.

### Health security and the case of the World Health Organization

Over the past decade, the study of global public health and its interconnection with security has become a prominent and rapidly growing field of research.<sup>407</sup> The nexus between biological agents and security has existed since the dawn of civilization, mainly in terms of biological warfare, the co-option of microbiologists or medical doctors tasked with weaponizing germs, and military medicine. Nonetheless, the current formal and persistent link between the two dimensions is a different one insofar involves global public health at large (health systems, human resources, knowledge, infrastructures). The shift does not only echo a growing tendency to articulate international health policies in the language and vocabulary of security, but also reflects a substantial drive towards a more and more institutionalized and acquainted participation of public health (with its technical expertise) in security matters.<sup>408</sup> This has finally resulted in a resolute cross contamination between the two fields. Since the year 2000, the Global Health Security (GHS) discourse has gained

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<sup>407</sup> A search of the term "Global Health Security" using library searching engines from universities/research browser return up to 628,381 relevant articles and more than 2000 books. The search of the term using an internet searching engine confirms that a multitude of ad-hoc IOs, NGOs, Research Centers and programs are dedicated to global health security relevant activities, as well existing organizations have created task forces with a specific focus on the issue (threats to health security).

<sup>408</sup> The reverse is also true, although the process has implied, for the public health experts involved, relevant reputational and operational risks as it will be explained later in this paper Amon, *Health Security and/or Human Rights?*; Stevenson and Moran, *Health Security and the Distortion of the Global Health Agenda*; DeLaet, *Whose Interests Is the Securitization of Health Serving?*; Elbe and Buckland-Merrett, "Data, Disease and Diplomacy."

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increasing traction and popularity, fed policy decisions,<sup>409</sup> and informed an expanding literature, which have copiously elaborated on the associations existing between these previously separated policy fields, their differing practices, and on effects the link itself has produced (progressively accepted by public opinion).

Two main intertwined drivers for explaining this process (known as “*securitization of health*”) can be identified. One lays in the foundation of a “post-cold war security agenda” which stopped being dominated by the spectrum of the thermonuclear war between the two superpowers and opened to “new security challenges” posed by global/transboundary issues (such as climate change, energy and resource availability). The second one was the establishment of human security based approaches to world politics, which value “new security objects” (in primis human well-being). This in deep contrast with traditional state centric understanding of security<sup>410</sup> and international relations.<sup>411</sup>

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<sup>409</sup> Few examples follow from the UN system/agencies: In January 2000, the UN Security Council declared HIV/AIDS to be a threat to international peace and security (UNSC Res 1308). In 2004 the UN Report of the Secretary-General’s High Level Panel on Threats, Challenges and Change analyzed acts of bioterrorism and naturally-occurring outbreaks from the same security perspective. The World Health Organization devoted its 2007 World Health Report to the theme of “Global Public Health Security in the 21st Century” (WHO 2007). The UK government’s National Risk Register of Civil Emergencies identifies pandemic influenza as “the most significant civil emergency risk” facing the UK (Cabinet Office 2012: 6). UNSC Resolution 2177 was adopted unanimously at an emergency meeting on 18 September 2014, after the UNSC declared the “unprecedented extent” of the Ebola outbreak in Africa constituted a threat to international peace and security. The potential threat posed by pandemics has assumed a prominent place in U.S. national security policy (*inter alia* the “IOM Report” (1992), “Global Infectious Disease Threat and its Implications for the United States (2000)” issued by the US National Intelligence Council acknowledges infectious diseases as a core dimension of security non-traditional threats) and for the UK, and Canada.

<sup>410</sup> In a traditional understanding of “national security”, “security” generally meant the protection of a state from external attacks, nuclear proliferation, international espionage and internal rebellion. In response, the security and defense infrastructure was tailored to address threats to through military buildup, nuclear stockpiling and foreign intelligence.

<sup>411</sup> References to Human Security founded fathers and more recent debates: Buzan, “New Patterns of Global Security in the Twenty-First Century”; Buzan, Wæver, and Wilde, *Security*; Florini, Simmons, and Project on World Security (Rockefeller Brothers Fund), *The New Security Thinking*; Tadjbakhsh and Chenoy, *Human Security*; Barnett and Duvall, *Power in Global Governance*, 161–83; Martin and Owen, “The Second Generation of Human Security”; Caballero-Anthony and Amul, “Re-Emerging Infectious Diseases”; Huish and Kirk, “Cuban Medical Internationalism and the Development of the Latin American School of Medicine”; Huish and Spiegel, “Integrating Health and Human Security into Foreign Policy”; Voelkner and Elbe, “The Medicalization of Insecurity.”

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During the last two decades, the debate about Global Health Security (GHS) has structured around three main questions/issues.<sup>412</sup> (1) The first one pertains to the scope and application of GHS: if health and security are to be linked in a global landscape, which is the scope of the connection? What is the content of a Global Health Security agenda? Does GHS represent the manner in which diseases may affect (efficiently or adversely) military capacity and operations (including weaponization of diseases),<sup>413</sup> or is it the way public health actions can contribute to the achievement of non-health related political objectives (health diplomacy)?<sup>414</sup> Is it the way health threats (to civilian population) can become security threats as they can jeopardize the security profile of a country?<sup>415</sup> Or does GHS refer to the provision of medical assistance and humanitarian intervention in areas of conflict (e.g. war, civil wars, and failing states)?<sup>416</sup> Or does GHS refer to the way violent conflict (from wars to terrorism) can impact on public health services?<sup>417</sup> Or to the fact that the premature loss of life caused by diseases “per se” represents one of the greatest threats to people around the world (pure human security approaches)?<sup>418</sup>

(2) The second theme has explored which (if any) health issues come to constitute security threats? And what should be done to address those threats (in other words, what should be an efficient GHS the response)? (3) Finally, the latter issue, which is

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<sup>412</sup> For a comprehensive assessment and analysis see: Rushton and Youde, *Routledge Handbook of Global Health Security*.

<sup>413</sup> Price-Smith and Price-Smith, *Contagion and Chaos*; Elbe, “HIV/AIDS and the Changing Landscape of War in Africa”; Heineken, “HIV/AIDS, the Military and the Impact on National and International Security,” on the way Spanish Influenza and HIV/AIDS have undermined military capacity of Austria/Germany (WWI) and southern Africa (present), respectively.

<sup>414</sup> Kamradt-Scott, “WHO’s to Blame?”; Davies, Kamradt-Scott, and Rushton, *Disease Diplomacy*; Fidler, *Assessing the Foreign Policy and Global Health Initiative*.

<sup>415</sup> In this case the link between health and security is strong and not really contested, in the sense that it is commonsense that naturally emerging / re-emerging infectious disease as well as other events with dramatic health consequences can be just as damaging as an attack by a foreign power in terms of causing significant morbidity, mortality, and economic disruption. This position has largely proceeded within a national security paradigm for rapidly spreading infectious diseases represent a frank threat to the state-centric conception of security as in the past “tropical diseases” represented a threat to the military and commercial interests of imperial powers.

<sup>416</sup> McInnes and Rushton, “Smart Power?”

<sup>417</sup> Iqbal, “Health and Human Security.”

<sup>418</sup> Also this type of link, by generically considering almost any high lethality/morbidity event (including non-communicable diseases) as a credible security threat, has courted much less controversy among practitioners (because it doesn’t require any specific prioritization)

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also the more controversial one, has focused on the risks (operational and reputation) of uncritically endorsing (or sanctioning) the relationship between health and security.

As the leading agency for global public health, WHO had generously contributed to the debate around health and security.<sup>419</sup>

The term “security” already appears in the Organization’s Constitution,<sup>420</sup> nonetheless the momentum for Global Health Security discourse at WHO reached a turning point in the year 2000. The shift was facilitated by the longstanding existence inside the Organization of an “authorized expertise” accustomed to deal with security since the 50s.<sup>421</sup> That expertise was reinforced by the establishment of a more structured “governance and technical apparatus” which was sponsored by the USA (IOM report (1992)); Canada (Lac Trembland Declaration (1994)) and other northern allies and taken forward by the World Health Organization itself (in a couple of meetings held in 1994 and 1995) through WHA Res 48.13, the creation of the EMC, and a series of operations which did take place from the late 1990s.

By the end of the century the two fields (health and security) became explicitly interconnected at WHO. WHA Resolution 54.14 (May 2001)<sup>422</sup> officially designed Epidemic Alert and Response as Global Health Security issue. The international security mandate linked to the preservation of Global Health Security was further extended under resolution 55.16<sup>423</sup> which called on member states to “treat any deliberate use, including local, of biological, chemical, and radiological attack to cause harm also as a global public health threat”. The passage is significant because it admitted a traditionally security matter (CBRN) in WHO’s remit, although indirectly through the all-risk approach adopted by the resolution. The following IHR revision, although confirming the general support to the all-risk approach, opened the floor to serious consultations/confrontations among member states and regional groups on

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<sup>419</sup> Weir, “A Genealogy of Global Health Security.”

<sup>420</sup> “Constitution of the World Health Organization.”

<sup>421</sup> Inter-alia ICMM-WHO Memorandum of Understanding (1952), engagement with BTWC negotiation and RevCon (1968/69); “Public Health Impact of chemical and biological agents” (1972), ICMM MoU, Sverdlovsk investigation, earlier collaborations with Pugwash, NATO, etc.

<sup>422</sup> WHA Resolution 54.14 - Global health security: epidemic alert and response, May 21 2001

<sup>423</sup> WHA Resolution 55.16 - Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radio nuclear material that affect health, May 2002

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the role of WHO should have had in security relevant matters. In particular a southern bloc of states (EMRO, SEARO, WPRO) acted vocally against the inclusion of international security elements in the text of the treaty in the form of words like “threat” (substituted by the wording risk), “CBRN”, and any other language that would explicitly grant the WHO the power to undertake suspect treaty violations involving weapons of mass destruction (e.g. in the case of Biological Weapons and the BWC).<sup>424</sup> In example, the Global Alert & Response Network (GOARN) was designed as a partnership intended to have response capacity for public health responses including those attaining accidentally or deliberately caused outbreaks.<sup>425</sup> The result was a complex compromise which, while stripping all explicit reference to security, retained the all-risk scope (in practice encompassing harm from CBRN incidents and the provision of technical expertise in case of outbreaks of unknown origin). Furthermore, and concerning to potential investigations, if an outbreak was/is suspected to be intentionally or unintentionally caused, it was stated that WHO would have been required to inform the UN Security Council, which would have, in its turn, decided if an investigation was to be conducted at all, and in case it was, if it may have involved WHO technical assistance (for example in the framework of a UNSGM investigative mission “to provide support as far as public health-related aspects are concerned”<sup>426</sup> – as per the letter of the Memorandum of Understanding between WHO and UNODA formalized in 2011).<sup>428</sup>

Since its revision, the International Health Regulations (2005), a legally binding agreement designed to build and strengthen national alert and response system, has become the key driver to strengthen global public health security.<sup>429</sup>

Notwithstanding this substantial connection, focusing on definitional issues, it can be said that even within the WHO, the leading UN agency monitoring/supplying global

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<sup>424</sup> For a detailed description of the IHR, see Chapter 3

<sup>425</sup> Weir, “A Genealogy of Global Health Security.”

<sup>426</sup> Agreement between the United Nations and the World Health Organization, approved by the General Assembly of the United Nations on 15 November 1947 and by the World Health assembly on 10 July 1948

<sup>427</sup> Hjalmarsson et al., “Global Watch.”

<sup>428</sup> “Memorandum of Understanding between the World Health Organization and the United Nations concerning WHO’s support to the Secretary General’s Mechanism for investigation of the alleged use of chemical, biological, or toxin weapons” (31 January 2011)

<sup>429</sup> Rodier et al., “Global Public Health Security.”

public health policies, health-security language has been less consistent than one would expect. The 2007 Report issued on the State of Health Security, which describes the drivers of international health crisis and the progress made on the implementation of IHR, does not provide a one-fits-all definition for GHS.<sup>430431</sup> The situation has not changed that much since then (see the 2017 report on “Global Health and Foreign Policy: Strengthening the Management of International Health Crises”).<sup>432</sup>

However, if on the one side, it is clear that promiscuity can bring vagueness and dilute debate. On the other end, GHS amorphous character might also be what has given the concept its potency and endurance. In fact, non-specific and vague definitions allow different groups to work together without full-consensus (providing interpretive flexibility and a common language for deliberation). On the contrary, restrictive uses of the term may have provided clarity and focus, but would have inevitably removed topics of some potential interest for some parties from the debate with the unwelcome result of excluding them from the play (securing health from threats). This is a particularly undesirable outcome exactly insofar the threat is one that can only be dealt with successful by cooperative initiatives.

With regard to Health Security, two approaches have prevailed: inclusive and narrow approaches.

*1) Inclusive approaches are also known as “Public Health and Security” approaches.*

The WHO Constitution clearly states that the objective of the Organization is the “attainment by all peoples of the highest possible level of health”, with “health” being “a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity.” The link with security is established in the preamble (paragraph 4), which reads: “The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest co-operation of individuals and States”. From this perspective follows the idea that ‘health’ participates to security. This is an inclusive profile insofar the relationship between health and security, as all those activities aimed at promoting health at the same time

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<sup>430</sup> Lancet, “WHO fails to address health security available at [http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(07\)61350-6.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(07)61350-6.pdf)

<sup>431</sup> Aldis, “Health Security as a Public Health Concept.”

<sup>432</sup> The report A771/598 pursuant general assembly resolution 70/183 (2016): “Global health and foreign policy: strengthening the management of international health crises”

contribute to the attainment of security itself (directly or indirectly). This understanding recalls what some authors means by “health and security” which is traditionally used to describe the positive/negative impact that health can make over global security (for example within the framework of the recognised links existing between health and policy/economics at country levels).<sup>433434</sup> This is the case of those situations where weak national health systems impair the security of a state itself (being the case of poor population’s health conditions affecting the military capability of a state just one example). But this is also the case of those circumstances where health is used to achieve non-health specific objectives (*health diplomacy*) potentially raising the security of the acting state.<sup>435</sup>

2) *Narrow approaches (Health Security = secure Health)*. Later WHO documents have linked health and security in a way that holds health as an object/value to be securitized in itself and consistently have focused the attention on those specific actions that are aimed at “securing health” of communities and individuals from threats (of different types and provenance). Logically, with the passage of time, what can “threat” health has changed (both in perception and reality) flowing from military to communicable diseases, to emergencies, to health crisis (most recently). Under this perspective, the approach is less “narrow” than one would think and health security has become the umbrella term where to place all activities required to “minimize vulnerability to acute public health events that endanger the collective health of populations living across geographic regions and international boundaries.”<sup>436</sup>

An example of this expanded menu is provided by the list of perceived threats against which ‘health’ must be secured which is presented below together with the relevant documents.

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<sup>433</sup> Andoh, S.Y., M. Umezaki, K. Nakamura, M. Kizuki, and T. Takano. Correlation between National Income, HIV/AIDS and Political Status and Mortalities in African Countries. *Public Health* 120, no. 7 (July 2006): 624–33

<sup>434</sup> Andoh et al., “Correlation between National Income, HIV/AIDS and Political Status and Mortalities in African Countries,” 624–33.

<sup>435</sup> Fidler DP. *Assessing the foreign policy and global health initiative: the meaning of the Oslo process* [Internet]. Chatham House London; 2011

<sup>436</sup> World Health Organization, *The world health report 2007 - A safer future: global public health security in the 21st century*. Geneva, Switzerland: World Health Organization, 2007.



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1. Communicable diseases potentially spreading across national borders [and antimicrobial drug resistance] (WHA 54.14).<sup>437</sup>
2. Natural occurrence, accidental release or deliberate use of biological and chemical agents or radionuclear material that affect health (A 55/20 and WHA 55.16).<sup>438</sup>
3. Any public health emergency of international concerns, in line with the all-risks/all-hazards approach, with a specific focus on those conditions susceptible of becoming global emergencies (potentially including chemical agents: “Spread of toxic, infectious or otherwise hazardous materials that may be occurring naturally *or otherwise* that has contaminated or has the potential to contaminate a population and/or a large geographical area.”)<sup>439</sup>
4. Acute threats to health with a focus on specific threats like (a) epidemic-prone diseases (b) foodborne diseases; (c) accidental and deliberate outbreaks (including toxic chemicals/radionuclear/environmental disasters) and most specifically on pandemic influenza; drug resistant tuberculosis; international spread of polio versus “traditional health security priorities (plague, cholera, and smallpox.)”<sup>440</sup>
5. International health crisis, whose drivers are manifold, and include: (a) Infectious Hazards (new and re-emerging diseases, and epidemics); (b) Political instability and insecurity; (b) attacks on health care facilities; (c) population displacement and migration; (d) urbanization and shifting demographics (urbanized landscapes); (e) changing weather patterns and other climate-related risks (WHO 2016)<sup>441</sup>; (f) mass gatherings/high-density crowd places.

In order to explore the relationship between health security as it is practically perceived by technical experts in the field a set of interviews and informal conversations has been conducted as a spin-off to the present thesis. The general

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<sup>437</sup> WHA Resolution 54.14 - Global health security: epidemic alert and response, May 2001

<sup>438</sup> WHA Resolution 55.16 - Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radio nuclear material that affect health, May 2002

<sup>439</sup> World Health Organization, International Health Regulations (2005). Third edition. Geneva, Switzerland: World Health Organization, 2016.

<sup>440</sup> World Health Organization, The world health report 2007 - A safer future: global public health security in the 21st century. Geneva, Switzerland: World Health Organization, 2007

<sup>441</sup> Report of the World Health Organization on the State of Health Security. The report A771/598 pursuant general assembly resolution 70/183, Geneva, Switzerland: World Health Organization, 2016

approach used for coding has followed the framework method. A set of codes (jointly developed through preliminary assessments) has been organized into categories to manage and organize the data from the interviews. However, in some cases, open coding did take place to value all the information received by the experts.<sup>442</sup>

Building on the interviews and informal conversations engaged with WHO staff/experts, it is possible to refine our understanding that activities at the health and security interface are described by practitioners and implementers as “those public health activities whose performance involve to some extent the security sector broadly understood (law enforcement, police, national armies, ministries of defence, military doctors, international and non-governmental organizations with a security relevant mandate). These activities encompass inter alia (1) specific areas of work (smallpox and other high-risk pathogens, dual R&D and biosecurity, toxic chemical agents, HPLN etc.); (2) deliberate events and joint-activities of various degrees of overlapping with security-relevant actors (research, operations, training, networks and labs); (3) outbreak response operations in non-permissive environments, highly politicized contexts, conflicts, and wars (i.e. Syria, Iraq, etc.)”.

The working definition presented above has resulted and builds on a series of patterns which are listed below:

*(1) Health Security Interface (HSI) activities include protection of health from traditional and emerging risks/threats.*

These risks/threats are both those to populations (in its entirety), such as emerging pandemic-prone communicable diseases, SARS, Ebola, avian influenza, and AIDS, and those tackling single individuals.

Systemic weaknesses to health security that have been identified by the interviewees and open literature include:

- Deliberate use of biological agents and toxic chemicals (by a wider range of perpetrators). Current security concerns come from non-state actors (terrorism along with international crime are gaining centre-stage). The possibility for a well-

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<sup>442</sup> The interviews were semi-structured in the sense that, to solicit inputs on the topics under analysis, open-ended questions have been provided to the interviewees before engaging each conversation. As well as a common template was prepared and circulated in order to facilitate the discussion by providing a common language and background

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- organized and funded “terrorist” group to obtain agents through theft or bargaining with a state willing to sell a weapon is considered real and tangible.
- Accelerating pace of innovation in technology and dual-use materials. A wide range of materials and technologies aimed at peaceful purposes have the potential to be used to harm. Many agents with a potential for weaponization are currently produced at commercial facilities.
  - Attacks to health facilities (and staff) and their verification processes. Material security measures around relevant facilities and critical infrastructure are of possible concern, especially in developing countries (budget constraints, limited human resources and capacity etc.)
  - Fragile normative systems and weak leadership in preparedness and response (especially in specific areas/regions). Although many agents are forbidden under the international non-proliferation treaties, many states/actors may gain access to the precursors and to open source information detailing the process of weaponization of agents (especially chemical/bio).
  - Frail global preparedness mechanisms which are not yet fully operational and a level of investment that remains insufficient in front of the magnitude of global public health security issues. Different and poorly integrated preparedness levels in diverse countries cause the preparedness level of the weakest de facto determining the overall preparedness of the system.
  - The anti-vaccine movement vs rapid vaccine development (i.e. blue print initiative)
  - Academic collaborations and partnerships, including nationality-issues for highly politicised conflict/countries.
  - The role of military personnel in crisis management (international versus national operators)

*(2) HSI activities include operations aimed at assuring health services in non-permissive environments (NPE), highly-politicized contexts/conflicts, and wars. Already complicate situations can be exacerbated by the emergence of new global conditions for which existing approaches are possibly inadequate (being the Cholera outbreak in the Republic of Yemen just the latest example). For example, the provision of medical aid and humanitarian intervention in so-called failed states, in which conflicts within*

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rather than *between* states have replaced previous dynamics; or in countries presenting high domestic/civil unrest indexes; or where inclusiveness/permeability among different ministries (e.g. public health and defence) is very high with information flowing with no constraints from one to the other.

(3) *HSI activities are also those that are performed in collaborations with / or which entail the engagement of old and new security actors (including law-enforcement and specific categories of the military establishment)*; Concerns have been raised, that there is increased and, in some cases, routine involvement of military units/EMT in public health interventions. Some of the interviewees expressed reservations of systematic engagement in the field with war fighters, law enforcement and intelligence-related agencies. Conversely, they often comfortably operate alongside with traditional military medical personnel, when it comes to field operations. An example of this joint action is the engagement of foreign militaries in the response to the 2005 Asian tsunami disaster (or Ebola, Iraq and others...). While the assistance was welcome, low-altitude surveillance flights over areas such as the politically sensitive Aceh region of Indonesia by foreign armed forces were a potential source of concern. Similar cases have been the Syrian Arab Republic, the Republic of Iraq, Ukraine, and the Republic of Yemen.

(4) *HSI activities have also been described as the product of the incipient linkage of health policies to foreign policy interest*. There is a growing acceptance that health is a legitimate foreign policy concern, and/or a mean to achieve foreign policy goals (e.g. health diplomacy). At the same time, both new and traditional health institutions recognize that the reverse is also true, and health is affected by the policies of non-health sectors (the concept of “Health in All Policies”, as the WHO DG recently recalled at the margins of AFRO Regional Committee).

Beyond patterns of activities, a supplementary way to look at the way the health and security sectors have intensified their relationship is by analysing the distribution of funding awarded transferred from one to the other sector. More specifically, it is possible to investigate whether and how the World Health Organization has been

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receiving funding from “security donors”.<sup>443</sup> Under this perspective, two datasets have been acquired and scrutinized: WHO Awards General Funding 2006-2016, and WHO Annual Expenditure (per awards). This has meant navigating and screening throughout about 27000 awards from more than 1000 donors, and implied a detailed tracking of a selection of more than 40 security donors across space (HQ/WHE/regions) and time (8 years). Dataset is classified, although aggregated data are available on the WHO website.<sup>444</sup>

The WHO biennial budget has more than doubled in the past few decades (from US\$ 1.6 billion in 1998-1999 to > US\$ 4 in both 2014/15 and 2016/17). With core budget flat (or declining in actualised financial terms), almost all of the growth is attributable to the increase in discretionary funding (voluntary contributions (VCs)) that have indeed contributed to the total budget for a 48.8% in 2008-2009, to an 85% in 2016/2017. If at a first glance, this funding appears multilateral, advance investigations show that it is essentially controlled by a bilateral donor (multi-bi).<sup>445</sup>

In this framework, security-relevant donors have come into play (with an overall commitment that doubled between 2009 and 2017). This funding has been delivered mainly by a handful of states and shareholders ((United States (DTRA, CDC, Defence, Navy, Department of State) which have this way accounted for around half of the security budget in 2016, plus DFTAD, UK MOD, EU (DEVCO/ECHO), GAVI Alliance, and CERF. In summary, budgets reveal that a significant proportion of the increased funding for health come from contributions that are discretionary/multi bi-lateral (so-called “Trojan” multilateralism) with important consequences (earmarked, board-dependent, narrow-problem oriented, and short-time constrained).<sup>446</sup>

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<sup>443</sup> By security relevant donors we meant 46 contributors including Member States and local governments, NGOs, and philanthropic foundations with a direct/indirect security pertinent mandate (e.g. US DOS, DTRA, UK MOF, DFTAD etc.)

<sup>444</sup> <http://www.who.int/about/finances-accountability/budget/en/>

<sup>445</sup> The term refers to the practice of donors choosing to route non-core funding, earmarked for specific sectors, themes, countries, or regions through multilateral agencies (being an example the voluntary contributions within WHO, trust funds within the World Bank, the Global Fund and the GAVI alliance

<sup>446</sup> Reinsberg, Michaelowa, and Eichenauer, “The Rise of Multi-Bi Aid and the Proliferation of Trust Funds.”

From the analysis of WHO expenditure per award (2012-2016), it is possible to derive additional insights. First of all, it is confirmed that the category (based on FENSA framework/taxonomy) where security donors are more relevant is still the one of member states (as in most of cases security donors are represented by the ministries of foreign affairs and defence) where a growing trend is also observed (from approximately US\$ 167 million in 2012 to US\$ 299 million in 2016). Nonetheless, security relevant contribution through “partnerships” and “non-governmental organization” is stable and not to be underestimated. Secondly, the analysis reveal that HQ represents the first destination for security funding with a total US\$1,789,307,026.38 of capital which flowed into its budget between 2012 and 2016 from security donors (mainly CDC USA; GAVI Alliance; CERF; MoFA Canada, Finland, and Australia; and ECHO) in the period 2012-2016. More specifically, and with reference to WHE in the same period, top-9 ‘security donors’ contribution (CERF, ECHO, CDC USA, DTRA, MoFA Japan, Canada, Germany, Finland; GAVI Alliance) have accounted for never less than 40% of WHE VCs funding each year.

Regions are also following the same trend with AFRO and EMRO largely relying on security-relevant funding (between 10 and 50% of the total VC - depending on the year). In terms of the activity funded by the security budget, a specific connection/linkage or necessary association between donors and activities cannot be acknowledged, although some trends/priority areas can be identified and include (but are not limited to):

- (1) IHR and related actions: (a) state parties’ assistance and capacity building (assessment (including JEE), preparedness, response, points of entry, mass gathering events) (b) improving global and local bio-surveillance through workforce capacity development (training and workshops) and event detection/hot spot surveillance/risk assessment) and infrastructures (including protection of); (c) laboratories (strengthening capacities for detection and reinforcing networks (EDPLN); (d) HPLN.
- (2) international regulatory framework and partnerships/cooperation (tripartite, UN family and beyond)
- (3) response to major epidemics or public health events of international concern (all-risk approach) including GOARN, EOC, REMPAN

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Finally, and in consideration of the significant contribution security donors from the United States provide to WHO, of some relevance is the study of the US federal budget on “health security”.<sup>447</sup>

The proposed FY2018 budget, for health security–related programs, represents a significant decrease in funding from prior years and previous administrations. In total, the President’s proposed FY2018 budget includes \$12.45 billion for health security–related programs, an estimated decrease in funding of \$1.25 billion, or 9%, from the estimated \$13.71 billion in FY2017 and an 11% decrease from the FY2016 actual funding level of \$13.99 billion. Most FY2018 health security funding (\$6.67 billion, 54%) would go to programs with multiple-hazard and preparedness goals and missions, representing a 14% decrease in this funding compared to FY2017. Finally, 11% of health security funding (\$1.39 billion) would be dedicated to pandemic influenza and emerging infectious diseases programs, the only category of funding to see an increase (3%) above FY2017.<sup>448</sup>

In summary, Health and Security interface within WHO is a multidimensional issue with, at times, unclear boundaries. Mapping against three “clusters” of activities and their related funding sources, produces multiple intersections (with donors and impact). Furthermore, the scenario is complicated by the fact that in some countries institutions which appear as strictly public health related, often draw resources from the national security budget.

1. pure public health activities that have some interaction with security (i.e. civil/military in health cluster, some dual-use pathogens, international initiatives like GHSI);
2. ‘pure’ security-relevant activities that have some public health component/expertise (i.e. international investigations, chemical, biological, radiological and nuclear (CBRN) events)

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<sup>447</sup> Boddie, Sell, and Watson, “Federal Funding for Health Security in FY2015”; Boddie, Watson, and Sell, “Federal Funding for Health Security in FY2017”; Sell and Watson, “Federal Agency Biodefense Funding, FY2013-FY2014.”

<sup>448</sup> Watson, Watson, and Kirk Sell, “Federal Funding for Health Security in FY2018.”

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3. activities and capacities in between these two poles (i.e. laboratory biosecurity, alert/risk assessment and international information sharing, smallpox, outbreak response to man-made events), where some reputational risks may lie.

Biological agents and environmental security

The previous paragraph has investigated the relationship existing between health and security. A similar linkage, can be appreciated with regard to environment and security. The next section provides a better examination of such connection and explores the link existing between biological agents, environments and security on a theoretical and empirical level. Notwithstanding the fact that the term environmental security is comparatively new in high politics agenda (securitization of environment), the challenges it responds are not – as it will be soon become clear by the following analysis.

As in the case of health security, suggestions that environmental degradation is or should be a security concern is compatible both with (1) traditional approaches to security issues and with (2) messages voiced by the new wave of security scholars and policy makers who focus on non- (or less-) traditional security concerns (new security, transnational security and human security). Under this perspective, it would be simplistic to say that the conceptual genesis of environmental security is to be found exclusively in the rethinking of security which characterized the end of the Cold War. Indeed, the connection between the two fields - environmental destruction (or protection), on the one hand, and security, on the other hand – is compatible with a very orthodox way of thinking to security concerns. What has rather changed instead - since the human security discoursed has progressed – is the enlarged (and always-enlarging) pool of environmental relevant issues that have been found as relevant also in a security analysis. This latter one is the viewpoint that have attracted most of the reservations and objections from within both (1) purist of security studies who want to continue defining security (and defence) in terms of military threats exclusively and warfighting responses and who have argued against the inclusion of environmental as a security threat and also (2) the environment community,



concerned that “securitising the environment” ultimately run the risk of militarizing ecology and narrowing policy options.

Within the framework of two trends, above identified (traditional and non-traditional approaches to security), there are several - often overlapping and intertwined – patterns in which environmental degradation, resource depletion and ecological crisis can become security threat. Building on existing academic and policy literature, the present paragraph attempts to systematize such patterns.

1) Resources and environmental services can become a key instrument of malicious acts (warfare, terrorism or crime). In this case environment becomes a victim of the war – or other illicit action). This point of view is the expression of the most traditional stances towards security matters. The damage to the environment and natural processes, in this context, is not incidental or collateral, but is, in fact the purpose of the aggressive action. So- called “environmental modification warfare” has a long history, although it became extremely popular within the framework of counter-insurgency warfare techniques. The idea informing the strategy is the one of directly altering the physical environment as to make it less conducive to the needs of guerrilla’s fighters (depriving enemy forces of the opportunity to establish base areas from which to get food and shelter). This was the case with Vietnam War where the US made extensive use of cloud seeding techniques, defoliants and “Rome ploughs” (heavy tractors equipped with large blades for clearing forests and plants life). A second example is provided by Iraqi troops burning of Kuwaiti oil wells during the 1991 Gulf Conflict which inflicted serious degradation on coral reefs, mangroves, sea-grass ecosystems and marine/bird-life. Apart from becoming a warfare target, recent studies on terrorism have demonstrated that animal populations and crops represent a realistic target for bioterrorists. Under this perspective we can say that the environment is not only a target for conventional (pseudo/conventional) methods of warfare but it is the protagonist of non-conventional ones (intended as chemical and biological). Bioterrorist attacks against livestock do not require access to weaponised disease strains or laboratory cultures. Natural diseases that can cause catastrophic epizootics are easily acquirable and transportable, and common in many countries around the world. No elaborate delivery technology or methods would be necessary under a clandestine, economically targeted bioweapons assault scenario. “A willing

conspirator, a little careful planning, and access to an appropriate disease agent are all that would be required".<sup>449</sup> The consequences of highly virulent (although naturally existing) diseases of livestock (triggered by simply introducing infected animals or feeds into feedlot operations – even a single infected apple) can have devastating consequences especially in countries with industrialized livestock production methods.<sup>450</sup> The threat to biological diversity from bioweapons lies in the spill-over effects of weaponised livestock/agricultural diseases into wildlife population.<sup>451</sup>

2) Even when environment is not directly targeted in the framework of warfare or other illicit acts, environmental degradation can occur as an "unintended consequence" of it. This is the case of collateral damages in actual conflict or accidental/incidental release of bio/chemical weapons. The first scenario is easy to understand: war, conflict, and the activities of military forces during war time result in pollution, contamination of air and water system with important consequences on agricultural land, crops and animals.<sup>452</sup> Afghanistan represents a clear example of the consequences of such unfortunate circumstances. A second, and partially linked example of collateral damage is the one represented by the unsustainable exploitation of resources by warring parties to finance their campaign (Khmer Rouge in Cambodia, the SPDC in Burma, and the Abacha regime in Nigeria).<sup>453</sup>

Incidental or accidental releases of dangerous chemical or most probably bioweapons from assigned facilities and research centres are real possibilities. The accident can involve facilities where legal (defence) or illegal (offensive) researches on bio agents are performed. The risk has increased in the last 25 years especially in relation to the fact the advances in biotechnology have made techniques and equipment for a small-scale production of BW agents more accessible (the cost for a smaller-scale

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<sup>449</sup> "Proliferation of Weapons of Mass Destruction: Assessing the Risks," OTA.

<sup>450</sup> This is the reason why OIE is implementing since the year 2000 new animal disease information systems which include an active approach in the search for information on the occurrence of diseases and new electronic warning systems for the international community. Along these lines a recent growing (and more active) involvement of the Organization in joint exercise with INTERPOL and WHO on deliberate disease response can be observed.

<sup>451</sup> Dudley and Woodford, "Bioweapons, Bioterrorism and Biodiversity."

<sup>452</sup> One of the reports prepared by UNEP on Afghanistan concluded that the "first" conflict has degraded the country natural resources so badly that economic reconstruction efforts would be severely compromised). Afghanistan: post conflict environmental assessment, Geneva UNEP 2003;

<sup>453</sup> Elliott, "Environment and Security: What's the Connection?," 41.

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bioweapon facility was estimated within the range of 10-100.000 US\$ already in 2002). The escape of agents from facilities where defensive/offensive research is performed is more consequential than from the one related to civil labs (which by the way is not null) because BW related experiments involve the systematic use of strains characterized by higher virulence, pathogenicity etc. – in simple words agents more suitable to be used as weapons but extremely dangerous for wildlife population (and biodiversity conservation). In other words, intentional release, failures in detection and containment of bioweapons (as well as emerging disease outbreaks) among indigenous populations in developed and developing countries could result in severe erosion of both wild and domestic animals, the extinction of endangered species and the extirpation of indigenous agricultural infrastructures.

3) The environment (its decline and degradation) has been also considered a cause (primary or accessory) of conflict. While access to strategic resources is traditionally a motive bringing states to war, the menu of actual or potential scarce resources has expanded to include water, arable land, and environmental services such as clear air or climate system. Within this pattern, the issue of water wars has gained particular popularity – also because as a matter of fact over 150 major river systems are shared by 2 countries, and a further 50 are shared by between 3 or 12 countries. Under this perspective, environmental disputes can become an additional element of tension between states against a background of already existing political disagreements or within existing and well-established security communities. The ASEAN offers a good example of a similar scenario. Singapore, Malaysia, Thailand and Brunei have repeatedly lamented recurring haze pollution from Indonesia, that on its turn has cited illegal fishing as major reason for seeking to strengthen its naval capabilities (vs. Malaysia and Thailand).

Empirical evidences show that resources or environmental disputes are rarely the primary cause of any major inter-state conflict (being more often a corollary aspect). In particular, as far as shared water sources are concerned, their management can even open the floor for cooperative initiatives for example, by cooperative events as

through conflict (with cooperation on water even surviving in the midst of other forms of conflict).<sup>454</sup>

4) Environmental scarcity can contribute to the breakdown of societal relations. Especially in already “fragile” states, environmental issues are more likely to result in political violence, eventually leading to civil turmoil and outright violence.<sup>455</sup> Under this perspective, environmental degradation has as a “threat multiplier effect”. This has been the case in Sri Lanka, Ethiopia, Somalia, Rwanda, Haiti, South Africa, and South Sudan among other places.<sup>456</sup> In this regard, the political and strategic impact of environmental deprivation has been defined as the perspective “core foreign-policy challenge from which most others will ultimately emanate.”<sup>457</sup> Environmental degradation is bound to change the productive landscape of a country with relevant consequences over its population wealth and well-being. Poor countries are generally perceived as more prone collapse and instability, particularly if governments are not able to compensate for the maldistribution of resources. Along these lines, domestic unrest and relapse of the societal tissue of a country can result from the economic insecurity which environmental degradation broadcasts. Finally, when the environmental depletion is too deep and diffuse to be addressed, and ecosystems are made inadequate for human being survival, the consequential huge and unregulated movement of people become another source of internal tension or (when it involves multiple neighbouring countries) regional insecurity. Although not formally recognised by International Law as a specific category, estimates suggest that up to 25 million environmental refugees may be displaced as a result of climate change, water stress, deforestation and intensified competition for food, water and energy.

5) Under non-traditional approaches to security (including human-security) the potential connections between environmental degradation and security increase. The human security model focuses indeed on individuals rather than on states as the referent object of security and expands the agenda of security concerns accordingly. The list of human security challenges that arise from environmental degradation is

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<sup>454</sup> Wolf et al., “International River Basins of the World.”

<sup>455</sup> Myers, “Environment and Security.”

<sup>456</sup> *Our Global Neighbourhood*.

<sup>457</sup> Kaplan, *The Coming Anarchy*.

potentially unlimited. Main aspects include livelihood consequences (migration and greater vulnerability to natural disasters); malnutrition and an increased disease burden. As far as the latter is concerned, it has to be observed in fact that the habitat-changing imports due to environmental crisis may in fact also influence disease vectors, possibly contributing to the kinds of pandemics that represent relevant security threats (see previous paragraphs). Ozone depletion results in the suppression of immune systems in plants, animals and humans and has been implicated in the increased incidence of cancers.

6) Today, environmental concerns have become interlinked to security also under the rubric of so-called “greening the military” phenomena. This practice included two categories of initiatives. The first one deals with ensuring that the defence establishment meet environment requirements and to the fact that commanders and troops are trained to implement “green” guidelines in the field and training exercise. The second trend regards deployment of military capacity in support of broader environmental goals. This has included the use of military forces to respond to environmental disasters (floods or extreme weather events) or even to contribute to environmental data gathering. Especially because an increased pressure in that direction is registered by social movements and the governments of developing countries.

7) Finally, the relationship between environment and security exists in terms of the relationship between issue-specific international laws and institutional agencies that have developed since the 1970s. In so far, the first category of responses that have attempted to deal with the problem of modification or destruction of the environment was precisely elaborated within security-relevant arrangements: The Protocol I to the 1949 Geneva Conventions and the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD). Since then (and especially after the 1987),<sup>458</sup> the environmental regime expanded independently from arms control and has privileged a focus on biodiversity although significant intersection has maintained between the two issue areas (concerning patent

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<sup>458</sup> 1987 report of the Brundtland Commission and the Ad-Hoc-Working Group of Experts on Biological Diversity convened by UNPEP in 1988

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protection and technology transfer (TRIPS), biodiversity conservation (CBD), biosafety (Cartagena Protocol), and trade (as it will be explained hereinafter)). Beyond these potentially universal institutional framework, most recent examples of the practical cooperation between defence forces and environmental issues include restricted-group agreements inter alia the Trilateral Environment Security Cooperation established by Canada, the US and Australia, the Chinese proposal to include defence environmental cooperation under the ASEAN regional Forum, OSCE's one on "green helmets" and so forth.

### Conclusions

The second chapter has started by reviewing those features (relative gains, security dilemma, and high-stakes at play) that make cooperation in security-relevant domain more difficult than it is in other issue-areas. Nonetheless, the reasons why security institutions can be finally realized (states resilience, relaxation of PD assumptions, alternative strategic interactions) are addressed with a focus on the rational/social factors that impact on security regimes formation and demise (strategic context, offense-defence balance, ideas and identities). The analysis has focused on those scholarly and empirical contributions to security studies which have incorporated social facts in their assessments; these are factors that rational literature on security regimes had acknowledged only obliquely or in a manner that subordinates their causal force to a materialist view of the world. Finally, the first section of chapter two concludes by compiling a typology of security cooperation arrangements aimed at separating the specific characteristics of security regimes versus other forms of cooperation befalling "under the security dilemma" (security communities, alliances, collective security). Case studies and comparative analysis among security institutions show that security regimes (vs. other forms of cooperation) tend to be characterized by issue-association; focus on risks (not threat); relatively high level of formality; high degree of commonality, functional differentiation, and inclusiveness; diverse grades of specificity (usually medium-high), and a major role ascribed to compliant behaviours. Nonetheless, the analysis suggests the an excessive reliance to a strict taxonomy can be of limited utility with regard to real-world case situations (many

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features are common to all the categories in question (especially when a category is seen as an intermediate step towards another); states often display overlapping membership; practitioners often use the terms interchangeably).

The second section of the chapter addresses the relationship that security regimes entertain with arms control agreements, disarmament and non-proliferation policies. The discourse makes the point that arms control (which surely goes under the rubric of cooperative security) represent but one of a series of alternative approaches to achieve national and international security through the manipulation of material forces (in other words a mean to achieve a larger goal). The manipulation of force may or may not realize through disarmament (and non-proliferation) as it may or may not be structured in terms of formal modes of cooperation (treaty-law). Likewise non-proliferation and disarmament represent alternative military strategies usually (and rationally) but not necessarily pursued within a framework of mutual internationally exercised control (arms control).

While it has been shown that arms control should be distinguished from disarmament (and non-proliferation) and that the latter does not necessarily require an established negotiating procedure, it has also been discussed how the three practices (arms control, disarmament efforts and formal treaties) have often intersected in the framework of disarmament and non-proliferation regimes. However, because the link among those categories is fluid, large room exists to accommodate new objectives and approaches for national security agendas (qualified versus complete disarmament, priority of horizontal over vertical non-proliferation objectives; reciprocal declarations versus treaty-law; informal versus formal documents; increasingly operational focus; data sharing versus verification; implementation strategies versus punishment). The analysis has also highlighted how early non-proliferation regimes have been crafted with reference to a specific category of weapons (WMD) and the negative implications of treating CBRN altogether (increased the separation between them as a group versus conventional weapons on the one side, and reduced importance given to their individual characteristics). This section of chapter two concludes by offering a concise review of most recent scholarly contribution to the study of WMD proliferation (qualitative and quantitative) and has

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underlined its main limitations (a disproportionate focus on nuclear proliferation and on non-proliferation framework conventions; and the production of still tentative results about their actual impact).

The last section of chapter two focuses on biological weapons. The section starts by analysing those peculiar features which define biological agents as weapons: an intrinsically dual-use nature; the fact that are virtually undetectable (implying a late identification); highly consequential; characterized by a significant potential for disruption but spare of properties; a strong linkage with the biotechnology fast-moving industry (CRISP Cas-9); relatively easy access - ease and low cost of production (DIY Bio); and a clear-cut offensive-drive (in the framework of the offence-defence balance theory).

The extensive review of relevant literature has allowed to recognise the year 2001 as a turning point in the consideration of biological agents as a prominent security matter, process which has finally resulted in a new taxonomy of bio-insecurity. The investigation has shown that the change, made apparent by a number of worrying events (anthrax letters, highly risky experiments, SARS) has to be framed within a larger pattern, hallmarked, in the main, by four major trends: (1) the changing nature of conflict, (2) the accelerating pace of innovation in biotechnology (synthetic biology, nanotechnology applied to life science, convergence between chemistry and biology), (3) the natural and unremitting evolution of microorganisms and the re-emergence of quasi-eradicated strains (due to globalization); (4) globalization of the pharmaceutical and biotech industries.

The last part of chapter two represents a thorough assessment of the links and intersections established between health, environment, and security with a focus on biological agents related issues. The analysis conducted with reference to health security, heavily relies - beyond IOs programmatic documents and published literature - on private conversations entertained with practitioners and key experts from the field. Results are impressive in showing that, while within technical and legal writings definitional and conceptual flaws persist over key notions and understandings - in primis, over the notion of health security - a strong and well-articulated interface



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already exists between the two issue-areas. Such health-security interface seems to involve at least the following dimensions: protection of health from traditional threat and risks; health activities conducted in non-permissive environments or in collaboration with old and new security actors (military establishment and law enforcement); health diplomacy; network of regulatory frameworks; and most importantly resource allocation (multi bi funding from the security to the health sectors). Consistent outcomes are derived from the analysis of the environmental-security interface.

### Chapter 3: Key institutions and networks

#### An evolving regime

In the past 20 years, the non-proliferation regime covering biological and chemical agents has evolved well beyond the core disarmament treaties that regulate the subject, namely the Biological and Toxin Weapons Convention (BTWC) and the Chemical Weapons Convention (CWC). A number of problems have raised that could not be efficiently addressed by broad and general undertakings and declaration of principles like the ones incorporated in those broad framework conventions. In order to fill this vacuum a series of additional initiatives have sprung up alongside the BTWC (and the CWC) creating new patterns for action across the traditional high-low political divides. The intuition informing this chapter is that those initiatives seem to relate not only to “security” (*strictu sensu*), but touch upon diverse spheres of international relations and apply among and between state and non-state actors.

It is precisely within this new cross-sectoral dimension that novel “security interfaces” have emerged (with health and the environment) emphasizing the need for scholars to address and better understand the regime as a complex of nested institutions including non-proliferation agreements, public health regulatory frameworks and environmental protection conventions and organizations. See Figure 3.1

Consistently with the working definition proposed in Chapter 1 and building on a more “grounded” approach to the subject, an inventory of institutions considered of relevance in the analysis of the BW international regime has been compiled. The list so derived include 24 institutions among treaties and formal/informal intergovernmental organizations (FIGO and IIGOs) (see table 1); two mechanisms, namely the United Nation Secretary General Investigation Mechanism (UNSGM) and the ad-hoc Joint Investigation Mechanisms (UNSC-JIM); several agencies where quasi ad-hoc mandate have been envisaged within UN (UNODA, UNOG, UNICRI, UNCTITF) and beyond (INTERPOL, OIE, and FAO), several NGOs (ICRC, VERTIC, etc.). Although acknowledging the important contribution of regional institutions, the present analysis has focused on global instruments. See Table 3.1

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A comprehensive comparative analysis of the respective features, mandates and activities of each of the institutions listed above would exceed the space constraints of the present document. Nonetheless, this chapter addresses, in a chronological order, some of the major institutions which reportedly impact (or have impacted) on the international management of biological agents. The present analysis, as it is the selection of the institutions described, is heavily informed by the many conversations engaged formally and informally with members and representatives from the institutions under scrutiny, reports and reviews issued by the Organizations' committees where existing, open literature and specialized journals articles, review and commentaries, see apostille for further details on methodological aspects. For each institution, the present analysis has investigated the process of regime formation, assessed regime's attributes and explored their individual performance (in terms of implementation, compliance, and effectiveness). As far as regime's formation is concerned the analysis has been guided by the following issues: (1) origin, establishment and evolution over time (who first proposed the institution and why? how the institution has come to be a functioning arrangement? which key actors joined the institution at first and how participation developed); In term of regime's attributes, the study has scrutinised (2) the main norms subsidised/circulated by the institution (disarmament; non-armament; arms control; non-proliferation; counter-proliferation; security; communication; development (civil technologies support and/or knowledge transfer for peaceful uses; environment protection and conservation) and the main targets (states vs. terrorists) (3) the regime's legal profile (e.g. legally binding vs. political pledge; collaboration vs. coordination); (4) its organizational structure, if existent (how the institution was made operational in practice? which tools for compliance have been elaborated and when); Finally, with the objective of looking at the consequences broadcasted by the regime the research has tried to understand – where possible – the degree of implementation and compliance reached and attempted some provisional conclusions about the regime overall effectiveness (degree of cooperation achieved, the extent to which the specific cooperative effort has generated the intended result, the degree to which that result contributed to the success of the overall objective of preventing the use,

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development, possession proliferation, and circulation of chemical and biological agents for malicious purposes).

Any reasoning over the effectiveness of these institutions (and institutions in general) is complicated by a series of factors (already explained in the previous chapters) that span from: data and time limitation; hypothetical and biased counterfactuals (failure may be easier to identify than success); spill-over effects (among institutions with overlapping mandates or through working-level and technical partnerships among agencies with different mandates across disciplines and fields); multiple objectives of the institutions (which open the possibility for some of them to perform very well or very poorly based on the objective whose measure is taken).

Apostille

As shown in the first two chapters of the present work, notwithstanding several contributions and some improvement with respect to original definitions and operationalization procedures, the general empirical understanding of “regimes” has remained worryingly vague and unstable. In order to escape conceptual tangles, most empirical investigations have sought to solve the issue by devising tighter definitions, drawn from the extremely abstract theoretical literature, or have simply focused on formal institutions. In most cases, this has meant the use of stipulative taxonomy and working approaches which still fail to broadcast social reality of regimes and unveil important limitations: inadequate attention devoted to soft law, informal Intergovernmental organizations (IIGOs) and networks, and non-state actors; marginalization of nested regimes and contested multilateralism; downgrading of international practices and inter-paradigmatic matters. Under this perspective, the present research opted for a more grounded standpoint, firmly committed to the social reality of practitioners’ intersubjective understandings and experience (in sociological parlance, to the “participants’ viewpoint”). The analysis (preliminary discussion and interviews) has made the case for a “grounded theory” of international regimes inspired by the Chicago School of Sociology (which has indeed informed the inclusion criteria for the regime’s individual components). A qualitative research method, first developed in Sociology and whose affinity with the English School of

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International relations was noted by Navari.<sup>459</sup> Building on Navari's work, Wilson has convincingly explored the potential for using this method in IR research over a wide variety of subject matters (as the role of international law and the place of institutions in international society). What makes GT more interesting than traditional ethnography (with which share the desire to obtain a non-judgmental, dense, textured, "insider" understanding of the phenomena under investigation), is that it is not concerned with recording every dimension of that phenomenon, but only those aspects which have pertinence to the emerging theory. In Wilson's words: "while the approach of GT is empirical and non-positivist, its object is eminently theoretical."<sup>460</sup> In order to grasp the reality of the BW non-proliferation regime, the approach has been the following: (1) Data gathering and analysis.<sup>461</sup> Under this perspective, a variety of data collection methods has been used including participant observations,<sup>462</sup> structured and semi-structured interviews with experts in key positions,<sup>463</sup> informal conversations with insiders, and textual analysis of records and reports. Unlike ethnography, there is no separation between data collection and analysis because the object is not description but theoretical interpretation; (2) Coding (in vivo and ex vivo codes), the process of giving segments of data a label; (3) Clustering by which a leap is taken from the specific and concrete to the general and abstract categories; (4) The purpose of theoretical sampling – the fourth state of research – is to increase the strength and consistency of categories with interviewees' opinions. (5) flexibility of the presentation.

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<sup>459</sup> *Theorizing International Society - English School Methods* | C. Navari | Palgrave Macmillan.

<sup>460</sup> Wilson, "The English School Meets the Chicago School," 581.

<sup>461</sup> In order to start the process the researcher needs some "background interests" or "sensitizing concepts" in order to begin the process of thinking analytically to the data" (Charmaz 1995; 32)

<sup>462</sup> BWC state party meetings (including the 2016 RevCon), BWC meetings of experts, 2016 UN General Assembly 1<sup>st</sup> Committee on Disarmament and International Security, Consultancy employment within the framework of the CBRN CoE Programme (Project 3 and 6) and WHO Health-Security Interface Unit

<sup>463</sup> Interalia, the Director of the BWC Implementation Unit, The Director of the World Health Emergency Programme (WHO) and many consultants in relevant positions, two former experts from the UN 1540 Committee, The Director of the CBRN CoE programme at the United Nation Interregional Crime and Justice Research Institute and several project managers in significant roles, the Head of the UNSGM mission to Syria 2013, The OPCW Team Leader (UNSGM 2013, Syria), a Senior Chief of Training at UNMOVIC, The Director of a European BSL4 deeply involved in the international implementation of biosafety and biosecurity projects in the South East Asia Region. Several academics from pertinent field.

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Biological weapons: taboo, deterrence, and norms

The moral reservation over the possible exploitation of chemical and biological agents in warfare is reflected in a long-established practice and generally explained in terms of an ancient and cross-cultural taboo. Albeit such an historical and shared legacy, a true understanding of the logic behind the visceral taboo banning chemical and biological weapons (and their subsequent limited employment in warfare) is not an easy endeavour.<sup>464</sup> Deterrence has been besought as the primary explanation for both the taboo and the limited use of chemical weapons (an argument that could be in theory applied to biological weapons as well).<sup>465</sup> Such an explanation (realist/functionalist in principle) draws on the “rational” idea that states that want to avoid suffering the consequences of certain weapons attacks, reasonably refrain from resorting to those weapons in the first place so to stave off retaliation-in-kind behaviours.<sup>466</sup> In other words, the taboo, and the perceived-as-resulting from the taboo self-restrain rule, would “per-se” be in the best “interest” of states acting in the international system. However, the explanatory power of such an argumentation shows relevant limitations especially when applied to chemical and biological weapons: (1) To start with, the explanation has been blamed as incomplete and partial, in that it doesn’t account for what makes a choice “rational” and “functional” in the first place (like any other theory which take interests as given/granted).<sup>467</sup>(2) Secondly, the fear of retaliation in kind reasoning alone (which inform the deterrence

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<sup>464</sup> Zanders, “International Norms Against Chemical and Biological Warfare.”

<sup>465</sup> Deterrence theory builds on the realist assumptions of unitary state actors and exogenously given interests and acknowledges the use of retaliatory threats of force to deter attacks. The theory postulates three requirements for deterring an adversary: (1) credible capability; (2) a clearly communicated threat; (3) and a credible willingness to carry out the threat Kaufmann, “The Requirements of Deterrence”; Brodie, “The Anatomy of Deterrence”; Charles Glaser, “Why Do Strategists Disagree?”; Lebovic, *Deterring International Terrorism and Rogue States*; Achen and Snidal, “Rational Deterrence Theory and Comparative Case Studies”; Little, *Varieties of Social Explanation*; Morgan, *Deterrence*.

<sup>466</sup> For a complete analysis see Price and Tannenwald, “Norms and Deterrence: The Nuclear and Chemical Weapons Taboos,” 117–20; Brown, *Chemical Warfare: a Study in Restraints*; Institute, *The Problem of Chemical and Biological Warfare*; Adelman Kenneth, “Chemical Weapons: Restoring the Taboo”; Wright, “The Military and the New Biology,” May 1, 1985; Jefferson, “Origins of the Norm against Chemical Weapons”; Moon, John Ellis van Courtland, “Chemical Warfare: A Forgotten Lesson.”

<sup>467</sup> For a wider review of constructive arguments see Dessler, “What’s at Stake in the Agent-Structure Debate?,” 1989; Wendt, *Anarchy Is What States Make of It*, 1992.

logic) doesn't uphold historical examination and according to Price and Tannenwald is not empirically sustainable neither for nuclear nor for chemical weapons.<sup>468</sup> There is no reason to think that the same logic would not apply to biological weapons, which share characteristics with both nuclear and chemical weapons. In their chapter, the two authors argue that in most cases, states have not used CW against adversaries who did not possess such weapons (and could have not retaliate in kind anyhow) and vice versa made use of CW against possessor states/actors.<sup>469</sup> (3) Third, as far as chemical and biological weapons are concerned, their status of deterrent weapons needs to be problematized if only because deterrence is often understood as to be confined to those situations involving "unacceptable consequences/assured destruction". Chemical weapons as well as most biological agents definitely do not have, even remotely, the destructive/disruptive power of a nuclear warhead and it is unclear why the fear of retaliatory of CW attacks would be still any more dramatic than the one from other horrible and more destructive methods. It is true that specific categories of biological weapons have been assimilated, and rightly so, to nuclear ones in their potential disruptive power, however BW display serious limitations as deterrent tools, inter alia because of the possible spread of the agent/disease back to the aggressor/first-user's army or population.<sup>470</sup> Furthermore, even if we fully accept that BW can work as deterrent weapons, the assessment of an adversary military BW capability has proven and remain extremely difficult and thus challenges/undermines the "credible capability" requirement implied in most deterrence accounts.

Just as an exclusively rationalist account for the non-use is not fully satisfactory, ancillary functionalist explanations do not work for explaining the emergence of the norm prohibiting the use. Explanations that build on the intrinsic characteristics of C/B

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<sup>468</sup> Price and Tannenwald, "Norms and Deterrence: The Nuclear and Chemical Weapons Taboos."

<sup>469</sup> A relevant example is Iran-Iraq War (1980-1988) where the CW weapons were used notwithstanding the fact that each country was aware of the enemy CW arsenal. In parallel, prominent examples of CW non-use when there was no threat of retaliation in kind include the Spanish Civil War, the Korean War, the French in Indochina and Algeria, the Vietnam War and the Soviet intervention in Afghanistan.

<sup>470</sup> Recent advances in biological science (recombinant technology, gene drives etc.) has the potential to increase the specificity of the agents used and the effectiveness of specific vaccines to immunize each country militaries and civilians. However, the possibility of a secondary and unpredicted mutation after the agent has been released cannot be excluded so far. For a critique to the common's understanding of Biological Weapons as "the poor's men atomic bomb", Koblenz, *Living Weapons*, 2009, 9–52.

weapons, have proven fragile. For example, the often-used argument that CW and BW are of limited utility in warfare and consequently have not been resorted to because dysfunctional (or less functional compared to others) does not apply to CW<sup>471</sup> and is at least inaccurate/simplistic when it comes to BW (especially in consideration of most recent technologies).<sup>472</sup> Likewise, the idea that a visceral/neurological reaction to toxicity and infection (including a genetic aversion rooted in chromosomes) would make CW and BW particularly odious, pernicious, and more abhorrent than all other weapons, has also been contested.<sup>473</sup>

Price and Tannenwald contend indeed that a significant normative element must be taken into consideration in order to fully explain the C/B weapons taboo and why these weapons have remained relatively unused. In their view, the patterns of non-use/limited use of C/B weapons can only be understood by the complementary development of a prohibitory norm shaping those weapons as *unacceptable* “weapons of mass destruction”; the taboo itself should be seen as the product of a normative construction (also due by contingencies and a series of fortuitous events) and not as the result of purely rational/functionalist explanation. In their view, the socio-political context cannot be discharged as accessor. On the contrary, it is precisely the element that consented the norm to develop and enabled its content to consolidate progressively by providing the belief, among states and their representatives (each time a new ban was negotiated), that such a prohibition was just a supplementary endorsement of a practice already in place: “neither nothing new nor anything terribly important but merely the reaffirming of previous bans” (gradually providing the elements necessary for international law to see the light: *diuturnitas* and *opinion iuris sive necessitatis*).

The history of the regime banning the use (first) and the development (later) of biological weapons seems to confirm this insight. To this growing complex of norms

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<sup>471</sup> Institute, *The Problem of Chemical and Biological Warfare*, 234.

<sup>472</sup> Koblentz, *Living Weapons*, 2009; Koblentz, “Biosecurity Reconsidered”; Koblentz, “Predicting Peril or the Peril of Prediction?”; Koblentz, “From Biodefence to Biosecurity”; Koblentz, “Regime Security.”

<sup>473</sup> Mandelbaum, *The Nuclear Revolution*, 39–48; Jones, Roberts, and Greenberg, “Peer-Group Risk Assessment”; Jones, Palmer, and Wessely, “Enduring Beliefs about Effects of Gassing in War,” 1313–15; Jones et al., “Psychological Effects of Chemical Weapons.”



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(regime) and its individual components (institutions/treaties/organizations), the next paragraphs are dedicated.

Conventions, declarations and codes (1863 – 1949)

Earliest examples of the normative constraint on “poisonous” weapons can be dated back to the Indian Code of Manu, the Western European medieval Christian doctrine, the standards of chivalry, and the military manuals drafted after the end of the Napoleonic wars.<sup>474</sup> The first international agreement which codified the prohibition is the Strasbourg Agreement, which prohibited the use of a specific poisonous weapons, namely “poisoned bullets” at the end of the seventieth century (1675). The ban was limited by the fact that it only applied for the duration of a potential war between the signatory states, France and Germany.<sup>475</sup>

In fact, these early prohibitions on the use of CB weapons cannot be compared to the modern (and extensive) legal framework covering biological and chemical agents, which actually started building during the second half of the 19th century. This more coherent and consistent corpus of principles and codes that outlawed CB use in warfare at large (and subsequently was stretched to interdict their development and proliferation) have established in parallel to the advent of so-called “jus in bello” doctrine and was strictly related to an emerging humanitarian concern (later on formalized as “International Humanitarian Law”). In turn, that humanitarian awareness came along with the development of large national arms industries and the creation of a dynamic and prolific military-industrial apparatus where science and technology innovations could constantly flow into. When major world powers dramatically confronted the human destruction that technological processes (more efficient rifles, mobile heavy artillery, and the invention of machine guns) could cause, peace societies and proto-human rights movements started to flourish.<sup>476</sup> The

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<sup>474</sup> Catherine Jefferson, “The Taboo of Chemical and Biological Weapons: Nature, Norms and International Law”; Jefferson, “Origins of the Norm against Chemical Weapons”; Jefferson, Lentzos, and Marris, “Synthetic Biology and Biosecurity,” 2015.

<sup>475</sup> Strasbourg Agreement 1675, art. 57; Zanders, “International Norms Against Chemical and Biological Warfare.”

<sup>476</sup> Best, “Peace Conferences and the Century Of Total War.”

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battlefield massacre in the Crimean War (1853-56) and the American Civil War (1861-1965) showed the need to protect civilians in war zones and safeguard wounded soldiers and those taken captives in an effort to “humanize” war.

The humanitarian awareness, fuelled by the fear for the cost that an indiscriminate arm race would have implied, was soon translated into a new institutional setting, which developed both at the national and international levels.

In 1862, the injured soldiers in the battle of Solferino were widely publicized. The episode led inter alia to the creation by Henry Dunant of the International Committee of the Red Cross which saw the light in 1863. The same year 12 governments adopted the “First Geneva Convention, Convention for the Amelioration of the Condition of the Wounded in Armies in the Field.”<sup>477</sup> Concurrently, on the other side of the Atlantic Ocean, the Lieber Code, by Francis Lieber, a professor of law Columbia, represented the first national draft of laws of land warfare that laid out the morally acceptable rules for treating prisoners and civilians.<sup>478</sup> The code was signed and issued by the US President Abraham Lincoln to the Union Forces during the American Civil War and was the first official, comprehensive, and codified national text that set out regulations for behaviours in times of martial law.<sup>479</sup> Most importantly, the document provided to the international community with a significant theoretical contribution by formulating the notion of “*military necessity*” as a general principle to minimize suffering of combatants. In the document, poisonous weapons (chemical substances and poisonous) were mentioned in the following terms: “The use of poison in any manner, be it poison wells or food, or arms, is wholly excluded from modern warfare” (Article LXX/70). It seems reasonable to think that at this stage, a broad understanding (covering both chemical and biological agents) should be accepted for the terms “poison” and “poisonous”, which would make the document relevant for the analysis of biological weapon regime’s as well.<sup>480</sup>

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<sup>477</sup> Full text available at <https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/INTRO/120?OpenDocument>

<sup>478</sup> “Instruction for the government of armies of the United States in the field” (Lieber Code), 24 April 1863, available from ICRC <https://ihl-databases.icrc.org/ihl/INTRO/110>

<sup>479</sup> Carnahan, “Lincoln, Lieber and the Laws of War.”

<sup>480</sup> It is only with the research of Louis Pasteur and Robert Koch that a better understanding of disease causation and the role of microorganism was acquired.

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Less than a decade later Henry Dunant's warning about the possible humanitarian consequences of weapons' development, the topic had again resonance when the St. Petersburg Declaration was discussed and approved, becoming the first multilateral agreement prohibiting the use of certain weapons in war, and the first attempt to ban the use of an entire class of weapons.<sup>481</sup> Interestingly enough, the declaration had its origin from the Russian Government after the Russian military authorities have invented exploding bullets in 1863. Conceived to blow up ammunition wagons, the projectile was later modified to explode on contact with soft substances (human bodies) and for this reason soon recognised as an inhuman instrument of war. The declaration was signed in 1968 by 17 European powers. The spirit of the declaration went beyond the explicit legal prohibition (on exploding bullets weighing more than 400 grams) because the text served the consolidation of the principle of "military necessity" by establishing (among others) the norm that the use of arms that uselessly aggravate the suffering of disabled men, or render their death inevitable, was unjustified.

In 1874, on the initiative of the Czar Alexander II of Russia, the delegates of 15 European States met again in Brussels to examine the draft of an international agreement concerning the laws and customs of war that was submitted to them by the Russian Government itself.<sup>482</sup> Although the convention was not ratified, since not all the governments were willing to accept it as a binding instrument, the declaration represented an important addendum towards the limitation on the instruments of war and a meaningful step in the crusade for the codification of the laws of war; the document also contained a ban on "poison or poisoned weapons" (art. 13 (a)). The provision was apparently uncontested during negotiations, suggesting, as some critics have argued, that the prohibition on the use of poisons was, by the time, becoming a well-established part of the laws of war.<sup>483</sup> The convention laid also the foundations

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<sup>481</sup> "Declaration renouncing the use, in time of war, of explosive projectiles under 400 grams of weight", St Petersburg, 29 Nov. - 11 Dec. 1868; from ICRC: <https://ihl-databases.icrc.org/ihl/INTRO/130?OpenDocument>

<sup>482</sup> Project of an International Declaration concerning the Laws and Customs of War. Brussels, 27 August 1874, from ICRC: <https://ihl-databases.icrc.org/ihl/INTRO/135>

<sup>483</sup> Catherine Jefferson, "The Taboo of Chemical and Biological Weapons: Nature, Norms and International Law," 650.

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for the rules of the Manual of the Laws and Customs of War adopted by the Institute of International Law at Oxford (art. 8) and by the Institute of International Law in 1880. The establishment of the International Red Cross Committee, the Lieber Code and the Manual of the Laws of War, along with the St. Petersburg and Brussels declarations served the purpose of reinforcing the concept that the “rights of belligerents to adopt means of injuring the enemy [was] not unlimited”.

The Hague Conference in 1899, was set in motion by a proposal advanced once again by Russia (by Tsar Nicholas II). Interestingly enough, the Tsar’s desire to reduce military spending, in a period of economic crisis, seemed to have stimulated the disarmament proposal within the Russian government.<sup>484</sup>

The conference produced one document consisting of four main conventions, two declarations and a final act. The Convention II titled “Laws and Customs of War on Land”<sup>485</sup> was signed by 23 nations, including the United States and Japan, and repeated the traditional prohibition against “the use of poison or poisoned arms” (art.23(a) and 23(e)). No reservations were made. According to some authors,<sup>486</sup> the prohibition was accepted by delegates to the conference largely because it was not believed to represent nothing new or bound to have much impact. Indeed, the records of the conference suggest that the provision was directly lifted from art 13(a) of the Brussels Conference. The Convention entered into force on September 4<sup>th</sup>, 1900 and it now counts 51 state parties. The Conference envisaged an additional and special declaration (“Declaration on the Use of Projectiles the Object of Which is the Diffusion of Asphyxiating or Deleterious Gases”)<sup>487</sup> intended to deal with the potential use of new weapons (gas projectile weapons) - made possible by the nineteenth century advances in chemistry. This was signed by 25 nations excluding the US and the UK (with the UK subsequently agreeing to adhere to the special convention). It is important to clarify that gas projectile weapons had not yet been developed, at that

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<sup>484</sup> Ford, “The Genesis of the First Hague Peace Conference,” 354–82; Best, “Peace Conferences and the Century Of Total War,” 623.

<sup>485</sup> Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land. The Hague, 29 July 1899; from ICRC <https://ihl-databases.icrc.org/ihl/INTRO/150?OpenDocument>

<sup>486</sup> Price and Tannenwald, 1996; and Jefferson, 2009

<sup>487</sup> Declaration (IV,2) concerning Asphyxiating Gases. The Hague, 29 July 1899; from ICRC <https://ihl-databases.icrc.org/ihl/INTRO/165?OpenDocument>

time. Consequently, the letter of Convention IV was anticipating a possible development in science and technology that could have had military applications.<sup>488</sup> Therefore, the declaration not only gave expression, with regard to a particular instrument of warfare, to the customary rules prohibiting the use of poisons and of material causing unnecessary suffering in general,<sup>489</sup> but must be seen as an attempt to limit the military (or any other hostile use) of emerging technologies (e.g. setting the standard for subsequent treaties).<sup>490</sup> After the WWI, and the extensive resort to gas warfare which characterized many battles, the distinction made in the text between poison gas on the one hand and gas projectiles on the other was, for many, blurred and gas became a standard. Today the declaration counts 33 state parties. Both the Convention (II) and the Declaration (IV) are only binding among the contracting parties in case of a war between two or more of them.

The 1907 prohibition was repeated in identical language (incorporating only few major advancements) in a similar convention, The Convention respecting the Laws and Customs of War on Land (IV).<sup>491</sup> This time, the related conference was called by the US President Theodore Roosevelt in 1904. The gathering was postponed because of the ongoing war between China and Russia and took place in 1905. The treaties, declarations, and the final act pouring from the Second Hague Conference were signed on 1907 and confirmed with minor modifications the provisions of 1899 Convention (II) and all major powers ratified it. Evenly, contracting parties forbid to employ “poison or poisoned weapons” as a mean of injuring the enemy. Seventeen of the States which ratified the 1899 Convention did not ratify the 1907 version (Argentina, Bulgaria, Chile, Columbia, Ecuador, Greece, Italy, Korea, Montenegro,

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<sup>488</sup> International Peace Conference. (2nd : 1907 : Hague and Scott, *The Proceedings of the Hague Peace Conferences; Translation of the Official Texts. The Conference of 1907*, 365; Catherine Jefferson, “The Taboo of Chemical and Biological Weapons: Nature, Norms and International Law,” 651–52.

<sup>489</sup> Oppenheim, *International Law*, 342.

<sup>490</sup> In other words, at that point in time the relationship between the customary norm against poison and the ban on gas was neither obvious nor assume and in a way the record of the Conference reveals the codification of two distinct norms that only in retrospect came to be viewed as connected, as explained by Jefferson (Jefferson, 2009).

<sup>491</sup> Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land. The Hague, 18 October 1907; from ICRC <https://ihl-databases.icrc.org/ihl/INTRO/195>

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Paraguay, Persia, Peru, Serbia, Spain, Turkey, Uruguay, Venezuela). These States or their successor states remain formally bound by the 1899 Convention in their relations with the other parties thereto. Among the parties to the 1907 Convention instead, the latter has replaced the 1899 Convention (in accordance with Article 4 of the 1907 Convention).

The provisions of the two Conventions on land warfare, like most of the substantive provisions of The Hague Conventions of 1899 and 1907, are considered as embodying rules of customary international law. As such they are today binding also on states which are not formally parties to them.

Despite the banning on poisons in April 1915, at Ypres in Belgium, the Germans introduced chemical weapons on the battlefield to break the stalemate of trench warfare. Director of the German program was the scientist Fritz Haber. The surprised attacks his researches made possible, marked the beginning of an CW arm race among all nations involved to the conflict, including France, Great Britain, Italy, Russia and the United States and showed all the limitations of the up to then established fragile regime.

In summary, we can conclude that all these initial attempts to govern biological and chemical weapons placed the emphasis on the prohibition of *C/B use* on battlefield, basically they banned the use of these weapons and not the weapons themselves.<sup>492</sup> No proscription against the research and development into the field was elaborated and no mention was made to the use of such weapons in conflict between states that had not ratified the treaties. Even among parties, the resulting norm was basically a no-first use proscription. Key states proposed the initiatives<sup>493</sup> and all the other major European powers joined smoothly (usually with unanimous agreement). Self-interests seem to have moved proponents as well as follower participant states to support the initiative (inter alia the need to reduce military spending and the willingness to gain the population's sustenance by supporting a nascent proto-human rights movement). At the same time, the analysis of the

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<sup>492</sup> there is no reason to think that the same would apply to biological agents, especially in consideration of the fact that the difference between the two was not completely understood at the time the negotiations took place

<sup>493</sup> Russia in the case of St Petersburg Declaration, Brussels Declaration and 1899 Convention II; USA in the case of the 1907 Convention IV

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negotiations transcripts reveal that ideational factors also played a role (for example among the militaries where many felt that the use of gas or toxins would undermine their professional code of honour and threatened to harm non-combatants). The documents displayed a strictly contractual profile assuming the form of traditional international legally binding treaties just enhancing the coordination of states as far as the recourse to CB weapons was concerned (no reciprocal use). All conventions increasingly grew in membership with more and more states joining them, although no organization to oversight their implementation and enhance their effectiveness was established. For sure the conventions, served the purpose of reinforcing the message delivered, raising the profile of the norm to customary law and opening the floor to the negotiation of additional tools. Possibly the conventions also played some role in limiting and curbing states' investments in warfare technologies relating chemical and biological agents, that on the other hand would have developed anyhow within the boundaries of civil research (fertilizers, medicine, biology, etc.). In terms of how much states complied with the provisions, as mentioned, the extensive use of gas during the WWI is a powerful indicator of the failure of these agreements to really prevent the use of such weapons even among state parties.

### The 1925 Geneva Protocol

Inevitably, the question of Germany's chemical arsenal and capabilities was debated during the Versailles peace conference. An agreement was reached that the country should be forbidden to manufacture chemical weapons.<sup>494</sup> However, the British proposal for including an article, in the Peace Treaty, which would have obligated Germany to disclose details concerning the manufacturing processes of its strong organic industry, was rejected by President Wilson, and never passed.<sup>495</sup> The topic was brought into public domain and entered the agenda of the League of Nations (in particular the Permanent Advisory Commission on Military, Naval, and Air Questions (PAC) and the ad hoc Temporary Mixed Commission on the Reduction of

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<sup>494</sup> The Versailles Treaty June 28, 1919, art. 171; from [http://avalon.law.yale.edu/subject\\_menus/versailles\\_menu.asp](http://avalon.law.yale.edu/subject_menus/versailles_menu.asp)

<sup>495</sup> Mirimanoff, "The Red Cross and Biological and Chemical Weapons," 302.

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the Armaments (TMC)<sup>496</sup> with its special sub-committee to investigate the issue of chemical warfare. The use of CB weapons (mostly chemical) was further discussed elsewhere (e.g. ICRC, US Chemical Warfare Department), always providing conflicting conclusions. If on the one side, there was a widespread agreement that the employment of these weapons against non-combatants, should have been banned in the strongest way, others contended that the use of gas, was no crueller than any other methods of warfare, as the PAC analysts concluded in a report issued on October 1920.<sup>497</sup> The same divergences characterized the Washington Conference, convened by the United States in an effort to reach a total prohibition on chemical weapons in contrast with the positions of an ad-hoc subcommittee that recommended instead to retain the possibility of their use at least against the armed force.

On 6 February 1922, the Washington Naval Treaty was signed by 5 of the world major powers (US, UK, Italy, France, and Japan)<sup>498</sup> including a norm banning the use of “asphyxiating, poisonous or other gases and all analogous liquids, materials or devices”. The treaty never entered into effect.<sup>499</sup>

The Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare was developed within the League of Nation<sup>500</sup>. More specifically, the Fifth Assembly of the League of Nation supported a draft convention elaborated upon the work of the Temporary Mixed Commission on the Reduction of Armaments (TMC).

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<sup>496</sup> The TMC was set up in in 1921 by the league of nation to investigate what new methods of warfare (including biological and chemical weapons) weapons use would mean to combatants and civilian population. The debate was boosted by the growing fear of CB agents’ delivery from aircraft.

<sup>497</sup> Catherine Jefferson, “The Taboo of Chemical and Biological Weapons: Nature, Norms and International Law,” 653–54; Richter, *Chemical Soldiers*; Haber, *The Poisonous Cloud*; Brown, *Chemical Warfare; a Study in Restraints*; March, *The Nation at War*; Vedder and Walton, *The Medical Aspects of Chemical Warfare*; Haldane, *Callinicus; a Defence of Chemical Warfare*.

<sup>498</sup> Treaty relating to the Use of Submarines and Noxious Gases in Warfare. Washington, 6 February 1922; <https://ihl-databases.icrc.org/ihl/INTRO/270>

<sup>499</sup> Because France did not ratify the document (on the basis of a submarine related clause) which French strategist did not find satisfactory.

<sup>500</sup> Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, available at <https://ihl-databases.icrc.org/ihl/INTRO/280?OpenDocument>



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Interestingly enough, the protocol was the result of the “Conference for the Supervision of the International *Trade* in Arms and Ammunition and in Implements of War” that met in Geneva on 4 May 1925. In fact, the original objective of the conference, convened under a resolution of the League of Nation Council, was to place restrictions in trade of chemicals with potential weapons’ application.<sup>501</sup> The position of the US favouring a complete interdiction was challenged by the Brazilian representative who argued that such an approach would have discriminated against non-producing countries especially in that chemical weapons could have represented an effective mean of defence for weak countries. The Italian representative also contested the US proposal on the basis that controlling trade materials would have been impossible due to the legitimate peace applications of most of the substances under discussion. It was finally agreed to sign a protocol appended to a final resolution of the Conference which would have outlawed the *use* of chemical and bacteriological (biological) weapons.<sup>502</sup>

Some legal experts have argued that the use of BW was de facto prohibited under customary international law already prior to the year 1925, contending that a ban on BW was already broadcasted by the prohibition against the use of poisons included in the 1899 and 1907 Hague Conventions, and this is reasonably the case (in line with the interpretation given in the previous paragraph). However, it is appropriate to say that it is with the Geneva Protocol that a first explicit mention to biological agents (classified as separate from chemical agents) was made, in the attempt to prevent their specific use in warfare. The proscription against the then-called “bacteriological” methods of warfare was introduced at the request of the Polish Government due to their concerns that Russia/Soviet Union had initiated a BW program. The Conference adopted the Convention on the supervision of the International Trade in Arms, Munitions and Implements of War, which never entered

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<sup>501</sup> For a complete account of the negotiation process see Goldblat, *The Problem of Chemical and Biological Weapons*, vol. 4 p.58-59; Rodney McElroy in M. Krepon and D. Caldwell 1991, Robinson 1971, all quoted in Jefferson, 2009.

<sup>502</sup> The term bacteriological is imprecise in that it would refer only to bacteria, without including viruses, fungi and other biological agents responsible to cause diseases in humans, animals, and plants. The term biological is indeed preferable and more correct in mirroring the real intent of the drafters already at that time.

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into force and, as a separate document, a protocol on the use of gases and bacteriological methods of warfare which entered into force and is now known as the Geneva Protocol.

The discussion over a Treaty/Protocol prohibiting the use of chemicals was undoubtedly a consequence of the massive use of gas in Europe during WWI. The prohibition over bacteriological weapons is instead to be seen as a precautionary measure, in consideration of the fact that no major power had attempted to systematically wage germ warfare (apart from sporadic cases of sabotages) before that time. The Geneva Protocol was embraced with enthusiasm and in the interwar period 43 nations became parties, with the British, French, the Soviet Union, Italy, and Germany leading the way.

Today the treaty counts 140 state parties and is still the only document where the ban on use is found explicitly in the text letter.

Nonetheless, the scope of the protocol in itself was (and remains) very limited:

- ✓ The protocol only covers the use (it does not cover the possession, development, and the proliferation) of biological and chemical weapons and no provision for enforcing the norm against chemical and biological agents was put in place.
- ✓ It only applies to conflicts between states and among countries adhering to the agreement (no binding constraints on employment in internal conflicts or for the use against countries that were not signatories are envisaged).
- ✓ It basically represents a “no-first-use” engagement especially because of the fact that many nations added reservations to their adherence and continued asserting the right to retaliate in kind, should they be attacked by chemical or biological agents (today the number of reservation appears diluted by the increased membership but still involves 23 over 140 state parties).
- ✓ the difference between defensive and offensive capability is left undefined (which remains one of the major issue linked to BW research nowadays)
- ✓ it was not and is still not universally supported (e.g. China did not become a party until 1952, Japan until 1970, and the US until 1975).
- ✓ Although the letter of the Protocol banned the use of Biological and Chemical Agents, no specific investigation system to ascertain the use was envisaged (and States were supposed to appeal to the League of Nations and its institutions).

As for most of the late nineteenth century conventions, the main focus of the Protocol was the one relating to the use of biological and chemical weapons in conflicts between states with the prohibition only applying between state parties (and in most case only if the adversary upholds the commitment in the first place, since the use for in-kind retaliation is admitted by most of the reservations attached to the Protocol). In this case, it seems that elements other than provisional states self-interest played a role in the Protocol's adoption. First of all, the existence of an apparatus where states were called to discuss disarmament's issues, namely the League of Nation, facilitated the dialogue among nations and provided a forum where different stand points could be presented (including those of International Organizations lobbying for a complete international ban on those weapons as the ICRC, the British Association for the Advancement of Science) and new solutions/reflections forwarded. Second, the existence of an existing legal framework of reference seemed to have helped the assembly to get to some results when the discussion stagnated over trade, by providing an exit strategy.<sup>503</sup> In other words, if arriving to a suitable prohibition in trade proved problematic, the general feeling that chemical and biological weapons had to be controlled was there and found its way to light: the recourse to a pre-existent and already approved normative framework, made it possible to agree to a formal condemnation on their use at least.<sup>504</sup>

It is hard to draw conclusions on the utility/effectiveness of the protocol in preventing the use of C/B weapons. For sure, it represented a moral and legal condemnation to the use by reaffirming and codifying an earlier norm against the use of poisons in warfare, the basis for several UN resolutions in the aftermath of the WWII,<sup>505</sup> and a sound grounding for the adoption of the Biological and Toxin Weapons Convention in 1972 and the Chemical Weapons Convention in 1993. Still, it has to be noticed that

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<sup>503</sup> Glodblat, 1971

<sup>504</sup> The earlier treaties prohibiting the use of gases to which the protocol refers are in particular the Hague Declaration concerning asphyxiating gases of 29 July 1899 and the Treaty of Versailles of 28 June 1919 as well as the other peace treaties of 1919. See also Article 5 of the Treaty of Washington of 6 February 1922 and the note introducing The Hague Declaration (IV,2) of 1899.

<sup>505</sup> Inter alia resolutions 2162 B (XXI) of 5 December 1966, 2454 A (XXIII) of 20 December 1968, 2603 B (XXIV) of 16 December 1969, and 2662 (XXV) of 7 December 1970)

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just a couple of years after the Protocol was signed, the idea of a total war (where targeting of civil population, enemy urbans, and manufacturing centres) gained traction. Under this framework, Giulio Douhet assigned biological and chemical warfare center stage: “air power makes it possible not only to make high explosive bombing raids over any sector of the enemy’s territory, but also to ravage his whole country by chemical and bacteriological warfare.”<sup>506</sup>

Additionally, individuating the net effect of the Protocol (independently from other factors – fear of retaliation, moral repugnance, and technical drawbacks compared to other munitions) contributed to the non-use is even harder.

The Italians used chemical weapons in Ethiopia in 1935 (they in fact used phosgene and mustard gases) although Italy was a party to the Protocol. This event suggests that the reason why they did not use biological agents may not reside in the treaty’s obligation but in the limitations biological warfare presented at that time. Whether chemical or biological weapons were used, with regards to this episode is the fact that there was virtually the international community issued basically no sanctions to condemn these actions - notwithstanding the fact that Ethiopia was itself a member of the League of Nations and a signatory of the Geneva Protocol since 1925 (ratification came later, tellingly in 1935). However, such very unfortunate event and the related lack of punishment/reactions by the international community, has been rarely associated to the inefficiency of the Protocol. The use has been rather explained by commentators in terms of a twin-track approach to the application of the prohibitory norm between advanced nations (among which the use of CB weapons would have been unacceptable) and “uncivilized” ones. Under this perspective, the prohibition to the use of CB weapons would have been transposed among Great Powers as a norm applying the ban only in conflicts among civilised/perceived-as-similar nations. In fact, the discourse of civilisation seems to have played a role during the two most significant violations of the norm after WWI: Italy-Ethiopia and Iraq-Iran. Apart from the two cases mentioned ahead, the very modest use of chemical weapons (by the signatories of the protocols) which characterized the WWII especially if

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<sup>506</sup> Douhet, *The Command of the Air*.

compared with larger use during WWI, tend to return a favourable verdict over the Treaty's effectiveness in preventing the use.

Consistently, the extensive employment of biological agents in China by Japan (1910-1943) would be coherent with the country's decision not to sign the protocol (Japan will join the protocol only in 1970) and with the poor consideration the Japanese establishment reserved to the Chinese population.<sup>507</sup>

It is reasonable to think that all the legal restrictions coded before WWII – albeit mirroring underlying tendencies that militated against the employment of chemical and biological agents (moral opprobrium, suspicious about their utility, and fear of enemy retaliation) - played a major role in (1) granting a full and complete articulation of the norm against biological and chemical weapons use – a means of warfare; (2) providing the normative substratum to the non-use taboo; (3) creating an enforceable legal position based on international law *strictu sensu*; (4) at least presumably, by imposing a ban to the use of such weapons in warfare (or at least among “civilised nations”), these documents have probably curbed a widespread and massive investments into CB weapons research and development for a certain period of time (for a summary of these “first generation” agreements, see table 3.2)

After the ending of WWII, chemical and biological weapons came to be included in the UN definition of Weapons of Mass Destruction and, starting in the 50s, repeated calls were made for their elimination by the civil societies of many countries (USA and UK, in particular). Contrary to these auspices, programs to develop such weapons continued to grow in number and size.

The Cuban missile crisis created the momentum for the United States and the Soviet Union to negotiate and agree on a number of measures for limiting chemical and biological weapons. Most of the initiatives that were put forward during the 1960s were general and complete disarmament treaties falling into two main categories: (1) covering specific geographical areas (e.g. the Antarctic treaty, the Outer Space Treaty, and the Seabed Treaty, followed – later on - by Nuclear Weapons Free Zones related

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<sup>507</sup> For a complete description of the Japanese biological programs in the 1920s and 30s see Guillemin J. in Lentzou Filippa, *Biological Threats In The 21st Century*, Chapter 2.

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treaties); (2) specific categories of weapons (nuclear in 1968 (TNP), missiles (SALT 1969-1972), biological (1969-1972) and chemical (1993 CWC).

The Biological and Toxin Weapons Convention (BTWC)<sup>508</sup>

The Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, was signed on 10th April 1972 and entered into force on March 26th of 1975. It has represented the first international treaty banning an entire category of weapons.

With its comprehensive scope, which prohibits the development, production, acquisition, transfer, retention, and stockpiling of biological and toxin weapons, the Biological and Toxin Weapons Convention (BTWC/BWC) is the cornerstone and framework agreement of the related regime .

As of September 2017, the BTWC counts 179 state parties. In the period between the Seventh Review Conference (2011) and Eight Review Conference (8RC) which took place in December 2016, eight states have joined the convention increasing the total numbers of state parties from 165 to 173. Since December 2016, 5 additional states have acceded to the Convention: Cote d'Ivoire (174<sup>th</sup>), Angola (175<sup>th</sup>), Liberia (176<sup>th</sup>), Nepal (177<sup>th</sup>), and Guinea (178<sup>th</sup>) all in 2016. When Samoa has deposited its instrument of accession on the 21<sup>st</sup> September 2017, the Country has become the 179 state party. However, although the years since the Seventh Review Conference have witnessed a slow increase in the number of state parties, with only 179 members reaching universalization still remains a priority for the Conference (and for the BWC Implementation Support Unit (ISU), that is the Organization supporting the implementation of the Convention, as it will be explained below. The BWC Convention's membership still falls behind major multilateral arms control, disarmament and non-proliferation treaties (both the TNP and the CWC count more than 190 state parties). A ISU publication on the status of the universalization of the

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<sup>508</sup> This section mainly relies on the information gathered during the author's participation to BTWC relevant meetings (State Parties and Meeting of Experts, including the 8 Review Conference) and on the many conversations and discussions occurred with the Chief of the BTWC Implementation Support Unit, Mr Daniel Feaks.

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convention contends that in many cases the reasons for not joining the Convention must be found not in a lack of political will, but in resources or capacity constraints (including financial and reporting obligations that are required or expected under the Convention), as it will better explain below.<sup>509</sup>

The Convention was the result of a negotiating process that started in 1968, when the United Kingdom submitted a working paper to the Eighteen Nation Disarmament Committee (ENDC). The British proposal had the peculiarity of proposing a ban on biological weapons only (so that the topic could be discussed separately from the one for chemical weapons).<sup>510</sup> Joint bans for both chemical and biological agents had been proposed by both the US and URSS already in 1962, but did not produce any conclusive result.

It would be impossible to provide in few paragraphs a complete assessment of the geopolitical origins of the Convention. However, understanding the reasons behind the United Kingdom's interest in proposing a ban on biological weapons, and the conditions that constrained those interests, is important to comprehend the resulting text, its key features and limitations.<sup>511</sup> As far as the British proposal is concerned, at least 4 reasons can be identified that must have informed the decision of the English establishment to propose and sponsor a Convention banning Biological Weapons. A first reason relates to motives of national politics. Harold Wilson's government was very much influenced by the wave of public criticisms against chemical and biological weapons' use and development which was raging in the UK (which mostly came from within the ranks of the Prime Minister's own party).<sup>512</sup> Public critical actions spanned

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<sup>509</sup> [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/47D2764AC659D6FAC1257FDE003940FD/\\$file/Background+paper+on+status+of+universalization+\(AV\).pdf](https://www.unog.ch/80256EDD006B8954/(httpAssets)/47D2764AC659D6FAC1257FDE003940FD/$file/Background+paper+on+status+of+universalization+(AV).pdf)

<sup>510</sup> Bernstein, "The Birth of the US Biological-Warfare Program"; Wright, "The Military and the New Biology," May 1, 1985; Wright, *Preventing a Biological Arms Race*; Wright, *Biological Warfare and Disarmament*; Miller, Engelberg, and Broad, *Germs*; Miller, "The Secret Success of Nonproliferation Sanctions"; Walker, *Britain and Disarmament*.

<sup>511</sup> For more details see Francesca Cerutti, "The Special Relationship at stake: The negotiation of the Biological and Toxin Weapons Convention (1966-1972)"; Transatlantic Studies Association, 15th Annual Conference – University of Plymouth, 5-7 July 2016 and Francesca Cerutti and Daniela Vignati: "The Special Relationship meets Détente: United Kingdom, United States, and the Biological and Toxin Weapons Convention"; Transatlantic Studies Association, 17th Annual Conference – University of North Georgia, Dahlonega, Georgia, USA; 9-11 July 2018

<sup>512</sup> Wright, *Biological Warfare and Disarmament*.

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a range from petitions to protests against the use of defoliants in Vietnam and the continuation of programs for chemical and biological weapons' development in the country (like those conducted jointly with the US including the field tests in the Pacific Ocean).<sup>513</sup> A second reason is linked to the position of the epistemic communities active in the propaganda: academia, the scientific establishment, and television programs were also supporting the movement.<sup>514</sup>

What is more is that, in the United Kingdom, part of the criticism came from within the lines of the military establishment and in the army. After acquiring an independent nuclear capacity (in 1952), the UK government had downsized its BW activities focusing on defensive rather than offensive BW research. As a consequence of such disengagement, which is very much consistent with complementary relationship existing between nuclear and biological weapons described by Horowitz,<sup>515</sup> by the mid-sixties the country ended up for being free from biological (and chemical) stockpiles. Nonetheless, the information was kept secret, even to its NATO allies. A great proportion of the military establishment and arms-control analysts considered biological weapons poor candidates for deterrence and of limited use in warfare (chemicals were also considered of no relevance for deterrence, but possibly more practical and efficient on the field). Consistently, a report of the Chief of Staff written in 1965 stated: "chemicals weapons would be more effective" and "escalation would likely proceed to nuclear weapons. After such an event, attack with [biological weapons] would be irrelevant". Furthermore, those who believed that the biological weapons could have become cheap substitutes for nuclear weapons, also thought that this would have been at the advantage of developing countries and that, vice versa, the wealthiest nations should be keen of keeping the war expensive.

A final reason which seems reasonably involved in the decision of the UK to start the negotiation process is one of international prestige. The UK was hoping to acquire a prominent role in the disarmament discourse and possibly take the lead of the movement. Under this perspective, the BWC seemed an easy move because of its

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<sup>513</sup> Hersh, *Chemical and Biological Warfare*.

<sup>514</sup> The situation exploded in particular after the 1968 Skull Valley incident in Utah were divulged by the press.

<sup>515</sup> Horowitz and Narang, "Poor Man's Atomic Bomb?".



relatively uncontroversial content: hampering the proliferation of a category of weapons whose use was prohibited since the beginning of the century and that was perceived of limited utility in battlefield. The initiative which could gain widespread support insofar it was not threatening military and commercial interests – as a ban on chemicals would have happened to do and possibly reach a successful outcome.

In the permissive environment created by the Cuban crisis, and after the positive results achieved with the Non-proliferation treaty, the US, theretofore reticent, became available to consider the British proposal. Even more, in 1969 President Nixon took the dramatic step of unilaterally renouncing the possession and use of lethal biological agents and weapons, and all other means of biological warfare. He declared that all biological research in the future would have been, in the US, confined to defensive measures such as immunization and safety-related activities.

Scholars (mainly historians) have investigated at large the reasons behind President Nixon's decision to move toward the ban and they appear to be manifold.<sup>516</sup> Most of them are distinct but not distant from the ones informing the British counterpart. First of all, the successful Non-proliferation Treaty's negotiation (which represented the US top priority) materialized the need to control what could have become nuclear weapons' substitutes. Serving as strategic equalizers, biological weapons, would have been more beneficial for developing countries than for advanced nations (as the secret trials in the Pacific had demonstrated). Because BW posed a potential "mass casualty threat" to US cities it was in the American interest to keep other nations from acquiring them as early as possible; These stances were supported by the growing conviction from within the ranks of the military forces, informed by an increasing number of scientific reports, that on the one side nuclear weapons were a way better deterrent than BW could have ever and that chemical weapons were of higher tactical utility.

Reputational considerations operating both at the domestic and international level seemed to be crucial in determining the President decisions with respect to the issue. Nixon wished to appear in front of his electors a man of peace - at a time when the war in Vietnam was raising strong opposition both at home and abroad. Similarly, it is

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<sup>516</sup> Wright, *Preventing a Biological Arms Race*.

reasonable to think that the President wanted to provide an injection of confidence regarding the American commitments and engagement towards arms control agreements especially to the Russian counterparts, with regards to the Arms Strategic Limitations talks (on ICBM and ABM). Finally, after the British it was vital for the US entering full title in the negotiation process in order to avoid defeating outcomes (as a joint BW-CW ban would have been). By banning only BW, the country could have bought time for maintaining the use of tear gas and herbicides in Vietnam and its President would have given a sign towards disarmament.

In August 1970 the Soviets, who for a long time had struggled for a joint ban on both BW and CW, dropped their initial objections to what in the meanwhile had become the US/UK proposal and accepted the idea for a ban only applying exclusively to biological agents. Within a year the Americans, the British, and the Soviets were able to agree on a final draft text. The negotiations process, was nonetheless, plain and the United Kingdom had to accept to step back under many respects to survive the discussion which rapidly became a US-Soviet dialogue.<sup>517</sup>

The reasons behind the Soviet position are more difficult to faithfully reconstruct (compared to the ones of the US and UK) for the scarce sources available. However, the Politburo seems to have changed its position after having realized that the new treaty would have not contained any verification system or other mandatory transparency measure whatsoever (that was not a concept the USSR would have been available to take into consideration until 1987/88 and the negotiation of the INF treaty). Also, the Soviets succeeded in introducing a formulation that would have made it clearly impossible to draw any line between permissible and impermissible BW research, or permissible and impermissible development and production.<sup>518</sup>

The final text approved for the Biological and Toxin Weapons Convention was indeed a compromise among different pressures and calls (only partially elucidated above) which include: the developed countries' need to preserve a military advantage, the reliance of powerful Western states on superpowers nuclear umbrella, the

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<sup>517</sup> Francesca Cerutti and Daniela Vignati

<sup>518</sup> For a complete description of the ongoing and following Soviet BW programme, see Leitenberg, "Biological Weapons in the Twentieth Century"; Leitenberg, *Assessing the Biological Weapons and Bioterrorism Threat*, 2005; Leitenberg, Zilinskas, and Kuhn, *The Soviet Biological Weapons Program*, 2012.

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preservation of commercial interests of the biotechnology emerging industry, the secrecy around military activities paired with the fundamental ambiguity between offensive and defensive research (and between research and development).

The normative structure resulting from the negotiation has incorporated the following provisions (see Table 3.3):<sup>519</sup>

- ✓ Article I establishes the non-proliferation norm. It describes the scope of the Convention in terms of four prohibited activities: development, production, stockpiling and acquisition. The prohibition takes the form of a so-called “general purpose” (no list of forbidden agents is provided) and served the purpose of making immediately clear that peaceful uses of biosciences were legitimate undertakings as legitimate would have been “biodefence” – related efforts. The final document of the Second Review Conference gave further specification to the scope by clarifying that the provisions of the Convention would have covered all relevant current and future scientific and technological developments as well as apply to all international, national, and non-state actors (bringing officially bioterrorism in the scope of the Convention).
- ✓ The disarmament norm is conveyed in Art. II and requires state parties to either destroy or divert to peaceful purposes all agents and toxins equipment and means of delivery related to their BWC holdings (within nine months after the entry into force of the Convention).
- ✓ The non-transfer norm is transmitted by Art. III. State parties forswear to “transfer to any recipient whatsoever, directly or indirectly, and not anyway to assist encourage or induce any actor to acquire any of the items [specified in Article I of the BTWC]”. As it will be explained in the next paragraph, a group of states have tried to harmonize their national export control activities and have complemented this article with an implementing formal institution (using article III and IV as the legal basis for their activities).

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<sup>519</sup> For a deeper analysis of the convention principles and norms see inter alia Kelle, “Strengthening the Effectiveness of the BTW Control Regime – Feasibility and Options,” April 2003; Kelle, “Securitization of International Public Health”; Kelle, “Ensuring the Security of Synthetic Biology—towards a 5P Governance Strategy”; Kelle, *Prohibiting Chemical and Biological Weapons*.

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- ✓ The national implementation/harmonization norm is contained in Art. IV which tasks states parties to implement the proscriptions of the Convention on the domestic level.
- ✓ Art. V enhances a consultation commitment, in which state parties agree to consult one another and to co-operate in solving any problem which may arise in relation to the object and in the application of the provisions of the Convention.
- ✓ An investigation norm (although rudimentary) is provided by Art. VI which is in effect limited to BWC state parties bringing cases of noncompliance before the UN Security Council to investigate. This norm constituted the basis on which the UNSGM was developed as it will be explained in the inherent paragraph.
- ✓ The assistance norm, which applies to states suffering the consequences of a violation of the Convention operated by another member state is detailed by Art. VII.
- ✓ Art. X contains the cooperative norm, which - from the point of view of some BWC member states (Non-Aligned-Movement and Global South) - has to be closely related to the non-acquisition and non-transfer norms. Analogous to the one incorporated into the nuclear non-proliferation regime, the idea informing the article is the one according to which states that commit not to acquire BW are granted the opportunity to develop relevant technology for civilian purposes and are *almost entitled* to receive transfers supporting such development (biosciences and biotechnologies in this case). Some member states from the NAM have vocally accused others of violating this norm with their export control practices (e.g. by creating sub-regime into the regime, namely the Australia Group).
- ✓ Last, the continuing link between BW and CW disarmament is acknowledged through the normative requirements put in place by Art. IX of the convention to continue negotiating a CW treaty.

The remaining sections are rules and procedures: Art. XI contains the procedure for amending the convention, Art. XII spells out the initial review procedure (including a conference of state parties to be held within the 5-year from the Convention's entry in to force. The withdrawal procedure is set out in art. XIII, and art. XIV contains the stipulation for ratification of accession to and entry into force of the BWC.

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Although article XII envisaged only one Review Conference to be held in 1980, parties have chosen not only to meet regularly for further review conferences, but also - during the Third Review Conference in 1996 - it was decided that they would have met once a year in so-called "Intersessional Meeting of State Parties" (MPS) to support the development of intersessional programs of action. During the Fifth Review Conference, State Parties adopted a final report that included a decision to hold, in addition to the traditional MSP, a second annual appointment, namely the "Meeting of Experts" (MX) - usually taking place in August - where technical aspects related to the Convention could be covered.<sup>520</sup>The BWC provided for Review Conferences to occur every five years, and these have taken place in 1980, 1986, 1991, 1994, 1996, 2002, 2006, 2011, and 2016 (see Table 3.4).

The Second Review Conference saw the beginning of pressure to see some kind of verification procedures to be elaborated for the BWC. As briefly mentioned above, during the negotiating phase, both the Soviet Union and the United States expressed their resistance to the inclusion of a verification system into the scope of the Convention. Five years later, the debate was re-opened and led to an agreement on a politically (and not legally) binding tool, the so-called Confidence Building Measures (CBM) document. A preliminary agreement about its general content was also reached back then. For further details see on this informal "political" tool of compliance see Chapter 4.

At the 1991 Third Review conference a group of nations (including the US, Canada, and UK) sought to establish a more rigorous and intrusive on-site inspection regime for assessing compliance with the BTWC (more or less analogous to the one under elaboration for the CWC that was negotiated in the very same years). Tasked with this scope, a group of governmental experts was established by the BTWC Conference: the VEREX Committee. Its activities occupied the biennium 1992-93 and produced a series of measures that could have been utilized and implemented as a verification protocol. At a Special Conference of State Parties held on September 1994 and, on the basis of the VEREX's findings, an Ad Hoc Group (AHG) was designated to hold 24 working sessions over the next seven years mandated, inter alia, to complete the development

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<sup>520</sup> During the last RevCon (8 RevCon) the MX annual appointment was abolished

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of a verification protocol.<sup>521</sup> The ad Hoc Group conducted several meetings since 1995 and entered a negotiating mode by the year 1997. However, as the summer of 2001 approached, there was substantial doubt whether a protocol would have been decided upon before the following Review Conference in November. Notwithstanding the existence of several problematic nations (US, Russia, and Iran),<sup>522</sup> at the very end, the US provided the major stunning block. The main “official” reason used to justify the liquidation of the protocol initiative was the idea that any effective verification would have been intrinsically impossible to achieve. De facto the newly elected US administration had no interest in supporting prior policies in favour of the Verification Protocol. The US destructive position undermined the entire project and the effort collapsed definitively following the US rejection of the AHG chairmen’s provisional text.<sup>523</sup> In the Geneva AHG’s negotiation, the US position has been opposed by all its Western allies. Nonetheless, it has to be said that - although the US are usually charged with the responsibility for the failure of the initiative, during the final stages of the negotiations, other nine states led by Iran let know to the chair that the text was considered as unacceptable.

A part from the absence of a verification or other oversight system, that is typical for a non-proliferation treaty of this type (see in contrast the TNP and the CWC), in deep contrast to other International Organizations with similar mandate, the BTWC also was not provided with a dedicated international organization to oversee the treaty’s implementation or to accomplish any another specific function. To fill this lacuna, following the debacle of the verification protocol and in an attempt to grant a broader implementation to the Convention, State Parties decided to establish a specific operational body which was called Implementation Support Unit (ISU). The idea was to provide administrative support to the meetings and other gatherings as agreed by

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<sup>521</sup> For a detailed account of the work and accomplishments of the VEREX group, see Nicholas Sims (SIPRI), 2001

<sup>522</sup> For a critical analysis Leitenberg, *Assessing the Biological Weapons and Bioterrorism Threat*, 2005.

<sup>523</sup> According to some authors, the US department of Defence wanted to protect the explosion of biodefence activities which have started in the aftermath of the anthrax letter case, nor in favour was the Joint Chief of Staff. Plus, the biotechnology industry fuelled the opposition fearing commercial repercussions for such a protocol.

the Review Conferences.<sup>524</sup> The Unit should have also been devoted to grant a better implementation and universalization of the Convention and broadcast CBM-related activities. The Seventh Review Conference decided to renew the BTWC-ISU mandate *mutatis mutandis* for the period 2012-2016. The Conference also decided that, in addition to the task mandated by the Sixth Review Conference, the ISU would have also implemented the decision to establish and administer a database for assistance advertising requests and offers facilitating the associated exchange of information among state parties as appropriate. Currently, the ISU has three fixed term staff positions, a very limited number compared to AIEA or OPCW (2560 and 460, respectively). In accordance with the decision on its establishment taken by the Sixth Review Conference the ISU is funded by the states parties to the convention per a total annual budget cost of about 760 000 \$ (e.g. year 2016) which is, again, very modest if compared to the one of similar agencies (\$ 68 million for the OPCW; and \$ 507 million budget for IAEA).

The database for cooperation and assistance is an additional example of the types of informal tools established by the RevCon(s) process. As decided by the “Meetings of State Parties” (MSP), the offers of assistance are made publicly available on the website while the requests are available to state parties in restricted areas of the website. The sponsorship program as well as efforts towards universalization represent the other major commitments of the ISU.

The Eight Review Conference, which did take place in December 2017, has been defined as one of the best prepared of the Review Conferences with two enhanced and extended Preparatory Committees (Spring and Summer 2016).<sup>525</sup> A substantial number of Working Papers have been submitted to the Preparatory Committee (39) and to the Review Conference itself (44), many of which were co-authored by state parties in the form of joint proposal, indicating a higher degree of integration of perspectives among member states. The NGOs coalition also proved very active in

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<sup>524</sup> [https://www.unog.ch/80256EE600585943/\(httpPages\)/16C37624830EDA5C12572BC0044DFC1?OpenDocument](https://www.unog.ch/80256EE600585943/(httpPages)/16C37624830EDA5C12572BC0044DFC1?OpenDocument)

<sup>525</sup> For a complete and detailed analysis of the Review Conference outcome see Report from Geneva: The BTWC Eighth Review Conference: A Disappointing Outcome by Graham S. Pearson in association with Nicholas A. Sims, Harvard Sussex Program Occasional Papers 1540

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assisting the Implementation Support Unit with preparatory works and by means of papers and statements of utility for member countries. Notwithstanding expectations running high before the meeting, the outcome was meagre. The Conference failed to agree strengthening language or new extended understandings on all but three of the Articles, even when the draft text was conveniently made available. The Implementation Support Unit saw its mandate renovated for another five years, but remains understaffed and underfunded. If annual Meetings of State Parties (MSP) were allowed to continue, the Meetings of Experts (MX) - which had characterized the previous three intersessional programs - were cancelled without any alternative on how a new intersessional program could work (open-ended working groups? Meeting of Experts “revisited”?)

Among the reasons advanced to explain the modest results achieved, the followings: (1) personalities and politics<sup>526</sup> (2) structural deficiencies and insufficient collective machinery; (3) poor integration between informal discussion and formal processes in train.

#### The Australia Group

The Australia Group (AG) defines itself as an “informal forum of countries which, through the harmonization of export controls, seeks to ensure that exports do not contribute to the development of chemical and biological weapons.”<sup>527</sup>

The AG acts upon the so-called “supply-side” of the non-proliferation curve: its goal is the one of making it harder for weapons’ developers to succeed in their aim by restricting access to items necessary for CB weapons production (including dual-use equipment).<sup>528</sup> Together with the Nuclear Supplier Group, the Wassenaar Agreement and the Missile Technology Control Regime, the Australia Groups constitutes the so-called Multilateral Export Control Regimes (MECR).

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<sup>526</sup> In particular reference may be made to the fact that a single State Party – Iran was able to block consensus on a broadly acceptable compromise text (as it happened for the US in 2001)

<sup>527</sup> <http://www.australiagroup.net/en/>

<sup>528</sup> Conversely, contrary demand-side measures are those that seek to reduce the incentives (or motivation) that states mature towards WMD.



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First attempts to govern the trade of chemical and biological agents date back to the “Conference for the Supervision of the International Trade in Arms and Ammunition and in Implements of War” that met in Geneva on May 1925 which led to the Geneva Protocol on Chemical and Biological Weapons. As explained, the project of a restriction in trade was explored, but soon abandoned for the hostility of some countries, notably Italy and Brazil, which saw a limitation on trade of those agents as discriminatory against importers (and developing) countries and possibly leading to an unacceptable restraint over civil technologies.

The geopolitical reasons leading to the formation of the Australia Group are to be found in the reports from the UN Team called to investigate over the use of chemical and biological agents in the conflict between Iraq and Iran. The Belgian Laboratory to where the material was sent, found two types of chemical agents in the samples taken from Iranian patients (mustard gases and “yellow-rain mycotoxin”). In 1984, the team also proved that the chemical precursors serving the CW employed in the war sourced through legitimate channels. Shortly before such results were delivered, the Soviet Union had also been accused of using “yellow rain” in Afghanistan, Laos, and Cambodia.<sup>529</sup> Several countries reacted by introducing individual export controls on certain chemicals which were considered functional to CW manufacture.<sup>530</sup> Understanding the risks that a not-uniform system would have created, Australia proposed a meeting of countries with the aim of conjointly restricting the flow of dual-use equipment, materials and technologies where it represents a risk for peace and security. The first meeting of what would have become the Australia Group took place in Brussels in June 1985, when 15 participating countries and the European Commission agreed that the need was there to reinforce export controls for chemical weapons. At the same time, the Group would have also sought to ensure that the legitimate trade would not be inhibited, anticipating what would have been the obvious reactions of developing countries (as main importers).<sup>531</sup> Interestingly enough, notwithstanding the fact that the BTWC has been operating for 10 years and

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<sup>529</sup> For a complete roadmap to Iran-Iraq War, see the Wilson Center Timeline at UN Investigation Team in 1984 over Iran-Iraq conflict

<sup>530</sup> Ali, “Chemical Weapons and the Iran-Iraq War: A Case Study in Noncompliance.”

<sup>531</sup> Smithson, A. Separating facts from fiction, 1997

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its scope already covered at least one categories among those involved in the investigations (mycotoxins), the decision was taken to address the problem outside the Convention itself. The arrangement was modelled on analogous predecessors: the Coordinating Committee on Multilateral Export Control (COCOM),<sup>532</sup> the Zangger Committee and the Nuclear Supplier Group.

The Australia Group initial activities comprised the production and drafting of (1) guidelines about the circumstances which require a restraint in trade and transfer; and (2) lists of items to which control measure should apply (public goods, technology, equipment, materials related to BW and CW, biological and chemical agents). The idea was to induce a joint/mutual adjustment of exports policies through a voluntary process of coordination. In order to limit the prospect for free-riding and avoid related transaction costs by complying members, a “no undercut provision” was in practice established on the model of the COCOM itself.<sup>533</sup> In terms of structure, the typical feature characterizing the AG is its informality, consultative nature and a light arrangement.

At the outset, the AG was committed to chemical weapons. However, at the AG meeting held in June 1991, which occurred a few months after the Gulf conflict, parties agreed to convene a series of BW expert meetings to explore possible/further developments related to BW. Developing the list was not a simple task because there was no mention to specific agents in the BTWC’s letter. Under this perspective, the experts could not only apply any existing framework and had to elaborate a consistent logic and correspondent model. In order to decide whether an agent should have been included in the control lists they wondered: (1) whether the agent had ever been developed for or used in warfare before; (2) whether the agent had ever been sought by a country of proliferation concern, (3) whether the agent was posing (or was expected to pose) great public health consequences and could be mass produced and (4) whether it was infective in aerosol form and able to damage plants and create serious socio-economic consequences. The 1993 AG meeting marked an interesting

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<sup>532</sup> The Coordinating Committee on Multilateral Export Control was formed by the United States and a number of allies in the first five years after the end of WWII with the intention of impeding that the URSS could get access to military relevant technologies by trade with the Western bloc.

<sup>533</sup> Under the “no-undercut” requirement, members pledged not to approve a particular export to a specific country that another member had previously denied without first consulting that members.

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development in the regime, because for the first time the world witnessed the adoption of a full range list covering BW relevant items (four lists). The lists have been regularly reviewed since that time (including the 1995 revision where vaccines and immunotoxins got the exemption). The inclusion of a specific list of biological agents and related materials represented a significant step further in consideration of the fact that, as said, the BTWC did and still does not provide any indication in that direction (like it is the case with the CWC, see the “Annex of Chemicals” schedule 1; 2; 3 of the Chemical Weapons Convention)<sup>534</sup>. Aware of the fact that it would not be possible to control every type of pathogen and toxin or dual-use item that could be misused for a BW programme for bioterrorism purposes, AG participants also introduced a “catch-all provision” - whereby AG participants will be able to not supply an unlisted item when the transfer is of particular concern because of the potential diversion of the item upon its delivery.

In the wake of 9/11 anthrax letters, an adjustment of the various control lists was performed. In particular, the AG members decided to add several new biological agents and new toxins to existing lists as well as to support a refinement to the list of dual-use biological equipment occurred. Two years later, in 2003, a manual summarizing the new guidelines and inputs was also issued. It provided a list of factors to be considered before approving the export of sensitive items.

Today, the number of participating countries has raised to 43<sup>535</sup> plus the European Union (last access being India in 2018). Very few other states (outside the AG) have adopted similar export controls, which nonetheless would have been deemed on the basis of the active oversight proscribed under the BTWC. Today (in particular 1540 UNSC Resolution was issued) many other states have adopted or are in the process of adopting national exports control for dual-use biological materials and equipment using the Australia Group lists as a benchmark. Participation to the AG is achieved by an application process initiated by the country willing to become member and adhere to the AG Guidelines and Control Lists. The prospective member forwards a third person note with an expression of interest to the Australia Group Chair who

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<sup>534</sup> <https://www.opcw.org/chemical-weapons-convention/annexes/annex-on-chemicals/>

<sup>535</sup> The last session, at the moment of writing, of the Australia Group plenary (32<sup>nd</sup>) took place in Paris on 30 June 2017, <http://www.australiagroup.net/en/2017-ag-plenary-statement.html>

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will consult with other members. If the AG participants agree to consider the application, the Chair liaises with the candidate for provision of a formal application with detailed information concerning the country's legislation and policy of exports controls, relevant to the purpose of the AG. AG participants will then scrutinize the application (they can ask questions to the candidate bilaterally or through the chair) and finally a decision is made by consensus.

Participants in the AG do not take any legally binding obligation, although criteria for participation are explicitly enounced and part of the AG's long-standing policy on membership (although relatively general in their content). So that the effectiveness of their cooperation only builds on their reciprocal commitments.

AG adherents only notify their political commitment to the AG Chairs by means of a unilateral document which is not subject to any acceptance decision by the AG membership. Currently Kazakhstan is the only "adherent" country, that has not proceeded by completing the membership process.

Originally developed as informal mechanism within a restricted group of like-minded states (most of them with a supplier profile), the AG (similarly to the other WMD export controls tools) has evolved in an organization with enlarged commitments, an expanded and expanding membership, and a semiformal organizational structure (annual meetings, participations to relevant fora, and engagement with non-member states, industry and academia). Plenaries take place every year and the governance system is granted by a Secretariat (point of contact) located Canberra (Australia). Technical meetings can meet on request when a need materialize (e.g. the Technical Advisory Group or the Synthetic Biology Advisory Board). More recently, AG members have agreed to further invest on a regional-based outreach. Notwithstanding this evolving structure, the group has maintained its informal character.

Upon its formation, AG (as other MECR) was/were regarded as potentially limiting the core structure of the related non-proliferation regime, and not a way to reinforce it for several reasons: informality, consensus decision-making rules, lack of enforcement capabilities, vague membership criteria, and inadequate transparency measures.<sup>536</sup>

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<sup>536</sup> Jones, "The Multilateral Export Control Regimes: Informality Begets Collaboration," 28.

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The group has been criticized also for its lobby-profile. Countries of the Non-Aligned Movement have vocally repeated that the rules of the groups stand in deep contrast with the BTWC X article provision for the “fullest possible exchange for the advancement of peaceful scientific endeavours” raising doubts on its ultimate legitimacy. A second critique to the AG operation has been its scarce capacity of information gathering and sharing and for the disparate levels of export control capabilities which differentiate its members.

Notwithstanding critiques, the Group was able to adapt the passage of time and survived significant geopolitical changes (end of the Cold War and 9/11) as well as quickly moving technical innovations (biotechnology, nanotechnology, and synthetic biology).

Measuring the individual impact of this specific informal agreement is essentially unfeasible on the basis of the data available. However, it is possible to enlighten the mechanisms potentially at work (1) To begin with, the arrangement – despite its informal nature - realistically served the reinforcement of the international norms against the spread of biological (and chemical) agents. (2) The group has surely contributed the consolidation of the consensus among experts and the institutionalization of scientific advice as it demonstrated by the fact the guidelines and control lists developed has not only complemented the letter of the BTWC (art III), but, more importantly, have much of the practical content also found in UN Security Council Resolution 1540 - thus bridging the various individual components of the BW non-proliferation regime. Since then, as clearly remarked in the Statement of the Chair which followed the 2017 Australia Group Plenary, today the restrictions of the transfer of chemical and biological weapons related items, materials, equipment can be found reaffirmed in many UNSC Resolutions addressing specific countries including North Korea and Syria.<sup>537</sup> (3) Consistently, the AG consensual decision-making, matched with the frequent revisions and update of lists and guidelines, has most probably contributed to fuel iterative learning within and among countries (producing internalization and persuasion in a sociological parlance). The enlarged membership (which now also includes Russia and China) have reasonably raised the

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<sup>537</sup> <http://www.australiagroup.net/en/2017-ag-plenary-statement.html>

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rational costs of getting the weapons, by reducing the number of available exporters and by increasing the chance of being detected and from a constructive standpoint the international opprobrium that would derive from such detection. The fact that, due to the high technicality of the subject, many representatives sitting in this forum also sit in other non-proliferation organizations may have induced additional and indirect linkages of the type of those described by Lupu in his work on networked peace.<sup>538</sup>

United Nation Secretary General Mechanism (UNSGM)<sup>539</sup>  
investigations of alleged use of biological and chemical weapons

The letter of article VI of the Biological and Toxin Weapons Convention provides that state parties to the Convention that suspect another state party of acting in breach of obligations from the provisions of the BTWC may submit a complaint to the Security Council (SC) of the United Nations. All state parties are then obliged to cooperate fully with any investigation that the Security Council may initiate.

Article VI has never been invoked vis-a-vis allegations of non-compliance to the BWC rules and norms, possibly in consideration of the intensively political nature of the Security Council decisions and the veto power that can be exercised by its permanent members.<sup>540</sup> It is also true that since the entry into force of the BWC, the world have faced relatively few allegations of violations. In many case, especially when the suspects dealt with development, production and transfer of biological agents/technology prohibited under the letter of the Convention, very little joint action has been taken by member states apart from verbal expression of concern during plenaries and intersessional meetings.

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<sup>538</sup> Lupu and Greenhill, "The Networked Peace."

<sup>539</sup> This chapter builds on the author's conversations with former members of investigation team and inspectors Nikita Smidovich, (United Nation Office for Disarmament Affairs), Ake Sellstrom (Chief Inspector in UNSCOM, Senior adviser for UNMOVIC, and Head of the UN Investigation Team for Syria in 2013), Maurizio Barbeschi (WHO Technical Expert in UN/OPCW FFM 2013-2018).

<sup>540</sup> Kadlec, Zelicoff, and Vrtis, "Biological Weapons Control. Prospects and Implications for the Future."

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In the case of suspect of use, mechanisms other than the BWC (or the Security Council) have been activated to conduct the investigations in the absence of an operational agency linked to the Biological and Weapons Convention.

Among these mechanisms, the United Nation Secretary General Mechanism (UNSGM) is one of the most relevant. The UNSGM deserves special attention insofar it has been described as a valuable and legitimate complement to provision conveyed by article VI of the BTWC. The outcome documents of both the 2006 and 2011 BWC Review Conferences defined the UNSGM “an international institutional mechanism for investigating cases of alleged use of biological or toxin weapons.” Most notably today some member states regard the mechanism as “the only realistic tool for an investigation of alleged biological weapons’ use.”<sup>541</sup>

Especially in recent times, the UNSGM has attracted considerable attention with regards to the investigations conducted in the Syrian Arab Republic following the then-suspected (and afterward confirmed) use of chemical weapons (2013). At that time, the UNSGM was called into action because Syria was not yet a party to the Chemical Weapons Convention, which the Country only joined in 2015, and consequently the OPCW and its specific bodies had no right to conduct investigations.

The United Nation Secretary General Mechanism has its origin in an ad-hoc activity sustained by the UN Secretary General (SG) in response to the alleged use of chemical weapons and toxins in Indochina and Afghanistan which was ascribed to the Soviet Union (late 70s).<sup>542</sup> The events, if attested, would have been in violation of the 1925 Geneva Protocol (Yellow Rain allegations) and of the Biological and Toxin Weapons Convention, which the Soviets had signed in 1973 and ratified in 1975.<sup>543</sup>

In 1980, the General Assembly (GA) adopted a first resolution sponsored by a group of Western States that called on the Secretary-General “to carry out an impartial investigation to ascertain the facts pertaining to the reports regarding the alleged use

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<sup>541</sup> United States Compliance Statement to the 2016 BWC Review Conference

<sup>542</sup> One of the best account of the history of the Mechanism is: Littlewood “Investigating Allegations of CB use,” on which this section largely relies.

<sup>543</sup> Miller, Engelberg, and Broad, *Germes*; Littlewood, “Investigating Allegations of CBW Use: Reviving the UN Secretary-General’s Mechanism,” 10; Miller, “The Secret Success of Nonproliferation Sanctions.”

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of chemical weapons [...] with the assistance of qualified medical and technical experts.”<sup>544</sup> Notwithstanding the obvious opposition of the Soviet Union, the Resolution was adopted with 78 votes in favour and 17 against (including Afghanistan, Cuba Syria the Soviet Union and Warsaw Pact allies). The Secretary General appointed four experts (respectively from Egypt, Kenya, the Philippines and Peru). The investigators proved unable to complete the mission they have been tasked with within the proper deadline (one year) and saw their mandate extended through 1982. The group conducted a range of activities including collating background information (from member states – particularly those reporting the Yellow Rain incidents – and from other sources – such as UN agencies and IOs with relevant skills). Investigations both in Indochina and Afghanistan were strongly hindered by practical obstacles: scarce collaboration from states of suspicion, poor interpretation during interviews, incomplete access to refugee camps of neighbouring countries, pitiable sample management, questionable chain of custody lines, limited access to relevant locations, and the inability to conduct proper on-site investigations. Each and every one of these facts prevented the group of experts from providing definitive conclusions on the alleged use of B/C weapons’ use (although some circumstantial evidences of significant value were provided). On-site activities, in particular, revealed especially troublesome so that the Group of Experts was forced to rely heavily on the investigations made by others,<sup>545</sup> cross-checking those results as best as they could.<sup>546</sup> No consistency was found among the investigations’ results and this nurtured an increased scepticism about the methodology adopted and the credibility of the evidences used to support allegations. Although these early experiences de facto already represented international investigations over alleged C/B used by experts appointed by the Secretary General, the UNSGM as it exists today arose from a subsequent Resolution issued in 1982 (UNGA 37/98D) aimed at providing the Geneva Protocol “with procedures for investigating reports concerning activities prohibited by

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<sup>544</sup> UNGA Res. 35/144C, 12 Dec. 1980 extended for a second year by UNGA A736/96C

<sup>545</sup> Several states conducted independent investigations, as did also three independent analysts in their personal capacities.

<sup>546</sup> Robinson, “What Do We Mean by Nuclear Proliferation?,” January 2, 2015; Guillemin, *Biological Weapons*; Littlewood, “Investigating Allegations of CBW Use: Reviving the UN Secretary-General’s Mechanism,” 12.



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the Protocol.”<sup>547</sup> Once again, it was far from achieving consensus. Although 70 states supported the Resolution, 31 voted against it, including Afghanistan, Cuba, Syria, the Soviet Union and many of its Warsaw Pact allies; Vietnam, and other 18 states abstained. The resolution asked the Secretary General: 1) to compile lists of qualified experts (whose service could be made available at short notice to undertake investigations) and inventories of approved laboratories where the samples could have been sent to; 2) to appoint Group of Experts to conduct urgent investigations; 3) to devise, with the assistance of consultant experts, procedures for the timely and efficient investigation of activities that may violate the Geneva Protocol or other relevant rules of International Law. To fulfil this request, the Secretary General duly appointed a Group of Consultant experts which convened in May and September 1983, the experts released a 46 –page report (October 1984) including a series of recommendations for setting up what would have become the real UNSGM. Additionally, indications about several practical issues and details were collected in technical annexes (timing, expertise required, handling and testing of samples’, logistics, security, transportation and laboratory support). In the meanwhile, increasing evidence of the employment of chemical weapons in Iran were reported during the ongoing conflict with Iraq. When Iran placed a formal request for investigation, the Secretary General (Perez de Cuellar) launched an investigation. Legally speaking he did not operate under the Resolution 37/98D but on the basis of the duty “given by the humanitarian principles embodied in the charter and the moral responsibility vested in the Secretary General’s office.”<sup>548</sup> The action was taken notwithstanding the “strong political pressure” not to proceed (especially because of the Soviet and US oppositions).<sup>549</sup>

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<sup>547</sup> Interestingly enough reference was made to the Geneva protocol and NOT to the BTWC in order to establish such a mechanism.

<sup>548</sup> United Nation Security Council “Report of the specialists appointed by the secretary-General to investigate allegations by the Islamic Republic of Iran concerning the use of Chemical Weapons” S/16433, 26 March 1984, p.2 in Littlewood.

<sup>549</sup> The Soviet Union was reportedly worried about the fact that the UNSGM could impinge on the prerogatives of the Council itself to act at its discretion (decide if, when, where and how to conduct investigations) and the United States, who hopes that Iraq would prevail, seemed to be prepared to resize the Iraqi alleged transgressions. Littlewood, “Investigating Allegations of CBW Use: Reviving the UN Secretary-General’s Mechanism,” 14.

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The mission to Iran took place between the 13th and 19th March 1984 and saw again the displacement of 4 experts (this time from Australia, Sweden, Spain, and Switzerland) whose unanimous conclusion was that both mustard gas and the nerve agent Tabun have been deployed.<sup>550</sup> In 1985, the UN Secretary General also approved a medical investigation to Europe to collect information on injured soldiers treated in UK, Belgium and FDR.<sup>551</sup> Only after the second request from Iran, the UNSC finally adopted the Resolution 582 which deplored the carnage and the persisting violations in Iran/Iraq of the Protocol and immediately after, welcomed the idea of further on-site investigations.<sup>552</sup>

The Secretary General met with the USNGM and suggested to instantly instruct a second team to travel. The investigation team visited Iran between the 26<sup>th</sup> of February and the 3<sup>rd</sup> of March 1986 and acknowledged the extensive use of chemical weapons - including nerve agents - by Iraq towards Iran. On November 1987, the UNGA adopted an additional resolution (UNGA 42/37/C) supporting supplementary prompt and impartial investigations. A series of additional missions (a total of 4+3 in 1988) were dispatched and a medical investigation (along the lines of the one authorized in 1985) took place. It is clear that these investigations benefited from the agreed-upon technical guidelines and procedures for investigation that had been issued in 1983. All the findings - intended to inform the UN Security Council and the Assembly - confirmed the use of chemical agents in both Iran and Iraq, also against civilians. Although successful in getting to a concrete and final judgment and able to ascertain many facts, the teams experienced once again the many limitations of the existing procedures. Iraq's use of CW was condemned (both in national statements and multiple UNSC resolutions (e.g. UNSC Res. 512 of 1986) and few actions were taken to stop the export of relevant chemicals' precursors and equipment to Iraq (for example by the Brussels group). Nonetheless, no serious penalization against Iraq occurred. To fulfil the request over the enhancement of the Mechanism established

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<sup>550</sup> UNSC S/16433 pp.11-12

<sup>551</sup> *ibid.*

<sup>552</sup> Iraq refused the team offer to travel also to Baghdad, in order to investigate the allegations about a possible use of chemical agents against Iraq, by Iran – so the trip could only involve the territory of Iran.

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by Res 42/37/C, a group of 6 consultant experts was created. They produced a comprehensive report including a series of recommendations for investigations mandated by the Secretary General in a report (A/44/561, August 1989) submitted to the UNGA and considered at the latter's 45<sup>th</sup> session in 1990. (1) First of all it was reaffirmed the authority of the Secretary General to initiate and conduct the investigation: "The Secretary General should promptly open analysis into reports brought to his attention by any member state when concerning the possible use of CBW in violation of the Geneva Protocol or other relevant rules of customary international law."<sup>553</sup> A decision to conduct a mission, if taken, should happen in the shortest possible time (no later than 24 hours after the receipt of the request) and member states should be called on not to refuse a request from the SG for a fact-finding mission – although it would remain impossible for the SG to force on site activities on a not willing state. (2) Secondly, the Report recommended implementations of the guidelines and procedures for carrying out the investigations. (3) Finally the need was expressed to grant the follow-up of the activities necessary to maintain the effectiveness of the Mechanism in terms of periodic update of its guidelines and procedures (including cooperation with OPCW on the forthcoming entry into force of the CWC).<sup>554</sup>

The role of the UNSGM in investigations of alleged use was shortly after confirmed by the letter of the UNSC Res. 620 (1988) and the Final Declaration, by the Conference of state parties of the Geneva Protocol, adopted on 11 January 1989.

In its resolution of 1990, the UN General Assembly endorsed the Group of Experts proposal without qualification, but noted "the continued significance of the United Nation Security Council's decision to take appropriate action in the event of future chemical weapons use".<sup>555</sup> Today the roster of experts and laboratories provided by Member States and the Guidelines and Procedures for the conduct of investigations

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<sup>553</sup> The experts avoided using the word verification which would imply that the investigation team or the SG would make a judgment as to who was responsible for any confirmed use of chemical biological or toxin weapons (sovereignty issue would come into play at that point) – so the SG would be expected to only engage in "Fact Finding Missions".

<sup>554</sup> UN A/44/561 p.11

<sup>555</sup> UNGA Res 45/57 C, 4 December 1990

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constitute the key elements of the Mechanism.

In 1992, at the request of Mozambique and Armenia, the Secretary General launched two additional investigations. The first one was the product of a state/non-state actor conflict (Mozambique vs Mozambican National Resistance) and the second one is to be framed in a state-to-state dispute (Armenia vs. Azerbaijan). Both were considered successful in asserting facts linked to the supposed allegations. Apart from these two episodes, however, the 90s saw a downsizing of the mechanisms which remained unused since 1992. The modest recourse to the Mechanism was also due to the competing/complementary mandate of the OPCW (which got operational in 1997) and the creation of specific bodies, the UNSCOM and UNMOVIC, to address the problem of Iraqi proliferation.<sup>556</sup> Specifically, the parties to the Geneva Convention, UN, and the Security Council were waiting for the CWC to be signed and enter into force as a crucial tool to reinforce the prohibition on the use of chemical weapons.<sup>557</sup> On the other side, the discussion over a verification protocol for the BWC (which failed in 2001) may have opened a specific mechanisms also for Biological Weapons. Nonetheless, according to Littlewood, at that time the authority of the Secretary General to initiate investigations was widely acknowledged and kept alive with no one questioning its role. After its creation, the Mechanism was never envisaged as temporary. No UNGA, nor UNSC resolution ever included a sunset clause and the UNSGM's authority remains today.

After the 9/11, a series of other UN and international reports have acknowledged the importance of UNSG Mechanism (interalia "A more secure world", "In Larger Freedom", "Uniting Against Terrorism", etc.). In 2006 The Weapons of Mass Destruction Commission suggested that the Mechanism needed an update, at least in respect to the "biological weapons" component. Along these lines, the UN General Assembly adopted a Global Counterterrorism Strategy that encouraged the UNSGM

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<sup>556</sup> S/RES/687 (3 April 1991); S/RES/1284 (17 Dec 1999) established UNSCOM and UNMOVIC respectively to ensure Iraq compliance with production and use of WMD

<sup>557</sup> Littlewood, "Investigating Allegations of CBW Use: Reviving the UN Secretary-General's Mechanism," 18.

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to update its roster of experts and laboratories.<sup>558</sup> Unlike the CWC, the Biological Weapons Convention (BWC) has no equivalent investigating authority of alleged use. It seemed therefore particularly important to ensure that the SGM maintained effective operational capacity in the biological area.

Following this wave of renovated interest and demand for updating, the roster of experts, the technical appendices and guidelines were actually updated in 2007. The list of experts (already revised over the years) was re-organized and new trainings were encouraged and funded.

The cooperation with IOs with relevant mandate has also expanded in recent years. The United Nation Office for Disarmament Affairs (UNODA) – that is the custodian of the Mechanism - monitored the proper development of the network and its well-being.<sup>559</sup>

In consideration of the possible involvement of public health/medical experts in Fact-Finding Mission (FFM), in 2011 The UNODA and the WHO signed a Memorandum of Understanding (MoU) titled “WHO’s support to the Secretary General Mechanism for Investigation of the Alleged Use of Chemical, Biological or Toxin Weapons.” Previous documents governing the legal relationship between the UN and the WHO had been signed in 1948 (UN-WHO), and 2009 (UNODA-WHO). According to the content of those documents the participation of WHO (in practice managed by and operated through the secondment of qualified personnel) would be restricted at addressing the public health impact and consequences of the alleged use of chemical and biological agents, in order to ensure *inter alia* the appropriate scientific level required for the missions’ findings to be independently scrutinized, without any political implication.

In September 2012, the UN and the OPCW also concluded an agreement that set out the modalities of cooperation between the two Organizations for conducting an investigation in case of alleged uses of chemical weapons and related circumstances (complementing the existing 2001 UN-OPCW agreement). A Supplementary Arrangement Concerning the Implementation of Article II (2) (C) of the Agreement

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<sup>558</sup> Both the experts and the laboratories included in the lists are to be nominated by member states).

<sup>559</sup> Author’s conversation with Fiona Simpson, UN Political Affair Officer, WMD branch UNODA

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Concerning the Relationship Between the United Nations and the Organisation for the Prohibition of Chemical Weapons was concluded in September 2012. UNODA has cooperative relations and agreements with other International Organizations with pertinent technical expertise (such as the World Organization for Animal Health (OIE)) in order to grant support to the UNSGM FFM. Interpol and FAO have also extensive collaboration in place with the UNODA for the time being.

*Recent Developments [Syria]*

The Mechanism has been crucial in opening the investigation over the alleged use of chemical agents in the Syrian Arab Republic before the nation ratified the CWC in 2014. The Mechanism was activated in 2013 after Syria (a state party to the Geneva Protocol) reported allegations of CW use in Khan al-Asal area of Aleppo Governorate. Syria's government and the opposition blamed each other of recurring to CW against civilian populations. The Secretary General assembled a team of experts including members from the WHO and the OPCW who were deployed in their personal capacity of experts. Their role in the mission were defined by their respective Terms of References that were drafted "ad-hoc" and in the case of WHO developed consistently with the Memorandum of Understandings already in place between the two Organizations - where existing (e.g. UNODA-WHO). The team members including the head of the mission (in the person of Ake Sellstrom, expert from Sweden), remained in standby until an additional term of reference (this time between the UN and Syria) was agreed on.<sup>560</sup> The SGM team was dispatched to Syria only in August to investigate over Khal al-Asal and two other incidents (Sheik Maqsood and Saraqueb). Three days after the team's arrival in Damascus, allegations of CW use (Sarin) in the Ghouta area of Damascus led to prioritize the most recent events. In its first report - issued on 16 September 2016 - the team concluded that chemical weapons, specifically Sarin were used on a relatively large-scale. The international response and pressure lead to Syria's accession to the CWC and implied the handover to OPCW of perspective alleged cases of CW uses in line with OPCW mandate. The OPCW was also tasked with the supervising the destruction of national chemical stockpiles as required by the CWC

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<sup>560</sup> The hold-up was a difference of opinion on the scope of the investigation: the UN wanted that all credible claims of CW use should be examined while Syria argued that only the 19 March Khan al. Asal should be placed within the scope of the mission.

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letter. Within 13 months from the Ghouta attacks, 96% of Syria's declared stockpile was reported destroyed. In April 2014, new allegations of CW use (this time Chlorine) emerged. Unlike previous allegations, Syria was at that point a State Party to the CWC. A Fact-Finding-Mission involving among others, one WHO personnel seconded to the OPCW, was established (most members of the new team included experts already involved in previous investigations under the UNSGM). The FFM issued three reports concluding with high degree of confidence that chlorine has had been used as weapon against the villages of Talmenres (21 April 2014); AL Tamanh (29.-30 April and 25-26 May 2014) and Kafr Zita (11 and 18 April 2014).

Although both the SGM and the FFM concluded that chemical weapons had been use in Syria, no further mission was mandated to investigate blame and assess responsibility until 2015.

In March of that year the UN Security Council Resolution 2209 stressed that those responsible should be held accountable,<sup>561</sup> and five months later the UNSC called unanimously for an official inquiry to identify responsibility. Resolution 2235 gave a 1 year mandate to an OPCW-UN Joint Investigation Mechanisms (JIM) to identify those involved in the cases "where OPCW-FFM determines or has determined that a specific incident in Syria involved or likely involved the use of chemicals as weapons".<sup>562</sup> The JIM has already produced several reports whose results have been discussed at great length interalia during the UN First Committee in 2016 and 2017 triggering tensions and debate.

As of today an additional Fact-Finding mission has already been deployed by OPCW to Syria and have confirmed the use of nerve agents in Khan Shaykhun in April 2017. The mission has counted on the assistance of the UN-OPCW-JIM system as stated by paragraph 6 of resolution 2319 (2016) so the Organization had leveraged previous experiences. In this latter case, like in the previous ones the involvement of experts from WHO for technical contribution has been approved (governed by OPCW-WHO exchange of letters – Spring 2017).

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<sup>561</sup> UNSC Res S RES 2118 27 Sept. 2013 and S RES2209 March 2015

<sup>562</sup> Paragraph 5 S/RES/2235 7 August 2015

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Global Partnership Against the Spread of Weapons and Materials of Mass Destruction

In the aftermath of the World Trade Center attacks of September 2001 the anthrax letter episodes, although unrelated, contributed to spreading the idea that terrorists might gain access to biological (and chemical) weapons and use them against civilians anywhere in the world. As shown many initiatives were bound to see the light in those years with the scope of counteract terrorists who wanted to use WMD to harm. Few days after the amerithrax (the name assigned to the episode of anthrax letters), American and Canadian officials began working to establish a new multilateral initiative to address vulnerable CBRN materials, along the lines of the US Cooperative Threat Reduction (CTR) program. The Bush administration provided the essentials for the negotiation to start and launched the inherent proposal at the meeting of the G8 meeting (the eight major industrial countries), in 2002. Canada, that was at that time ruling the presidency of the Global Partnership became a key character in the process. According to the then-US Undersecretary of State for Arms Control and International Security John Bolton, the role of Canada was essential to consent the full development of the initiative and paved the way for what would have become the “Global Partnership Against the Spread of Weapons of Mass Destruction (GP).”<sup>563</sup> The American and Canadians officials used the first G8 summit taking place after 9/11 (June 2002) in Kananaskis (Canada) to outline the characteristics for the actuation and implementation of the GP. The GP was broad in scope and was established as a mechanism to “support specific cooperation projects, initially in Russia, to address non-proliferation, disarmament, counterterrorism and nuclear safety issues.” The idea was to the one of collecting wider resources than those that individual states would have been able to mobilize. Under this perspective, the GP was designed to be an informal and flexible mechanism drawing on financial contributions and technical project management expertise from participant states. It was initially envisaged a commitment of 10 years for the initiative and a funding of 20-billion US\$ (10\$ provided by the US and the remaining to come from the other G8 partners). This was an unprecedented material commitment of resources for a multilateral initiative

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<sup>563</sup> Oral testimony by John Bolton in Bowen and Hayes, “The G8 Global Partnership”



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designed to counter terrorism, which in the view of several analysts revealed other countries, beyond the United States, shared a sense of urgency over CBRN materials and their management.

In order to gain a larger pool of resources from states other than the G8 members, participants and welcomed “other countries that [were] prepared to adopt [GP-WMD] common principles and guidelines to enter into discussions with us on participating in and contributing to this initiative”.<sup>564</sup>

The G8 was indeed expanded from the original membership to 22 countries, already by 2011. Today thirty countries and several international organizations, both governmental and non-governmental are involved in the initiative. It has been reported that some of the motives for new participants to contribute funding GP projects have been very specific national interests (Kazakhstan and Ukraine), revealing in some cases opportunistic stances more than a general commitment to a universal cause. Indeed, the support might have signalled a grown awareness of the international dimension of the terrorist threat. As noticed by officials from some GP countries in 2009, their government would probably not have been in a position to supply threat reduction work - beyond their own countries’ borders - in the absence of the GP.<sup>565</sup>

No formalized bureaucracy was established to run the GP, but a Working Group (WG) consisting of senior diplomats, officials, and contractors providing technical expertise was designated to implement the initiative. A rotating chair was decided for the Working Group and drawn from the country each year hosting the G8 Presidency. The strategic vision and the overall capacity of the WG has been severely limited by its consensus approach to decision making. No legal framework was set up to oversee the implementation of the mechanism and the Working Group remained the only tool to provide guidance and to serve as a coordinating body. Notwithstanding such institutional constrains, the GP-WMD proved able to fulfil two main functions. On the one side, the GP-WMD acted (and still does) as a coordination mechanism among potential donors and implementers on non-proliferation relevant projects, de facto

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<sup>564</sup> statement by G8 leaders

<sup>565</sup> Heyes, Bowen, and Chalmers, *The Global Partnership Against WMD*, 99.

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behaving as a clearing house. On the other side, the Working Group has granted technical assistance to member states in the enactment of such projects. Throughout the years, the Institution's priorities have changed throughout time in terms of both their subject matter and geographical scope.

Global Partnership's original focus was assigned to threat reduction projects in Russia with 4 priority areas identified: (1) the destruction of chemical weapons; (2) the dismantlement of decommissioned nuclear submarines; (3) the disposition of fissile materials; (4) and the employment of former weapons scientist (especially physics). During the first decade of its life the GP was able to achieve significant results. Key accomplishments have included submarine dismantlement, chemical weapons destruction, the establishment of an implementation network of technical projects management experts, the development of piggybacking options for financing and implementing projects (to enable funding from smaller donors to be applied to larger projects managed by other GP states), the provision of support to establish international organizations active in the field, plus a series of spin off benefits (reportedly between 2005 and 2010 a boarder détente in the relationship between US and Russia resulted from the technical interactions between the two during the implementation of the GP projects). Both submarine dismantlement and chemical weapons destruction have been described as major accomplishments within the Collaborative GP Threat Reduction programs and projects (CTR). The success was of little surprise since both projects were largely prioritized by Russia itself. Notwithstanding the above the initiative also encountered some few limitations.

First of all, It should also be borne in mind that many G8 countries did not meet their original financial pledges with France and Italy spending only 15-20% of their pledges and many other barely reaching the 50% (Canada, Germany Japan and the UK + UE) limiting the initiative outreach capacity. In additional to budget shortfalls, the first decade of GP-WMD Working Group developed a modest monitor and evaluation capacity of its own work and the work of its affiliated agencies so that resources were not effectively distributed among priorities and beyond.

Both fissile material disposition and scientific redirection, further two priorities identified in Kananaskis, have been described as modest accomplishments. Despite the fact that they both pose a significant security threat, they were de-emphasized by

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the Russian government after 2002 and for this reason, according to many reviewers, more difficult to fully accomplish. Up until 2012, the Initiative have also left behind other important key aspects of WMD non-proliferation, such as enhancing the security of CBRN materials, biosecurity, and those pressing challenges resulting from geographical areas other than Russia overlooked.

It is only since the year 2010 that biological weapons and bioterrorism gained traction within the initiative. According to Trevor Smith, Senior Project Manager for the WMD Threat Reduction Program (Canada), and key figure for the work of the GP Biosecurity Working Group (BSWG) since its inception in 2012 (see below), the lack of a destruction option for the bio-area (compared to nuclear or chemical) is the main limitation the Partnership showed – with regard to the “B” component – in the first decade of its life. This would also reasonably be the main motive why there was no much subscription on the bio-side as there was in other areas. The fact that it would have not been possible to “quantify” and “measure” results as directly as it would be (and de facto have been) done for chemical substances like nerve agents, or fissile warheads represented a major concern.<sup>566</sup>

Biological weapons gained centre stage at the G8 summit in Canada (2010). Participants outlined a new agenda which included greater efforts in four areas of (1) nuclear and radiological security (topic boosted by the then-recent Fukushima nuclear accident), (2) biosecurity, (3) scientific redirection and (4) support for the UNSCR 1540.<sup>567</sup> It is then when the Canadians came up with a strategy for strengthening biological security by means of a “deliberately very broad framework” which would have included working at the “health and security interface”.

The following year, during the Deauville Summit (2011), it was decided to extend the GP indefinitely.<sup>568</sup> Participants endorsed the “four-areas emphasis” proposed in 2010, called for new members to join the initiative (although no specific countries were mentioned as potential candidates), and strove for improving coordination with

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<sup>566</sup> Interview with Filippa Lentzos, 2016

<sup>567</sup> Dauville G8 Declaration

<sup>568</sup> Hakan Akbulut, *The G8 Global Partnership: From Kananaskis to Deauville and Beyond*, Working Paper 67/ March 2013; Austrian Institute for International Affairs

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international organizations with relevant mandates.<sup>569</sup> While broadening the scope of the G8, the Summit declaration adopted a supporting study document called for completing existing projects in Russia. New pledges for collecting \$20 billion in the next decade was made by G8 partners. In order to promote the priorities adopted one year before, the GP under the US Presidency (2012) established 5 sub-working groups dealing with (1) biosecurity (the Global Partnership's biological Security Working Group BSWG); (2) membership expansion; (3) nuclear and radiological security; (4) chemical security.<sup>570</sup> On April 2013, the G8 Foreign Ministers met in London and discussed many topics, in particular they confirmed the broader scope the initiative finally have reached in covering disarmament issues at large and beyond the borders of the former Soviet Union (including the situation in Syria, Iran and DPRK, the establishment of a WMD free zone in the Middle East, outer space security, the Arms Trade Treaty's adoption). That was the last meeting the eight held together. Due to the Russian annexation of Crimea, the leaders of the G-8 collectively decided to expel Russia from the Group of 8 as a punitive measure (The Hague meeting, March 2014). In parallel to nuclear issues (nuclear safety, Iran nuclear deal negotiation, and North Korea) discussed at the G7 summit held in Schloss Elmau, Germany, in 2015 health security gained additional traction. In the wake of the Ebola Crisis, the importance of strengthening capacity to prevent, protect against, detect, report, and response to public health emergencies was underscored and definitely brought into a BW agenda. As well, the G7 countries expressed their support to the "ongoing process to reform the WHO's capacity to prepare for and respond to Global Health Crisis" while reaffirming the central role of WHO for International Health Security. On 25-26 June, Ambassador Bonnie Jenkins led a US interagency delegation to Ukraine to discuss the G7 efforts in bio-security, bio-safety and nuclear/radiological security in Ukraine.<sup>571</sup> This engagement was championed by Germany and included several other GP

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<sup>569</sup> Global Partnership Against the Spread of Materials and Weapons of Mass Destruction: President's Report for 2013, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/269504/UK\\_2013\\_GP\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/269504/UK_2013_GP_Report.pdf)

<sup>570</sup> Heyes, Bowen, and Chalmers, *The Global Partnership Against WMD*, 88.

<sup>571</sup> Media Notes, Ambassador Jenkins Travel to Ukraine, France, and Lithuania for G7 Global Partnership, Global Health Security Agenda, and 2016 Nuclear Security Summit Meetings; <https://2009-2017.state.gov/r/pa/prs/ps/2015/06/244367.htm>

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members. What seems to have happened since the Canadian Presidency in 2010 - and reinforced by real world-case scenarios like Ebola, is not only the confirmation of the relative importance of health and biological agents within the WMD discourse but also a change in the strategy for strengthening global biological security from prevention only, to preparedness and response. In the words of Trevor Smith, from securing former biological weapons' production and facilities, the approach has changed to encompass also other activities in countries which do not share a past of BW proliferation, but whose health systems show vulnerability should a bioterrorist attack occur.<sup>572</sup>

On 26-27 May 2016, the G7 summit was held in Ise-Shima, Japan. The preparation stages of the meeting saw a reinforcement of the growing interest and consideration with regards to human security and health security.<sup>573</sup> In the final declaration, G7 listed the broad range of issues ranging from world economy, migration and refugees. Trade, infrastructure, health, women, cyber climate, and energy deserving attention. Health was described as the foundation of economic prosperity and security "not only for the individuals but also for nations" with GP member states endorsing without reserve the 2030 Agenda for sustainable development (human security framework). The declaration focused on the need to reinforce "Global Health Architecture" and strengthen the response to public health emergencies. Under this perspective, the declaration reaffirmed the central role of WHO to enable and support more swift, effective, and coordinated responses to public health emergencies shifting a theoretical elaboration on the practical level of technical cooperation. In this light, G7 Countries condemned the WHO for accelerating efforts among relevant partners large-scale outbreaks and public health emergencies and underscored the imperative to improve prevention of, detection of, and response to public health emergencies, "whether naturally occurring, deliberate or accidental". Under this perspective, concern was expressed over the OPCW findings in Syria which was bound to monopolize the GP agenda in the years to come.

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<sup>572</sup> See for example the actions taken by GP's in 2009 to protect and secure the anti-plague station in Osh in Southern Kirgiz Republic which de facto preventing the facility to be occupied during the civil unrest of 2010

<sup>573</sup> "Protecting Human Security."

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The Italian Presidency (2017) has decided to focus on Africa highlighting the need for assistance activities in the Continent. Nonetheless, or just because of that, Biological Weapons and Health Security remained key topics in the ongoing debate. The Group explored new possible threats, such as the ones linked to the (hostile uses of) the convergence of chemical and biological technologies, and at the same time revisited traditional threats which could now fully included under the Group mandate. The way the discourse around infective diseases and biosecurity has developed through the meetings made health *and* security goals closer than one could think of. In practical terms the evolution described in the GP activities concerning biological agents has meant a commitment that cover, beyond bioterrorism, many areas of relevance in biological threat reduction and response, be it intentional, accidental or natural. As it has been noticed, countries in need of assistance to enhance capacity over tuberculosis or HIV (often the primary concerns of many African countries) would have been automatically excluded by the BSWG radar (funding and activities) before 2012, insofar void of any military or terrorist application. However, in a logic of preparation and response, if countries' health systems are not capable of complying with known infectious disease, as well they would not be able to respond diseases of unknown origin and potentially used by terrorists. The scope has become the one of building an indigenous capacity to respond before the first hours are crucial. "It is possible and probable - as Trevor Smith has made very clear in his interviews- that 99.9 percent of the time, beneficiaries countries will not use GP funded biological capacity for counter-terrorism purpose, but that 0.1 percent of the time will repay investments in spades."<sup>574</sup> Under this perspective it is interesting to remember here that the clean-up cost of the anthrax letters was about \$700 million, just to decontaminate the post-office. That is nearly equivalent to what Canada's entire Global Partnership budget for the its first 10 years and totally out of reach to many countries in the Global South.

The Proliferation Security Initiative

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<sup>574</sup> Lentzos Filippa, *Biological Threats In The 21st Century*, 412–13.

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The Proliferation Security Initiative (PSI) is a multilateral non-binding political initiative through which states voluntarily commit, by means of a formal pledge, to working cooperatively with the aim of curtailing the *trafficking* of Weapons of Mass Destruction, to and from states and non-states actors.

The major obligations that participants to the PSI are asked to abide are represented by the so-called “Interdiction Principles”, these include the following.<sup>575</sup>

- 1) Undertake effective measures, either alone or in concert with other states, for interdicting the transfer or transport of WMD, their delivery systems, and related materials to and from states and non- state actors of proliferation concern.<sup>576</sup>
- 2) Adopt streamlined procedures for rapid exchange of relevant information concerning suspected proliferation activity.
- 3) Review and work to strengthen relevant national legal authorities where necessary to accomplish these objectives.
- 4) Take specific actions in support of interdiction efforts regarding cargoes of WMD, their delivery systems, or related materials, to the extent their national legal authorities permit.

The initiative was launched in the aftermath of So San incident. The case highlighted a gap in international law when it came to interdict and seize the shipment of WMD and WMD-related materials. A brief summary of the episode follows. US officials, who had reason to believe that a Cambodian unflagged merchant ship named So San was carrying WMD precursors from DPRK to Yemen (allegation which actually proved true), requested some Spanish authorities - operating nearby - to interdict the So San in the Arabian Sea (international waters). The suspect although well founded, did not *per se* represented a legal grounding for stopping and searching the vessel. It became immediately apparent to the international community, confronting that specific situation, that transshipment of WMD-related material for illicit purposes was not

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<sup>575</sup> <http://www.psi-online.info>

<sup>576</sup> Interdiction: PSI partners define interdiction broadly as any action based on sufficient information and consistent with national authorities and international legal frameworks that results in the denial, delay or disruption of a shipment of proliferation concern. To achieve that objective any appropriate level of national power may be employed including diplomatic (demarche) operational or military (hail and query to verify shipment, ship boarding) and/or law enforcement/customs (port inspections).

properly criminalized under international law and that only a very limited legal grounding existed in general for seizure of suspicious vessels. The authorities could eventually proceed (as they did) only because the ship incidentally was not displaying a flag – contravening indeed to the general Law of High Seas. The interdiction, and the subsequent search of the vessel, revealed that the boat was actually transporting Scud missiles, warheads, and missiles' components from North Korea to Yemen. The Spanish and United States authorities ultimately allowed the shipment to continue reportedly because of the value the US assigned to Yemen as a counterterrorist partner (and also because the country gave assurance that the missiles would have not been used for WMD purposes).<sup>577</sup> The case showed that international legal tools - from Maritime International Law to the Non-proliferation tripartite (NPT, BTWC; CWC)- did not provide, in cases like the one under scrutiny, functional and efficient response networks. On the one side, Maritime International Law (UNCLOS) does not pose WMD transfer's suspicion as a "special" condition not sufficient in itself to allow seizure in high seas (which is the case, for example, with suspicion of piracy or "stateless"). Also, even in the latter cases, where the situation allows/supports for lawfully boarding and searching a vessel – like the So San case – there is not always legal ground for prosecution as the vessel conduct may be illegal.

On the other side, the Non-Proliferation Treaties (NPT, CWC, BTWC) while not allowing for illicit transfer of nuclear, biological and chemical weapons, do not cover precursors when those materials also have legitimate use (most of the times) with important consequences (or in the case of the BTWC agents that are in type and quantity compatible with peaceful uses). In conclusion – barring the UN Resolutions, which explicit ban the transfer of such materials to certain states (e.g. North Korea) – seizure and prosecution of vessels rely on domestic law (criminal codes, penal laws, enforcement procedures). As far as the Security Council is concerned, although in theory capable of intervening in situations like the So San incident, past experiences have demonstrated the limited capacity of the UN Security Council – in practice - to meet the challenges posed by new threats to international security.

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<sup>577</sup> Belcher, "The Proliferation Security Initiative Lessons for Using Nonbinding Agreements," 3.



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In response to the So San case, as pointed out by Emma Belcher, the US administration, keen to fill the gap, could have implemented to very different measures: (1) a direct challenge to the system, by unilaterally interdicting suspected vessels in high seas (fostering a practice that could have become a new custom over time), or (2) to open and support a process of formal revision of the treaties (UNCLOS, NPT, BWC, CWC) – if not the drafting of a new one.<sup>578</sup> As made clear by the scholar, both option showed important limitations in terms of legitimacy/reputation (the first), and time consumption and little indication for success (the latter). Time was reasonably an important element in the decision-making of the US administration, especially in consideration of the post 9/11 international context, and consistently with the content of the 2002 US National Security Strategy supported by the President George W. Bush.

A third option was then elaborated: The Proliferation Security Initiative. the PSI was announced on 31 May 2003, just few months after the So San incident, during a speech in Poland, in advance of the G-8 summit.<sup>579</sup> US officials approached the United Kingdom and Australia first. Starting from the two most traditional allies, the US put together a group of like-minded states, that would have become the so-called PSI Core Group (France, Germany, Italy, Japan, the Netherlands, Poland, Portugal, and Spain). According to Belcher, the reasons why US officials left outside China and Russia - notwithstanding their importance within the non-proliferation discourse - was exactly the need to proceed quickly and avoid those state that would “stymie agreement or shirk their commitments.”

As of today (December 2017) the PSI boasted the participation of 105 states.<sup>580</sup> Onderco and Van Hoft have explained the different views vis a vis PSI participation on the basis of their positions on American hegemony and find that security interests are predominantly decisive among hegemonic and supporter states and nuclear capable

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<sup>578</sup> Under this perspective, it is worthwhile to point out that UNCLOS took decades to negotiate and the US has not yet ratified making the its credibility in proposing amendments to that framework very modest. Likewise, the NPT, BTWC and CWC have long revision process and basically no relevant change to their text has been introduced since their signatures.

<sup>579</sup> White House 2003 a in Davis p. 150

<sup>580</sup> <https://www.state.gov/t/isn/c27732.htm>

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states. Vice versa they argue that counter-hegemonic motivation are largely decisive among states that reject the PSI.<sup>581</sup>

What made the initiative peculiar, beyond its non-binding nature, is its technical drive. Bush's announcement only enounced the principles which should have informed the action (interdiction principle), without detailing the rules of the interdiction which were left to working-level officials. Even on the website the letter reads: "We look forward to working with all concerned states on measures they are able and willing to take in support of the PSI, as outlined in the following set of 'Interdiction Principles.'"<sup>582</sup>

If, on the one side, a non-legally binding agreement have consented to overcome many of the limits of a formal treaty (easier to negotiate, faster to implement, strong in its commitments), this has also raised the traditional concerns in terms of (1) Legitimacy; Some countries, including China, Indonesia, India and Malaysia, questioned the legality of the initiative and specifically the fact that it could have been easily used against the DRPK (Russia and China). (2) Actual compliance and effectiveness; because of the absence of binding commitments that could encourage free riding. Indeed, also analysts and scholars have initially casted doubts over the PSI because of its non-legally binding status. (3) Potential damaging effect on the traditional non-proliferation system made of almost universal binding treaties.

About 15 years after its birth and notwithstanding these potential shortcomings, the PSI is usually acknowledged as a relatively successful initiative.<sup>583</sup> In terms of the reasons for its success the following aspects are often mentioned: (1) The initiative has mobilized cooperative non-proliferation activities (e.g. the most publicized success of the BBC China), (2) led to international legal developments in the field of non-proliferation/anti-proliferation including the so called bilateral ship boarding agreements between the United States and open registry states,<sup>584</sup> the Res. 1540, the

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<sup>581</sup> Onderco and Hoofst, "Why Is the Proliferation Security Initiative a Problematic Solution?"

<sup>582</sup> <http://www.psi-online.info/Vertretung/psi/en/07-statement/Interdiction-Principes.html>

<sup>583</sup> The Proliferation Security Initiative: A Record of Success

<sup>584</sup> which include Bahamas, Belize, Croatia, Cyprus, Liberia, Malta, Mongolia, Marshalls Islands, Panama, Saint Vincent and the Grenadine. Although these agreements are not formally attached to the PSI, they are based on the PSI's principles. Together with the PSI on which they are built, these agreements represent a hybrid regime.

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SUA protocol 2005, the Beijing Convention and some UN Resolutions imparting Sanctions (to the DPRK and Iran), and (3) has been adopted to promote new non-proliferation initiatives (e.g. the GICNT in April 2010).

In terms of its structure and operational development, the PSI can be defined as a political commitment or a flexible agreement with no decision-making mechanism, no central body, and no secretariat. The Initiative avails itself of an Operational Expert Groups consisting of officials from certain participant states (twenty-one) with legal operational and intelligence background to clarify the procedures for carrying out the overarching policy (most of them were member of the Core Group).

Activities under the initiative include joint interdiction exercises, establishments of operational networks (point of contacts among relevant agencies) and identification/drafting of best practices. Joint exercise under the PSI have also been intended to have deterrent effect. Not surprisingly, the first one was designed to send a strong signal to the DPRK and was indeed performed off the coast of Australia.

Today reservations still persist on this specific institution: 1) “WMD-related materials” and the “actors of proliferation concern” were left unspecified. At first, it was decided that the PSI would have made reference to existing lists; MTCR, NSG, and the Australia Group as far as the materials supposedly covered by the statements were concerned. This would have reinforced, in the case of the Australia Group a complementary regime that, if on the one side is the only shared list covering biological agents, on the other side has been widely contested by NAM and still spark criticism in certain contexts (e.g. the BTWC Review Conferences). Discussion became particularly laborious and politically difficult when touched upon which states and non-state actors should be on the list of proliferation concern. In the end, the participants decided against identifying specific materials and actors, referring to them only in a generic sense. 2) Contrary to the initial perception, the initiative did not manage to change the law and existing tools (international and domestic).

3) Although Russia, has finally joined the PSI in May 2004, many other important states have not. These include China, Malaysia, Indonesia, and Egypt.

4) Finally, because of the absence of a governing body to coordinate activities and the lack of formal information sharing mechanisms, some analysts have challenged even

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its capacity to improve and boost communication and have criticised the initiative for its modest transparency.

United Nation Security Council Resolution 1540 (and 1673; 1801; 2055; 2118)<sup>585</sup>

It is now well documented in doctrine that the last two decades have witnessed the surge of non-proliferation binding and non-binding arrangements with a specific focus over non-state actors as potential proliferators. In this scenario, the role played by informal arrangements and networks have been described, in some cases (verification and enforcement), even more consequential than the one of binding norms.

Notwithstanding this crucial occurrence, legally binding international obligations still represent the cornerstone of the non-proliferation regime (even with regard to non-state actors) in that their scope is generally broader and they require states to immediately implement their provisions within their domestic legal orders (which might not be the case with soft-law) on pain of being in violation of international law. Nonetheless, “Modern” legally binding norms covering the proliferation of WMD however enjoy brand new features. Traditionally issued within International Conventions (Treaties), since 2004 legally binding norms have started taking shape in the framework of a Security Council law-making activity. It is in the aforementioned framework that the Resolution 1540 (2004) needs to be located.

The involvement of the Security Council in WMD-related issues has its first grounding in a statement issued by the President of the UN Security Council in 1992. The statement marked a turning point in the determination of the Council to address the topic of WMD non-proliferation.<sup>586</sup> In that occasion, the Council asserted for the first time that: “the proliferation of all weapons of mass destruction constitutes a threat to international peace and security” and that the Council members would have

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<sup>585</sup> Including a summary of the status of implementation of the biological component as of 9 December 2016 (Comprehensive Review 2016; <http://www.un.org/en/sc/1540/comprehensive-and-annual-reviews/2016-comprehensive-review>)

<sup>586</sup> As a matter of fact, before 1992 the Council had adopted some resolutions connected in some ways to the issue of non-proliferation, but without making the topic its central focus.

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worked “to prevent the spread of technology related to the research and production of such weapons and to take appropriate action to that end”.<sup>587</sup>

In the aftermath of 9/11, the fight against WMD non-proliferation became linked with the fight to another extraordinary threat to international peace and security, the one of international terrorism.<sup>588</sup> The nexus between international terrorism and WMD proliferation was established by Resolution 1373 (September 2001). Adopted unanimously on 12 September 2001, that was also the first time when the “Security Council acted as a legislator imposing on states obligations, unrelated to a specific context”.<sup>589</sup> After recognising the link between the two threats, the Council enlighten the need for a coordination of efforts “to strengthen a global response”. *Inter alia*, Resolution 1373 established a Counter Terrorism Committee.

Along these lines, the Security Council adopted Resolution 1540 in April 2004. Res. 1540 went a step further with respect to Res. 1373 in that it broadcasted a series of binding measures for UN member states to implement. Agreed under Chapter VII (Art. 41) of the UN Charter, the resolution imposes legally binding obligations on all states to adopt legislation to prevent the proliferation of nuclear, chemical, and biological (CBN) weapons and their means of delivery, to establish appropriate domestic controls over CBN and related materials, and to prevent their illicit trafficking.<sup>590</sup>

The Resolution is conceived to close some perceived-as-dangerous loopholes in the non-proliferation regime, especially those related to the potential for non-state actors to access Weapons of Mass Destruction (WMD). Indeed, although relevant provisions of the three framework conventions (NPT; BWC; CWC) already apply to non-state actors, in the aftermath of 9/11, the belief was that the domain needed to be reinforced through additional and more specific measures. Nonetheless, the link with the framework conventions is clear and safeguarded in the letter of the Resolution,

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<sup>587</sup> UNSC President of 31 January 1992 (S/23500),

<sup>588</sup> Resolution 1368, 12/09/2001 is the one acknowledging international terrorism as a threat to international peace and security

<sup>589</sup> Caracciolo, Pedrazzi, and Dachenhausen, *Nuclear Weapons*.

<sup>590</sup> Related materials are those materials, equipment and technology covered by relevant multilateral treaties and arrangements or included in national control lists, which could be used for the design, development, production or use of nuclear, chemical and biological weapons and their means of delivery (Dana Perkins, 1540 Committee Expert, Regional Workshop on National Implementation of the BTWC for Central America and the Caribbean, 13-14 November 2013 Mexico City, Mexico).

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which calls upon all states “to renew and fulfil their commitment to multilateral cooperation, in particular with the framework of the International Atomic Energy Agency, the Organization for the Prohibition of Chemical Weapons, and the Biological and Toxin Weapons Convention, as important means of pursuing and achieving their common objectives in the area of non-proliferation and promoting international cooperation for peaceful purposes.”<sup>591</sup>

The relevance and prominence of the above-mentioned treaties is reinforced by paragraph 8 of the Resolution, which recommends the universalization of those multilateral treaties whose aim is to prevent the proliferation of nuclear, chemical and biological weapons. It has to be noticed, however, that even if states had adopted legislation to implement all the above conventions, in many instances not all the obligations of the 1540 (especially in relation to OP par. 2 would have been satisfied). This is to say that the Resolution actually added to the existing regimes (both the non-proliferation and the counter-terrorism one assuming it exists). With regard to counter-terrorism instruments, for instance, previous tools usually display a requirement for which a “terrorist intent” is to be demonstrated for the tool to be applicable, whereas there is no such requirement under Resolution 1540. Furthermore, not all UN members (for whom the 1540 measures became legally binding) were in 2004 also part to the three non-proliferation framework conventions (which are treaty law and can’t be in full assimilated to international customary law).<sup>592</sup>

On their part, and making reference to the bio-domain, BWC State Parties have explicitly acknowledged the harmonising role the Resolution have with regards to the BTWC by noting that “information provided to the United Nations by States in accordance with Resolution 1540 may provide a useful resource for State Parties in fulfilling their obligation under this article [4] obligations.”<sup>593</sup> The statement officially

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<sup>591</sup> S/RES/1540(2004) p.4

<sup>592</sup> As of April 2016, almost all Member States have become parties to at least one international or multilateral instrument of particular relevance to resolution 1540 (this reflects an increase with respect to 2011)

<sup>593</sup> On its side, the 1540 Committee notes that State Parties to the biological and Toxin Weapons Convention are required to adopt prohibition with respect to non-state actors that overlap with a number of the obligation under Resolution 1540.

sanctioned the potential integrative and complementary nature of the two arrangements.

The *origin* of the 1540 Resolution lies in a joint US/UK effort to rise WMD related international standards and criminalize WMD proliferation in the wake of the 9/11. In September 2003, during the 58<sup>th</sup> General Session of the UN General Assembly, George W. Bush and, two days later, the British foreign secretary Jack Straw called for a new anti-proliferation resolution, which would have focussed on the upgrading/reinforcement of individual states sensitive materials' export controls to secure them within national borders.<sup>594</sup> In the following weeks, a draft text, sponsored by the two countries started circulating among the P-5.<sup>595</sup> The original text underwent several revisions which came along with consultations involving the broader membership of the UN. Although obtaining an unanimous vote of the Council, the adoption was accompanied by the expressions of concerns from a number of states. The concerns have been specifically expressed in consideration of the unprecedented legislative power that the Council was about to exercise, and what's more on a file, the regulation of strategic assets, traditionally left to the direct control of sovereign states. Specific arguments were also on the table, for instance China was especially determined to ensure that the Resolution would not become a justification for the Proliferation Security Initiative (which was indeed the intention of the US).<sup>596</sup> The Resolution's mandate was initially settled for 2 years, then extended for a two-years period (UNSC Res 1673, 2006), then for another three years in 2008 (UNSC Res 1810, 2008), and in April 2011, the unanimous decision was taken by the Security Council to extend the mandate for ten years (UNSC Res 1977, 2011). The Council also decided to take additional measures to strengthen the Resolution's mandate. Finally, Resolution 2118 (2013) mainly concerned with the use of chemical weapons in Syria stated that: "the Member States shall inform immediately the Security Council of any violation of Res. 1540."

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<sup>594</sup> Address by George W. Bush and speech by Jack Straw respectively delivered on 23 and 25 September, 2003; UN General Assembly (58<sup>th</sup> General Session); [www.un.org/webcast/ga/58/statements](http://www.un.org/webcast/ga/58/statements)

<sup>595</sup> Datan, "Security Council Resolution 1540: WMD and Non-State Trafficking"; Ogilvie-White, "UN Security Council Resolution 1540: Origins, Status, and Future Prospects."

<sup>596</sup> Ogilvie-White, "UN Security Council Resolution 1540: Origins, Status, and Future Prospects," 141.

The *scope* of the resolution is comprehensive. It is indeed the first legal instrument that covers all three major categories of WMD altogether (nuclear biological and chemical weapons), their means of delivery and their related material in an integrated manner and beyond geographical limitations.

The Resolution, which adopts a unified approach to nuclear, chemical, and biological weapons and related materials, requires state to criminalize the proliferation of WMD to non-state actors and to implement and enforce measures to prevent WMD terrorism (expressing a clear focus on the “horizontal” side of non-proliferation).

Paragraph 1 of the Resolution claims that all states must refrain from providing any form of support to non-state actors that attempt to develop, acquire manufacture, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery. The main requirements of the resolution are expressed in operative paragraphs 2, 3(a), 3(c) and (d) respectively:

Operative paragraph 2 **obliges states to adopt and enforce appropriate effective laws which prohibit any non-state actors to manufacture, acquire, possess, develop, transport transfer or use nuclear chemical or biological weapons their means of delivery**

Operative paragraph 3(a) and (b) **require states to develop and maintain appropriate effective measures to account and secure WMD items in production, use, storage or transport and to develop and maintain effective physical protection measures**

Operative paragraph 3 (c) and (d) **obligate states to develop and maintain appropriate effective border controls and law enforcement efforts to detect deter prevent and combat, including through international cooperation when necessary, the illicit trafficking and brokering in [WMD] and establish, develop, review and maintain appropriate effective national export control and trans-shipment controls over [WMD] items**

The resolution also provided for the establishment of a *Security Council 1540 Committee* to oversee the Resolution’s actual implementation. The Committee works as “subsidiary body” for of the Security Council and is composed of the fifteen current members of the Council (five permanent members plus ten non-permanent members.)<sup>597</sup> In 2009 the Committee established four Working Groups which

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<sup>597</sup> The Committee’s mandate has been renovated by Res 1673, 1801, 1977, 2055



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represent the four key areas of work for the Committee: (I) Monitoring and National Implementation; (II) Assistance; (III) Cooperation with International Organization, including the 1267<sup>598</sup> and 1373 Committees; (IV) Transparency and Media Outreach. Since 2011 (Res. 1977), the 1540 Committee is assisted by a small group of eight independent experts, increased to nine by Resolution 2055 (2012). The mandate and the scope of the 1540 Committee (and its experts') activities is the one established by UNSC 1540 and its follow-up Resolutions. The current 1540 Committee mandate ends in 2021. The Committee is tasked with the evaluation and completion of national reports and matrices so to assess overall progresses in the implementation of the Resolution. Although performing statistical analysis on the data acquired, the Committee does not exercise any action nor investigate and prosecute alleged violations of non-proliferation obligations.

Additional actions are performed by the remaining three working groups of the Committee and these include: a) awareness raising around the overall goals of the resolution through outreach and dialogue; b) cooperation with IOs; and c) assistance, including some work in the countries, if invited to do so. Visits can be used to discuss any matter related to the implementation of Resolution 1540, such as national efforts, assistance needs, reports, national action plans, effective practices etc.

One of the perceived-as-very useful role that the 1540 Committee undertakes - with the support of its group of experts - is the coordination and facilitation of technical assistance to member states aimed at building national capacity. Along these lines, the Committee also created a specific dataset that matches offers and requests of help through assistance templates, voluntary action plans, and country visits.

As far as the coordination role is concerned, the Committee engages and maintain communication flows with all the International Organizations (IOs) involved in implementation of actions relevant to the Resolution at the country level (IAEA; OPCW, ISU; WHO; WCO). The Resolution itself encourages the IOs to enhance cooperation and information sharing with the 1540 Committee at the technical level (including by designating points of contact or a coordinator for the implementation of

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<sup>598</sup> Security Council Resolution 1267 in 1999 placed sanctions on al-Qaeda and associated entities and individuals, the 1267 Committee monitor its implementation.

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the resolution).<sup>599</sup> Whether this communication be bilateral or unidirectional is not really clear. Technical experts from other Organizations have sometime lamented a not entirely balanced relationship with 1540 experts to the benefit of the latter.

Financial sustenance for the activities of the working groups come from governmental and non-governmental resources, including major assistance providers such as the European Union and the Group of Eight.

Activities related to the 1540 also receive financial support from the United Nations Trust Fund for Global and Regional Disarmament, which is funded through voluntary contribution from member states.

The 1540 National Implementation Reports of the Security Council Committee pursuant to Resolution 1540 offers an in-depth assessment of the degree of implementation and compliance states have been able to reach.

In line with 1540 Resolution's obligations, member states were supposed to report to the Security Council, no later than 6 months after the Resolution's adoption, about the steps they have taken or have planned to take to implement its provisions.

In basically all cases, after submitting their first National Report, states have been then encouraged to provide *additional information*, including voluntary documents, on effective practices. As of June 2017, 16 states have not yet reported to the Committee.

All the others UN members have submitted at least one National Report.

Since its adoption, specific Matrices have been developed to organize the information contained in the National Reports about UNSC 1540 implementation.

A Matrix for each member state has been prepared by the Group of Experts (even for the 16 non-reporting states). Indeed, Matrices are drafted merging information included in the National Reports (as the primary source), the additional information shared by states complemented by official governmental information, plus potential evidences made available by International Organizations (UN Agencies and similar). When National Reports do not contain all the necessary information about relevant existing and adopted measures, experts need to find the information by themselves and add it into the matrix (e.g. a legislative act introducing a measure required by the

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<sup>599</sup> Genneday Lutay, 5-7 September 2016, Wuxi China

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Resolution). Consistently, the Experts have compiled the matrices also for the remaining 16 non-reporting states. When draft matrices are ready, the Committee approved them and send them back to the corresponding state for review, feedback and approval. After that, the matrices are published on line. Matrices are updated for each Resolution Comprehensive Review.<sup>600</sup> Comprehensive Reviews usually take every five years, and prior to the renewal of the Resolution's mandate.<sup>601</sup> At least 1 year and 6 months is on average needed to revise 193 matrices. The original idea was to have updated matrices every 3 years but some discussion is taking the floor that they should be done in batches.<sup>602</sup> The last update of the Matrices took place in 2013 and was concluded before 2015 for the Comprehensive Review of 2016. Next revision of matrices should be completed in March 2020 for the Comprehensive Review scheduled in 2021. On the open-to-public website, former matrices are constantly substituted by the latest versions and raw data for analysis belong to the Committee and cannot be shared with general public nor with scholars for research purposes.<sup>603</sup> This aspect become problematic for those who want to perform any time dependant analysis of the Resolution's implementation (in the sense that the previous benchmark is each time cleaned off).

In parallel with the update of the content of the matrices, in 2013, the Matrix template has also been updated. It now has a reduced number of pages and reflects the structure of the Resolution rather than an alphabetical order. Some explanatory notes have been added to certain fields to assists States in completing the corresponding sections, just in case they would decide to use the matrix directly as a reporting tool. Matrices were originally conceived as a tool of the Committee and its Group of Experts

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<sup>600</sup> By paragraph 3 of resolution 1977 (2011), the Security Council decided that the Committee would conduct a comprehensive review on the status of implementation of resolution 1540 (2004), both after five years and prior to the renewal of its mandate, including, if necessary, recommendations on adjustments to the mandate, and would submit to the Security Council a report on the conclusions of those reviews, and decided that the first review should be held before December 2016.

<sup>601</sup> "The Security Council [...] decides that the 1540 Committee will conduct a comprehensive review on the status of implementation of resolution 1540 (2004), both after five years and prior to the renewal of its mandate, including, if necessary, recommendations on adjustments to the mandate, and will submit to the Security Council a report on the conclusions of those reviews, and decides that, accordingly, the first review should be held before December 2016" (Operative Paragraph, Security Council Resolution 1977)

<sup>602</sup> Author's discussion with Dana Perkins, former 1540 Expert for 2012-2015.

<sup>603</sup> Author's exchange of e-mail with Gennady Lutay (June 2017)

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and states were not required to use that template, although many of them find it useful to enter information directly into them, basically transforming the Matrices into their returns tool, assuming that they provide the information requested by the Committee.

Although it was made clear, in the 1540 website and elsewhere, that the Matrices are not a tool of compliance, many relevant information concerning states' WMD proliferation profiles are there. Specifically, as far as biological agents' legislation and management, a great deal of details otherwise not accessible or very hard to find are conveyed through the Matrices.

The analysis that follows builds on the information included in the December 2016 Comprehensive Review Report integrated with the two previous reports made available and covered by Olgive-White in her chapter "UN Security Council Resolution 1540: Origin, Status, and Future Prospects."<sup>604</sup>

Concerning the status of implementation of the Resolution 1540, the most recent report (as of this writing), was published on the 1540 Committee website in December 2016. It reveals that, although progress has been made, there remains more to be done to accomplish the objective of full implementation of the Resolution.

The Security Council recognized in his resolution 1540 that some states may require assistance in its implementation and invited states in a position to do so to offer assistance in response to requests by States lacking the legal and regulatory infrastructure implementation expertise and or resources to fulfil the provision of the resolution. Since 2011, additional 15 states have requested assistance. The Committee has noticed that fulfilling its matchmaking role in a comprehensive and timely manner is one of its most challenging functions. International Organizations have been the main respondents to these requests (among the 16 IO registered as assistance providers, 8 have officially responded to specific requests. Notwithstanding its mandate being restricted to matchmaking and lack of resources, the Committee and its experts have been able to directly respond to some assistance requests.

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<sup>604</sup> Knopf, *International Cooperation on WMD Nonproliferation*, 140–62.

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Finally, by Resolution 1540 the Security Council calls upon all states to renew and fulfil their commitment to multilateral cooperation in particular within the framework of IAEA, the OPCW and the BTWC. During the period under review, The Committee and its group of experts participated in 343 outreach events. About 49% of the events were organized, co-organized by, or involved International Organizations. An increased number of visits and consultations have been supported to enhance dialogue and information sharing.

As anticipated, Resolution 1977 expanded the Committee mandate and took further measures to reinforce it. In paragraph 8 of the Resolution, the Council encouraged all states to prepare on a voluntary basis, National Implementation Action Plans with the assistance of the Committee as appropriate. The idea was to make possible for the countries to express out their priorities and plans for implanting the key provisions of resolution 1540. As of December 2017, 24 countries had submitted their National Action Plans.

In paragraph 11 of the same Resolution (1977) the Council encouraged the Committee to engage in dialogue with states on the implementation of Resolution 1540, upon countries' invitation. Since the first visit took place in 2011 (in the United States), the number of visits has shown a noteworthy increase, up to 21 missions performed. Review of implementation's data indicates that there would be a positive correlation between States' participation to events related to Resolution 1540 and their implementation of the Resolution itself.<sup>605</sup>

In Paragraph 12, the Security Council requested the Committee (with the support of its Group of Experts) to identify effective practices, templates and guidance with a view to develop a compilation and a technical reference guide about Res. 1540 to be used by states on a voluntary basis to get to implementing the Resolution. In this framework, the Chair of the Committee requested member states and relevant International Organizations, by a letter, to provide information on its effective experience, lessons learnt and practice in the areas covered by Res 1540. Various feedback has been gathered from UN member states (Australia and Germany, Colombia, Croatia and Poland, Iraq, UAE, UK, US, ASEAN etc..).

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<sup>605</sup> 1540 2016 Comprehensive Review Document

### The International Health Regulations

The first serious international cooperation effort on cross-border infectious diseases originated in the mid-nineteenth century. What moved states in that direction was the growing awareness the international spread of diseases could no longer be addressed efficiently by individual national strategies. The collaboration advanced under the aegis of a series of meetings known as “International Sanitary Conferences”. The complex of norms which originated from the consultations has been referred to as the “classical regime.”<sup>606</sup> That first health-related international legal regime encompassed two obligations for state parties: (1) notification (states should have notified to the others in case outbreaks of *specific* diseases should occur in their territories - only certain diseases would have required states to notify the others; and (2) safeguard international trade, by allowing –in the framework of those specific disease outbreaks - restrictive measures only if based on scientific evidence and health principles. The regime was conceived to minimize public health interference with international trade. With very little modification, the “classical regime” remained basically untouched in its substantive objectives until the World Health Organization (WHO) came into existence. The first International Sanitary Conference was held in Paris in 1851. It was the result of the First International Sanitary Convention and addressed Cholera. The Convention was ratified and came into force in Venice 1892. Two additional Conferences (and their related Conventions) followed in 1893 (Dresden), and 1894 (Paris), both addressing again Cholera. An additional convention was adopted in 1897 (Venice), its focus was on Plague.<sup>607</sup> Cholera, Plague and Yellow Fever were considered the regime’s “big three”. Interestingly enough, none of them was endemic in Europe and North America (vice versa those diseases that actually were endemic there – Typhus and Smallpox - were not addressed by the list until 1926), betraying a view that aimed at lessening the burden on developed nations with

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<sup>606</sup> Fidler, “Emerging Trends in International Law Concerning Global Infectious Disease Control.”

<sup>607</sup> Origin and development of health cooperation, WHO  
[http://www.who.int/global\\_health\\_histories/background/en/](http://www.who.int/global_health_histories/background/en/)

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regards to imports from developing ones.<sup>608</sup> In 1903 the 4 Conventions were reunited under a single treaty and gained a permanent body which could function as a secretariat/committee. Made of Public Health Officials from member states, the body was named “Office International d’Hygiène Publique” (OIHP). After the ending of the First World War, the Office remained outside the League of Nations which par contre, created its own specialized agency: the “Health Organization of the League of Nations.”<sup>609</sup>

Between 1890 and 1945, the world witnessed a proliferation of treaties on infectious diseases under the umbrella established by the Sanitary Conventions.

After the Second World War, the new-born World Health Organization, adopted the International Sanitary Regulations (ISR) which replaced 12 pre-existing international agreements and was settled to cover six diseases (Plague, Cholera, Yellow Fever, Smallpox, Typhus, Relapsing Fever)<sup>610</sup>. The ISR showed at least two substantial improvements with respect to previous Conventions which both contributed to the expansion and consolidation of the regime. First of all, the WHO had the authority – provided by its Constitution – to adopt regulations that would have become (and de facto did become) binding on all parties, unless they would expressly reject them.<sup>611</sup> This “opt-out” approach was in direct contrast with respect to the traditional “opt-in” strategy of international treaties which had applied to the previously signed Sanitary Conventions. Second (and pouring from the first point), by collating all the provisions dispersed in the existing agreements, the ISR was able to better harmonize international behaviours and (most importantly) expectations. Notwithstanding great hopes, the period between 1951 and 1981 was characterized by 3 major drives, which contributed to the marginalization of the “classical regimes”. (1) The World Health Organization matured as an autonomous organization which could hardly remain the mere reproduction of the most powerful countries’ interests (because they de facto represented a minority of its membership) as it has been the case in the early years.

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<sup>608</sup> Fidler, “From International Sanitary Conventions to Global Health Security,” 331.

<sup>609</sup> The US, which were a member of the OHIP but not of the League, vetoed the fusion.

<sup>610</sup> International Sanitary Regulations, adopted by the World Health Assembly on 22 May, 1955; Part V “Special Provisions relating to each of the quarantinable diseases”

<sup>611</sup> WHO Constitution, Art.21(a)

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On the contrary, the Agency started to voice the interests of developing countries in the Global South (combating infectious disease at their local sources) instead of safeguarding the only needs of developed one (balancing health and economic interests). (2) Second, technological innovations (sanitation devices and clean water systems) and scientific discoveries (including the development of vaccines) downsized the prominence of infectious disease as a common concern vis-à-vis nationally-based demands. As a consequence countries' priorities started diverging even more: "Health for all", in the case of developing countries, and medical innovation technologies (including safeguard of property rights linked to) by developed nations. With such issues gaining center stage, it also soon became clear that the Organization did not have per se the resources to support neither one nor the other objective. (3) Third, International Law was growing explosively inevitably intersecting with the Health/Sanitary Regulations. Human Right Law (with the "right to health"), Environmental Law (Stockholm Convention), Trade Law (GATT) and Non-proliferation law (the BTWC) helped generating viable alternatives to the norms and rules in the ISR.

In 1969 the World Health Assembly (WHA) revised the ISR and turned its name in International Health Regulations, IHR (1969). The Assembly did not bring about any substantial change to the Regulations' normative content. In 1981 instead, the WHA amended the IHR (1969) to remove smallpox from the list of diseases subject to the Regulations. As it is known, smallpox is an agent of major concern in the field of biosecurity. It is not by coincidence that, after its official eradication, the 2 "surviving" strains of smallpox were placed in two laboratories respectively in the US and Soviet Union for custody. At that point in time, there were serious doubts that a health-regime of some sort was still in existence and the reported compliance registered with regards to its requirement was extremely low.<sup>612</sup> The crisis was bound to become even more intense in the incoming two decades. Notwithstanding the fact that the IHR had little or any applicability to most emerging (and re-emerging) infectious diseases (like HIV, Tuberculosis and Malaria), the World Health Assembly proved not able to add

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<sup>612</sup> Velimirovic, "Do We Still Need the International Health Regulations," in Fidler, *From International Sanitary Conventions*.



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any to its list. As well, WHO contribution to the new born BTWC, was also limited. In the mid-90s, none of the existing tools dealing with biological agents and diseases (IHR, CBD, and the BTWC) provided any coverage in the field of: (1) Active international surveillance of infectious disease outbreaks (beyond notification); (2) Response to international outbreaks; (3) Non-state actors' perspective deployment of biological agents.

In 1995, after the major travel disruption which followed the outbreak of Plague in Surat (1994) and the poor performance of WHO first global coordinated response to an Ebola outbreak in Kikwit (1995), the World Health Assembly instructed the WHO Director-General to begin a process of revision and update of the International Health Regulations (1969) in order to address its main deficiencies (narrow scope, scarce compliance, and little capacity to adapt to changing priorities, and zero operative might).

The revision resulted in a first "Provisional Draft" issued in 1998. If on the one side, the document maintained the same focus on the objective of "ensuring the maximum security against the international spread of diseases with a minimum interference with world traffic", on the other hand, it introduced some relevant changes with respect to the previous arrangement. The 1998 draft (1) increased the number of diseases potentially falling under the rubric of the Regulation – shifting from specific diseases to syndromes judged as having an urgent public health importance. Because a syndrome could have multiple aetiology, by this new formulation, the Regulations would have applied to a wider array of known and unknown infectious disease threats. (2) In order to tackle the modest participation, in terms of notification rates of member states, the draft also allowed the Agency to use information derived from sources other than the official communication by the country of suspected outbreak (even including non-governmental sources). Under 1969 IHR, the WHO could have only acted based on surveillance information that were provided by the government of the state in question, and refrain from any action otherwise. (3) Finally, the draft envisaged a more proactive role for the Agency which would have been charged with the responsibility of drafting and delivering health-relevant recommendations to member states (e.g. about surveillance and response standards). As we have anticipated in the previous chapter – it is in this framework that the Global Alert and

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Response Network (GOARN) saw the light. First established in 1997, it became formalized as a “network” in 2000 and was linked to the creation – in 2001 – of the WHO’s Office for National Epidemic Preparedness and Response. GOARN has represented a significant step towards a positive/active health governance and a central asset in the WHO new strategy of “pursuing global health security.” GOARN is a surveillance tool with a broad scope - which encompasses not only naturally occurring infectious diseases but also “intentionally caused outbreaks” – in other words biowarfare, bioterrorism, and biocrimes if (and only if) they are deemed to have public health consequences. Pending the 1998 draft for a new IHR treaty, a series of events highlighted the need to speed the process (mainly the SARS outbreak in 2003). In 2004 – following a series of consultations, the WHO issued a revised proposed text for submission to a first round of international negotiations (November 2004). Before the final text was approved and adopted during the 58<sup>th</sup> WHA General Assembly, a second round of negotiation took place in February 2005. The new IHR (2005) contains at least 4 major substantive changes with respect to the prior regime.

(1) The IHR 2005 Revision brought about a dramatic expansion of the scope of the Regulations. The new IHR applies to Public Health Threats (Public Health Emergencies of International Concern) notwithstanding their origin (communicable or not; of any source (natural, accidentally or intentionally caused) as long as these can be classified as Public Health Emergencies, an algorithm for decision making is attached to the Resolution). With regard to the expansion of the scope, one of the most delicate involved in the discussion was the potential application of the Regulations’ provisions to WMD-related emergencies because of its political salience. In fact, the language of the Regulations has been depurated by any specific reference to Weapons of Mass Destruction. An example is the removal from the final version of the document of a draft article - which was directly addressing the issue of “information-sharing” in cases of suspect use of a biological (or other WMD) agent. In the main, the Regulations deal the matter of public health impact of CBRN malicious uses awkwardly with many aspects left undefined intruding important consequences at the practical level (information sharing, response to events of unknown origin, public health vs. security investigations, etc.)

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(2) The new Regulations (2005) also demands a major commitment from member states insofar it incorporates broader “human rights principles”, makes notification more probable, and envisages higher level of members’ participations in terms of capacity assessment, surveillance, preparedness and response (including increasing national standards (if deemed necessary). Consistently, the new IHR imposes limits on the number and quality of reservations that members can introduce.

(3) On its part, the IHR (2005) definitively assigns WHO the capacity of gathering information not only from official governmental sources but potentially from any reliable channel would be detected. This implies a substantial burden in terms of vigilance and validation of the information received.

Under this perspective, the heightened authorities and responsibilities have created the need for the creation of new WHO institutional bodies or reorganization of existing ones (e.g. the Emergency Departments – which went a second profound restructuration after Ebola (2014)).

(4) Until 2005 the health regime reflected a classical use of international treaty law that oriented at solving contingent issues which negatively affected the relationship between states (spread of diseases across borders). The new Regulations (2005) instead, departs from a different standpoint which aims at involving multiple actors, threats and policy objectives in a governance effort closer to the one which characterize constitutional law (versus IL).

If on the one side the IHR represents an improved version of previous attempt to govern the subject, on the other side it must be recognised that the Revision has also raised a series of issues connected to the sovereignty of parties, consistency with other treaties (environment, trade etc.) and regimes, and to the possible operational involvement of WHO in situations (security-related) the might compromise the Agency’s political neutrality.

The Regulations is to all intents and purposes an international treaty and compliance with its provisions mandatory.

As anticipated above, WHO members are requested (art. 5) to “develop certain minimum core public health capacities” which include: (1) detection, assessment, notification and reporting of events (2) surveillance and response (annex 1A); (3) introduction of requirements for designated airports, ports and ground crossings

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(annex 1B). The same article 5 together with art. 54 and WHA Resolution 61.2, require states to provide WHO with self-compiled “State Party Annual Reporting” (SPARs) named National Reports (for the biennium 2009-2010) and National Questionnaires (between 2010 and 2016). These self-assessment instruments of compliance are published on the WHO website – “Global Health Observatory (GHO)”. However, in 2012 the WHA Assembly went further (WHA 65.23) by urging State Parties to take the necessary steps to prepare and carry out appropriate national implementation plans in order to ensure the required strengthening, developing and/or maintenance of the core public health capacities as provided for in the IHR. The IHR Review Committee also suggested that the Secretariat should have developed options to move from an exclusive self-evaluation approach to an “external evaluation” model that combines self-evaluation, peer-review and voluntary external evaluations involving a combination of domestic and independent experts (WHA 68.5). In 2015 a tool was developed with this scope: The Joint External Evaluation Mechanism (which has been assigned a Secretariat (the JEE)). The JEE and related activities are currently performed under the WHE/CPI – “Core Capacity Monitoring and Evaluation” branch of WHO (and often jointly with the Global Health Security Initiative). The JEE tool combines the GHSA Action packages and IHR capacities.<sup>613</sup> The JEE Process includes: 1. Country request; 2. Self-assessment; 3. Five-days mission with plenary sessions (all relevant ministries sit in); 4. Report finalization (review by all team members and approval by host country). Compliance with such instruments will be better addressed in the following chapter

ENMOD Convention, CBD, and Cartagena Protocol

In the previous chapter, I have offered a theoretical background to the claims about environmental impacts on security. This paragraph aims at providing some basic information concerning the current institutional framework existing for the management of environmental assets relevant in the study of biological weapons and agents.

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<sup>613</sup> JEE core capacities are organized in terms of “prevent”; “detect”; “respond”; “other IHR-related hazards and PoE”

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The UN charter does not specifically mention the environment, however under Article 39, chapter VII of the UN Charter, the Security Council can take decisions on any conflict (including of the ones that might have an environmental cause) which represents a threat to peace and security. In principle, the UN Secretary General (UNSGM) could also bring to the Council's attention any matter (also environment related) which he/she believes to constitute a threat to peace and security. Theoretically the threat of force - authorized by the Security Council (or performed on a unilateral basis) can be activated against environmental threats (as a legitimate component of the *jus ad bellum*) or to compel compliance with international environmental agreements on the grounds of "self-defence". Under this perspective, however, precedents are small (e.g.: The Security Council Resolution 687 confirmed that Iraq was liable from any loss and depletion of natural resources following the invasion of Kuwait; The Council was also involved in a debate on climate change upon British Government request, but the action was not consequential since countries from the G77 and NAM representatives thought that the UNSC was not the appropriate forum where for such a debate).

As anticipated in the previous chapter, the first category of responses which builds on a connection between environment and security is the one aimed at limiting environmental damage during conflict. The 1977 Protocol I to the 1949 Geneva Conventions, which relates to the protection of the victims of armed conflict, also requires combatants to limit environmental destruction (art 35 and art 55)<sup>614</sup> and prohibits attacks to environment as a mean of reprisal. The Rome Statute of the International Court, which entered into force in 2002 include in its definition of war crimes those attacks that will cause "long-term and severe damage to the natural environment which would clearly be excessive to the military advantage anticipated."<sup>615</sup> Although expressed in relative terms, the statement admits the

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<sup>614</sup> Art 35 prohibits methods of warfare that are intended to cause – or could be expected to cause widespread, long-term and severe damage to the natural environment. Article 55 links this to issue of health and survival.

<sup>615</sup> Rome Statute – article 882)(b)(iv)

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possibility that in specific circumstances environmental modifications can be judged as war crimes.<sup>616</sup>

On 5 October 1978, the Convention on The Prohibition of Military and Any Other Hostile Use of Environmental Modification Techniques (known as ENMOD Convention) entered into force, two years after its text was adopted by Resolution 31/72 of the United Nation General Assembly. The Convention really represents a bridging tool between environment and security. Not for nothing the proposal was originally made to the UNGA (and only later on discussed with the CCD) and – in departure from past practices about arms control treaties – the UN Secretary General was nominated as the depository for the Convention (and not the main military powers sponsoring the initiative).

The Conventions consists of 10 articles and an Annex concerning the Consultative Committee of Experts. Article I contains a disarmament clause – in the sense that it prevents State Parties from engaging “military or any other hostile use of environmental modification techniques (EMT) having widespread, long-lasting and severe effects as the means of destruction, damage or injury of any other State Party”. The Convention was the result of Soviet proposal. In late August 1974, the Soviet Foreign Minister Gromyko urged prompted action in order to outlaw the influencing of environment for military purposes in a letter to the UN Secretary General Waldheim<sup>617</sup> and shortly after introduced before the General assembly a treaty text. As it has been the case with the Biological and Toxin Weapons Convention the initiative came as a surprise to the US – especially because US President Nixon had started to discuss the problem with Brezhnev *bilaterally* in the summer of July '74, probably hoping to deal with it without the involvement of the overall UN Assembly. It is possible that by acting this way, the Soviet Politburo simply just wanted to maintain a proactive role in the disarmament fora and by putting it on the table, served the annual need for a dramatic initiative in front of the General Assembly. A second potential explanation given to justify the Soviet proposal, is the one according to which the Soviet wanted

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<sup>616</sup> This was not the case with 1977 Protocol Formulation according to which environmental modifications were not included in the list of “grave breaches” of either the Protocol or the Geneva Conventions and for this reason could not be in any case classified as war crimes.

<sup>617</sup> Lawrence Juda: “negotiating a treaty 977

to embarrass the US over its protracted behaviour in Indochina. Finally, the Soviet Union might have merely been disappointed with the waning bilateral negotiations with the US. These had started a couple of years before, when the US Senator Claiborne Pell was able to broadcast a controversial and contested resolution calling upon the US government exactly to negotiate a convention prohibiting the use of environmental or geophysical modification activities as weapons of war.

In fact, during the Vietnam war, environmental modification had become a reality. When reports about the ongoing attempts to use and improve on EMT techniques became public, they prompted strong reaction including the one championed by Senator Pell.

After receiving the Soviet proposal, the General Assembly decided that the subject deserved more attention,<sup>618</sup> nonetheless it decided to turn it over to the Conference of the Committee on Disarmament (CCD). The US and the Soviet Union proved able to come to terms with one another on the an ENMOD treaty text rapidly (notwithstanding the initial reservations of American officials, especially concerning the formulation of the letter “peacefully oriented research”). On the contrary, the other members of the CCD showed less enthusiastic and voiced several criticisms to the text including: (1) the limited nature of the prohibition implied in the threshold stipulation of article I;<sup>619</sup>(2) the absence of a provision for a review conference; (3) the nature of the complaint machinery centred in the UNSC; (4) the apparent and perceived-as-sneaky way through which the superpowers seemed to control the debate over international armament and disarmament. Despite the opposition and the reservations to the text, it became clear, during the negotiation process that the US would have not changed its position over the threshold stipulation included in article I.<sup>620</sup> Once again, for many members from the CCD the choice was to accept a

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<sup>618</sup> Note that the US abstained

<sup>619</sup> The use of the modifying phrase in article I, “widespread, long-lasting or severe effects” and the employment of the term “hostile use” came under strong attack in the CCD and in the United Nation General Assembly on the grounds that it undercut the ostensible purpose of the convention and introduce a significant degree of indeterminacy in the provision. In other words what exactly would be prohibited were the treaty adopted? How is “hostile” intended to be established?

<sup>620</sup> In the US view, the “threshold” proposition was necessary both to prevent complaints of trivial nature from being made which could not be subject to verification, and to accommodate various bureaucratic differences (on the topic) existing within the US Government itself, the Department of Defence, and the Arms Control and Disarmament agency

treaty whose text exposed serious limitations in terms of its perspective performance or to inaugurate a new negotiation process – which would have been devoted to removing the threshold provision probably at the cost of losing the US participation. Most states choose the first alternative and, in November 1976, several states cosponsored a draft Resolution in the first Committee which, if adopted, would have returned the ENMOD Convention to the CCD for eventual modification. If they could not achieve anything over the threshold principle, developing countries were, however, able to score few points. What developing countries could obtain (in line with article X of the BWC) was the specification that the ENOMD activities for peaceful purposes should continued even supported by a vague provision calling for “the fullest possible exchange” of scientific and technical information on peaceful environmental modification. Secondly, the demand for including review conferences was satisfied by the final wording of Article VIII where it is stated that “a review conference was to meet five years after the entry into force of the Convention.” Another area of confrontation, where developing countries were able to get some points, was the one regarding the complaint machinery (article V), which was of Soviet particular interest. The Soviet view was that the Council should be the sole responsible for examining alleged treaty violations insofar the establishment of an additional/intermediary body would have produced legal and political complications. Finally, as it was approved by the CCD and the United Nations General Assembly, article V and the annex appear a compromise in the sense the Convention’s letter authorizes the UNSG, upon the request of any state party, to convene a fact-finding consultative committee of experts (which was going to be chaired by the Secretary General or his representative - without any power to adopt any decision on the substance of the problem). States’ right to lodge an immediate complaint to the Security Council was preserved. Judging the effects of this convention in halting environment warfare or its role in limiting security-related environment degradation is hard. Because of the Convention’s wording, the injunction is in fact only a limited prohibition.<sup>621</sup> However, the principle

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<sup>621</sup> (especially because the introduction of the threshold clause) according to some scholarship there is some validity in the argument that says the Convention even supports the legitimacy of ENMOD warfare below the threshold)



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broadcasted by the Convention surely benefited from the expansion of international law as well it did the one banning biological weapons use and development – being biological agents’ potential key tools in conduction EM warfare.

Another important link between the environmental regime (strictly taken) and the BW non-proliferation one was developed in connection with article III and article X of the BTWC. The provisions respectively prohibit the transfer of any agents, toxins or weapons covered by article I of the Convention (article III), and establish the right of all state parties to benefit from the peaceful use of biological agent and toxin agents’ development including the fullest possible exchange of equipment, materials, and scientific and technological information (article X).

Central to these provisions are the Intellectual Property Regime (with specific reference to the TRIPS agreement) and the Convention on Biological Diversity.

As already anticipated in the specific paragraph, the importance of Article X was brought out quite cogently during the BTWC Third Review Conference whose final declaration included the need to reinforce and promote promotion technology transfer in emerging fields of biotechnology such as genetic engineering as an important purpose of art X. The fourth Review Conference strengthened this mandate by specifically noting that the need was there to promote scientific and technological transfer with two objectives: (1) to promote, on the one hand, international cooperation in peaceful activities (medicine, public health, and agriculture) and (2) enhance the exchange of scientific and technical information in the biological science. If there was substantial agreement of the first dimension (the one linked to the promotion of scientific and tech development in terms of international cooperation), the sharing of sensitive information (many of which developed from within the private sector or defence) was and still is extremely problematic especially in consideration of the global patent and trade regime as it was formalized at the conclusion of the Uruguay Round Negotiations in 1992 (GATT and TRIPS). The changes that the Uruguay negotiations introduced in the patent regime were bound to have several cross sectoral implications, including the implementation of article X in two ways: (1) the new patent system had been expanded to include biotechnological inventions; (2) and had given substance to the argument that inadequate standards of IP protection

would have encouraged unauthorized use of technologies, counterfeit and pirate goods making explicit the need for increased control to the owners of technology, as an effective solution to these problems. In other words, the transfer of biotechnology between advanced developed countries and developing would result downsized by the new patent regime (in contrast with BTWC art. X proscription). What is more, according to article 27.3 of the TRIPS agreement microorganisms were acknowledged as patentable (in line with historical US Supreme Court decision on *Diamond v. Chakrabarty* in 1980.)<sup>622</sup> Extending patenting provisions to living things, brought to the floor a series of issues: the final scope of patent expansion, the definition of microorganism under the patent regime, how to safeguard the dissemination of biotechnology capacity. The latter depends on the nature of control that the owner of technology can exercise in the market as they strengthen their IPR. In order to facilitate technology transfer, pre-GATT system included provisions for “working the patent” in the country of grant and later on of “compulsory working provisions”. An additional evolution of such an approach is represented by the Paris Convention acknowledged that a patent law should not only protect the patent holder but also ensure that that society at large could benefit from the invention if the patent holder is unable (or unwilling) to exploit it commercially. To ensure the “working” of a patent, the Convention introduced the mechanism of compulsory licensing. In contrast with these attempts, elaborated to ensure that dissemination of technology took place, the TRIPS agreement abandoned the requirements linked to working the patent almost completely (by defining a series of exceptions) and envisaged a substantial dilution of the compulsory licensing provisions.

In summary, the Agreement on TRIPs had introduced many changes in the global patent regime, all going in the direction of a restriction of the scope of Article X of the BTWC in the sense that were undermining the ability of developing countries to gain access to new technologies. The problem became even more compelling because of the growing dominance of the private sector in biotechnology which is likely to make

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<sup>622</sup> The Supreme Court ruled (very narrowly 5 to 4) that a patent could be obtained for a laboratory created genetically engineered bacterium. Prior to this decision, all that could have been obtained was a patent for the process that used the microorganism, but not for the organism itself – the established norm at that time was that life was not patentable.

the IPR regime all the more strict and compelling – much against the spirit of the BTWC.

Contrary to the GATT, the Convention on Biological Diversity (CBD) implied some degree of support for developing biological sciences and technology in low- income countries (especially article 16). In fact, the Convention represented a dramatic step towards (1) the fair and equitable sharing of benefits arising from the use of genetic resources; (2) conservation of biological diversity; (3) the sustainable use of its components. The CBD was the product of the work of an Ad Hoc Working Group on Biological Diversity which the UNEP established in May 1988. The Convention was opened for signature in 1992 at the Rio Earth Summit and, by June 1993, had already received 168 signatures. The CBD addresses the issue of access to and transfer of biotechnology resources with a specific attention to developing countries based on the principle that they are the main suppliers. In essence, article 15 provides that states have sovereign rights over their natural resources and the authority to determine access to them. Paragraph 6 of article 15 introduces a binding commitment for parties to undertake collaborative research ventures in the area of biotechnology so that to ensure that developing countries can become able to participate in the process of technology generation when such technologies utilize their genetic resources. Art 19 goes on even further since it does not only specify the requirements for the handling of biotechnology and the distribution of its benefits, but it also emphasizes that the implied research centres should be established in the developing countries from where the genetic resource come from. The same article at paragraph 2 clearly provides for equitable sharing of benefits arising out of the use of biotechnologies between the country which provides for the technology and the one that make the genetic material available insofar recognising the economic value of the genetic resources held by countries.<sup>623</sup>

Article 16 requires state parties to “provide and /or facilitate transfer to contracting parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant

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<sup>623</sup> For an evolution of the principle see U.N. Biodiversity Summit Yields Welcome and Unexpected Progress, News of the week, 5 November 2010, Vol 339 Science.

damage to the environment.” The article also requires that developing countries have access to such technologies on “fair and most favourable terms.” In fact, article 16 of the CBD addresses the issue of technology transfer quite comprehensively and, theoretically, in favour of low-income participants. Under this perspective, its content seems to well complement the letter of the BTWC article X. However, the second paragraph of article 16 makes clear that, in situations where a clear conflict between the CBD and the TRIP Agreement should arise, priority must be assigned to the TRIP Agreement since “in the case of technology subject to patents and other intellectual property rights, such access and transfer shall be provided on terms which recognize the and are consistent with the adequate and effective protection of intellectual property rights.” Furthermore, it is reasonable to think that countries would behave accordingly since if they do not comply with their obligations under the TRIPs Agreement will face trade sanctions authorized by the WTO.

If the CBD does not apply to Living Modified Organisms, the Cartagena Protocol on Biosafety to the Convention on Biological Diversity does. Pursuant to Article 19.3 of the Convention on Biological Diversity, the Conference of the Parties convened an Open-ended Working Group to develop a draft protocol on biosafety which would have sought to protect biological diversity by a specific risk: the one posed by genetically modified microorganisms. The discussion of the Group revolved around 6 meetings between July 1966 and February 1999, produced a draft text which did not have an easy life. Some countries were of the opinion, and rightly so, that Biotechnology was going to become the technology of the future and thought that overregulating it would have endangered competitiveness in the world market to their disadvantage (Miami Group and the Biotechnology Industry Organization). The required number of 50 instruments of ratification was, by the way, reached in 2003 and the protocol entered into force on September of the same year. The Biosafety Protocol specifically focuses on transboundary transfers, transit, handling, and use of LMOs and other products from new technology in accordance with a “precautionary principle”. Such an approach aims at ensuring an adequate level of protection in the field of state transfer when they may have adverse effects on conservation and sustainable use of biological diversity, taking also into account risks to human health. The letter of the Protocol let countries ban imports of genetically modified organisms

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(GMOs) if they feel that there is no scientific evidence that the product is safe. It also requires exporters to label shipments. If on the one hand these provisions show a certain degree of overlapping with both the BTWC (art III/X) and the Australia Group requirements, it is important to underline that also in this case the Protocol assigns a certain prominence to existing previous agreements (including the TRIPS) by the wording: “the Protocol is not interpreted as implying a change in the rights and obligations under any existing agreements.”<sup>624</sup> As I already clarified, the TRIP Agreement contain provisions that are relevant to the Protocol itself. It is evident that there are overlapping areas of concern between the BTWC and the CBD and International Law on Intellectual Property Rights and Trade.

On the one side efforts to implement article X of the BWC appear to be complementary to the ones included in the CBD (article 15 and 16.1), on the other hand they are on a collision course with respect to the extended and enhanced global intellectual property regime broadcasted by the Agreement on TRIPS.

### Findings

Chapter 3 has taken into consideration the cooperation effort which the international community has developed to prevent and reverse the spread of biological agents for malicious purposes, mainly focusing on its evolution over time. The analysis has shown that the global treaties at the core of the regime, namely the Geneva Protocol and the BTWC, do not exhaust the range of cooperative endeavours currently at work to mitigate BW use and manufacture, insofar states have promoted a far richer and more complex array of cooperative initiatives that altogether account for a disarmament and non-proliferation “toolkit”.

Under this perspective, the chapter has already fulfilled one of the goal of the overall project, the one of drawing the attention on how extensive and extended is the range of activities which directly (or indirectly) hamper the proliferation, circulation and possession of biological weapons. The cases under investigation paint a picture of burgeoning enterprises which include initiatives that are both formal and in formal,

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<sup>624</sup> Cartagena Protocol Preamble.

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coordinative and collaborative, within and across issue-areas, and born in different period of time (during the Cold War, after its demise, and in the aftermath of 9/11). Alongside an increased number of joinable nested and overlapping institutions, an increased participation is also registered in almost all cases: notwithstanding participation is not uniform across initiatives and far from being universal, most institutions (more or less rapidly) have grown their membership at great length (as it will be better investigated in Chapter 4).

Finally, the present analysis has clearly indicated that cooperation is also developing in a second way, a one that imply a much deeper pro-active engagement by participating states in activities that are collaborative versus more traditional and “coordination”-driven pledges.

In summary, this section has allowed to make three key remarks concerning the current stage of development of the BW regime.

(1) The biological weapons non-proliferation regime has evolved in a *complex network* of institutions which complement and supplement the core treaties.

It is clear that the Geneva Protocol and the BTWC are the most inclusive document insofar they (a) delineate the overall regime’s scope by enunciating the three principles underlying the BTWC control regime [(a.i) the use of biological and toxin agents constitutes an abhorrent act of warfare and is therefore prohibited; (a.ii) the peaceful uses of biosciences are legitimate undertakings, (a.iii) as well as it is defensive research]; (b) provide a catalogue of norms that derive from those principles (non-use; non-acquisition; non-transfer; cooperation; assistance; consultation, investigation) and (c) detail few rules and procedures. Nonetheless, additional institutions – in most cases characterized by a more specific mandate - have developed alongside the BTWC with supplementary and complementary functions with respect to non-proliferation objectives, bio-safety and biosecurity, trade and transfer of agents and precursors, research and testing (especially within dual-use research of concern), alert and response (for a preliminary assessment of intersections (see table 2). Under this perspective, the Australia Group (AG) represents a typical “complementary” effort conceived to address the so-called supply-side of the non-proliferation curve, insofar it tries to make it harder for weapons’ development efforts

to succeed by restricting access to items necessary for their production (including dual-use equipment).<sup>625</sup> To this aim, the AG has established a sound list of strategic biological goods (the AG Common Control List) which is today a reference guide for many states (even beyond the 43 AG members)<sup>626</sup>. Interestingly enough, as clarified in the chapter, the adoption of a commonly accepted list was not possible in the early years of the regime, nor during the BTWC negotiation (or during later Review Conferences) - notwithstanding the fact that the need was always been there. Under this perspective, the achievement signals a step ahead in the BW governance, although a one shaped outside the BTWC.

As far as investigations of alleged uses are concerned, the United Nation Secretary General Mechanisms, is another example of a mechanism which well complements (although it is not the only one) the letter of BTWC Article VI. Along these lines, the Proliferations Security Initiative is a multilateral non-binding political initiative through which states voluntarily commit, by means of a formal pledge, to working cooperatively with the aim of curtailing the trafficking of Weapons of Mass Destruction, to and from states and non-states actors contributing to the effectiveness of BTWC Article 3. The Res 1540 OP.2 also reinforces the BTWC in stressing states' positive obligation to "adopt and enforce" appropriate measures with regards to non-state actors.

Also the implementation of the Convention's proscriptions (article IV) has been and is today still facilitated, in many countries, by supplementary agencies and funding (interalia VERTIC, UNICRI CBRN CoE Initiative).

Under this perspective, the chapter has demonstrated that overlapping institutions within the same issue area seems to be potentially (and reasonably) able to increase the regime outreach in the specific case of BW.

A caveat is needed because complexity can bring in negative externalities. It has been noted that overlapping formal and informal institutions can be costly to states "when competition among organizations leads them to work at cross-purposes (and states

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<sup>625</sup> Conversely, contrary demand-side measures are those that seek to reduce the incentives (or motivation) that states mature towards WMD.

<sup>626</sup> By Joining the Australia Group on 19 January 2018, India became the 43<sup>rd</sup> participants of the Group

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might engage in forum-shopping) and interorganizational politics.”<sup>627</sup> This specific drawback does not seem to apply to this case of the BW regime although overlapping and redundancies in the action of institutions have been noted and reported (see Table 3.3) and much more coordination would be needed.

Together with the increased density of the cooperation, its nature has also changed over time. With more and more dimensions of BW management covered by the regime (from non-use to biosafety to development and cooperation), a number of positive rights (that oblige action) were added on negative ones (that only require abstention/inaction). Early conventions (The Hague Convention, the Geneva Protocol, even the BTWC) mainly involved “coordination” efforts. Under them, by accepting mutual self-restraints (non-use, transfer, etc.), states just had to “coordinate” their policies. In Chapter 2 it has been recalled that “coordination” is required when states want to avoid a particular bad outcome. Collaboration, in contrast, is desirable when concrete actions need to be entertained to ensure a particular outcome to materialize (mutual cooperation payoff in a PD game) and encompasses a “working jointly” dimension.<sup>628</sup> Under this perspective the present analysis has pointed out that more recent initiatives are “collaborative” insofar require that states work together to implement programs and operations (requests and offers of assistance, joint external evaluation missions, national action plans, etc.). This obviously tells us something about how states see the problem they are facing.

(2) The number of institutions described in the chapter also enlightens a second important key feature of the current bioweapons regime complex which is the fact that it operates across diverse issue-areas. An extensive review of relevant literature has allowed to recognise the year 2001 as a turning point in the consideration of biological agents as a prominent security matter, process which has finally resulted in a new taxonomy of bio-insecurity across health, security and environmental protection domains. The investigation has shown that the change, made apparent by

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<sup>627</sup> for a useful representation of the spectrum of intergovernmental arrangements, see Vabulas and Snidal, “Organization without Delegation,” June 2013, 200.

<sup>628</sup> Knopf, *International Cooperation on WMD Nonproliferation*, 9.



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a number of worrying events (anthrax letters, success of highly risky experiments, and emerging/re-emerging disease - NvCJD, Nipah, SARS) has to be framed within a larger pattern, hallmarked, in the main, by four major trends: (1) the changing nature of conflict (civil unrest and terrorism) (2) the accelerating pace of innovation in biotechnology (synthetic biology, nanotechnology applied to life science, convergence between chemistry and biology), (3) the natural and unremitting evolution of microorganisms (including drug resistant strains) and the re-emergence of quasi-eradicated agents (attributable to globalization, travels, and migration); (4) globalization of the pharmaceutical and biotech industries.<sup>629</sup>

With regards to the two above reported aspects, some few additional remarks need to be mentioned. From the analysis here performed, and the conversations entertained with key experts and practitioners, emerge clearly the idea that the evolution of the regime has a functional explanation: new problems, new solutions. Events have revealed new (transnational) needs which have led to the creation of new counteracting tools (that was the case with the investigation mechanism of UNSGM or the Res. 1540). Under this perspective, the analysis of individual cases has shown that it is virtually always possible to identify a “shock” or “crisis” which has facilitated at least “some” convergence of interests (given that states are pulled from conflicting interests which they have to balance one another). The chapter has described in details many of the shocks that has potentially smoothed the contractual bargaining preceding international agreements to be endorsed. The repeated use of herbicides in Vietnam, the revelations of the USA/UK joint experiments in the pacific (1968), the Skull Valley Incident (1968) are acknowledged as critical factors in explaining the origin of the BTWC. The 1984 release of the UN Investigation Team over Iraq and the simultaneous allegations against the Soviet Union (“yellow rain” in Lao ad Cambodia) prompted the establishment of the UNSGM Mechanism. Additional instances are the So-San incident with regards to the PSI, the SARS epidemic for the IHR 2005 Revision,

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<sup>629</sup> Koblentz, “Biosecurity Reconsidered”; Rodier et al., “Global Public Health Security.”; Fidler and Gostin, *Biosecurity in the Global Age*; Davies et al., “Global Health in International Relations”; Kelle, “Securitization of International Public Health.”

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not to quote the obvious anthrax letter episode informing the GPWG against WMD and Res. 1540.

Nonetheless, the chapter has also highlighted that states – in this field – still perceive their interests differently and assign profoundly diverse priorities to their needs (security versus right to development and research). Such a distinct look over the issue is very consequential for regime analysis insofar betray a diverse vision over the type of situation and/or conflict (over absolutely or relatively assessed goods, means, or values) which is at stake.

It is not surprising though that, on the one side, the most recent security initiatives have seen the general reinforcement of the cooperation branch (beyond purely non-proliferation goals) of their bargaining. Under this perspective, they have reinforced the safeguard of the right to “research and development” over biological agents for peaceful purposes in the Global South (GP, GHSI, GHSA). On the other side the typically health or environmental related institutions, like the International Health Regulations, have been revised and interpreted by some countries (the US, Canada, the UK interalia) to also apply to security-related situations (securitization of the problem *and* securitization of the institution). Interalia, this outcome opens the floor for conflicting norms to establish and flourish.

However, this is only part of the story insofar many problematic aspects are not new. On the contrary they were already perceived and identified during the negotiation phases of the core treaties when no agreement could be reach on a common solution (list of agents, verification measures, etc.) and left open for future revisions. Later Review Conferences could neither score a point, to the extent that joint actions became, in those sectors, became possible within the framework of smaller groupings, a case in point being the AG Common Control List. In those cases it seems more profitable to trace the source of cooperation in the determination of key actors to implement a certain strategy (“coalition of the willing” and Core Groups) than in the realization of a totally “equitable solution”. Other key examples are to be found in the geopolitical origin of the BTWC, the GP, the PSI and even the UNSC 1540 where the duo US/UK started by circulating a petition among the P5 and only afterwards involved the larger membership in the initiative.

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All the above confirm the relevance, which also emerges from the case studies, of transnational networks in shaping the debate. Because of the highly technicalities of the problem at stake, both epistemic communities and working-level relationship among scientists and technical experts have been fully integrated in the decision making process of the political bodies (UNSC 1540 Committee, BWC Meeting of Experts, GPBSWG, etc.). Nonetheless, the analysis has also pointed out that the impact of the working-level relationships and social constituencies cannot be overestimated as demonstrated by the disappointing outcome of the BTWC 8<sup>th</sup> Review Conference.

(3) A final consideration regarding the BW regime complex concerns the institutional design of its individual components. If institutional design is deliberate (and stemming from the problem underneath), the way a regime institutional framework evolves tells us something about how the actors in the systems see the problem changing. In a formal-informal continuum as the one described by Snidal, bio-agents relevant institutions can be found in many diverse categories.<sup>630</sup> The prohibition of the Biological Weapons use is today understood as customary international law and thus representative of a “decentralized form of cooperation” based on tacitly shared expectations. Nonetheless, with the passage of time those “shared expectations” have been also formalized and incorporated in early “formal Intergovernmental Organizations” (FIGOs) as the Hague Conventions and reiterated in the Geneva Protocol. The BTWC is obviously the par-excellence example of a “formal” component of the regime along with the other quasi-universal treaties in the list (e.g. the Antarctic Treaty, the Chemical Weapons, the Convention on Biological Diversity), although all of them lack implementation bodies. The regime also encompasses several cases of “IIGOs within FIGO,” always in Snidal lexicon: the WHO Groups or the 1540 UNSC Committee. These are sub-group of FIGO members which share a focus on a specialized issue and participate into ad-hoc meetings but are still not legalized. The Proliferation Security Initiative, and the Global Partnership against the Proliferation of Weapons of Mass Destruction (Biological Weapons Working Group) are classical instances of Informal Intergovernmental Organizations (IIGOs) with explicitly

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<sup>630</sup> Vabulas and Snidal, “Organization without Delegation,” June 2013, 201.

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associated members, regular meetings although no independent secretariat. The Global Health Security Agenda and the Global Health Security Initiative can be described in terms of “explicit agreements consultations” and are based on communiqué and non-ratified treaty dialogue with limited meetings. As detailed in the chapter, the diverse institutional profile of the individual components of the regime imply that across components a high degree of variation is registered concerning their legal profile (Obligation, Precision, and Delegation), centralization of information, control, voting system, flexibility to changes (escape clauses, renegotiation, and sunset provisions).

The chapter has shown that a trend towards more informal intergovernmental arrangements is clearly observable.

The reasons behind the tendency towards more informal tools observed after 2001 seems, in the case of the biological weapons regime complex, compatible with prevailing doctrinal analysis (maintain greater flexibility versus binding commitment and manage uncertainty linked to tech development, maintain closer control of sensitive information, and lower costs and shorten time of transactions). Contrary to prevailing assumptions, it seems that the propensity towards institutional informality have applied, in the case of biological agents, across issue areas affecting the security dimension as well as the health-side of the governance system.

Evaluating the effectiveness of cooperative non-proliferation individual efforts proved the most challenging aspect of the project, for the reasons already explored in Chapter 1. With consideration to their specific objectives, nearby all accounts have included judgment of partial success. In most cases success has been attributed to raising awareness, promotion of norms, and increased transparency. Whether or not it is possible to document specific achievements, it is reasonable to believe that the proliferation of tools and initiatives *per se* account for some degree of effectiveness, at least in the fact that the increased number of high-level meetings must have produced greater awareness, in the countries, of the dangers associated with biological agents misuse. This outcome would be consistent with the persistent (stable or increasing but never declining) funding devoted to biorisk management programs and activities by both the health sector and defence commitment of the last 18 years.

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Consistently, the regime seems to have reinforced existing original norms over BW use and development, and at least, to have oriented its evolution in the direction of a progressive expansion of its scope. A couple of examples among the many discussed in the chapter, are worth recalling. The first concerns biological agents circulation. Interestingly enough, the work for the Geneva Protocol started with the aim of governing BW transfer (and not use). At that time, no agreement could be reached because of the opposition of few states, motivated by the fear of falling behind with regards to related R&D (interalia Italy). Italy is now a supportive member of the Australia Group, an organization that – as shown - not only acknowledges the need to govern the traffic of such weapons or their precursors, but also issue specific and very detailed guidelines. The same way, the many “additional understandings” in the framework of the BTWC on the application of the BTWC to non-state actors have reasonably injected legitimacy into the approval of Res 1540 (specifically directed against state actors), as it is shown in the preamble to the Resolution itself. Finally, the number of joint projects and missions, the multiplication of reporting tools to be return to the various secretariats and committees have substantially increased the possibility of states to get information over other states’ BW profiles. A case in point is the Biological Weapons Prevention Project Monitor, a global network of civil society actors dedicated to the permanent elimination of biological weapons.<sup>631</sup> The project culminated in the delivery of a database containing information of relevance for the implementation of the BTWC. What is important here it is to underline that the dataset is entirely built on open-source information and follows the rule of moderated access (WHO reports, OPCW reports, cooperative activities, unusual disease outbreaks, tweets, panoramio/imagery). The Monitor provides information - for each states in the system (not only BTWC parties) – concerning their BW military defence programs, civil biotech research facilities, military biological labs, past BW programs, interalia which would be simply out of reach few years ago much increasing international transparency on the subject.

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<sup>631</sup> <http://www.bwpp.org>

## Chapter 4: The BW Regime Complex considerations over regime consequences

### The virtue of complexity

The previous chapter has described the evolution of the BW regime complex by analysing and comparing the main institutions constituting the current framework. Although each section has offered some insights regarding the degree of participation, compliance and effectiveness of the institution under exam, an overall account is still elusive.

In addition to the reasons which make effectiveness inherently difficult to grasp (and that have been covered in Chapter 1), the previous analysis has revealed an additional difficulty linked to the fact that is simply not always possible to obtain clear information or information at all. This chapter focuses exactly on this clue and tries to supplement the analysis with quantitative findings, where possible. Under a purely methodological perspective, a complex-based approach, which takes into account the entire set of nested and overlapping institutions involved, provides three interlinked advantages.

(1) First of all, regime complexity offers the possibility for a sounder empirical analysis. If there is often little variation in the membership of individual treaties (particularly in the case of almost universal framework conventions), substantial variation can exist in the membership of a composite regime. This is exactly the case of the regime covering biological agents. (2) Secondly, regime complexity seems able to shed new light over policy preferences and screening strategies. A state participation to a single arrangement over a specific subject tells us something about the willingness to sign/ratify that specific agreement and thus broadcasts a binary information. This could easily lead to a selection bias: a given state's support for a single treaty (especially if its legal content is diluted) may or may not be representative of its support for the overall objective that inform that treaty or the regime to which the regime belongs - being the fruit of a contingent situation ("treaties are policy outcomes as well as legal agreements").<sup>632</sup> Vice versa the degree of participation of states to multiple agreements that overlap in the same policy space (even across

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<sup>632</sup> Brewster, "Reputation in International Relations and International Law Theory," 524-43.

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traditional issue-areas) can help us distinguishing among states' diverse attitudes on the subject and eventually communicate something more general and less situational about their preference. If, as the IO literature has recognized, membership in international institutions record credible information about states' desire to commit/comply (at least in principle) with that institution's rules (because of ex-ante costs),<sup>633</sup> the participation's pattern to multiple institutions may be more revelatory about the degree of international governance states are ready to accept in that given domain, the direction of that preferences (both in term of content and implementation), and the effectiveness itself of the regime. This approach can be even more telling when an object (as it is the case with biological agents) is governed by arrangements which cross issue-areas boundaries (or display much diverse institutional features) in the sense that policy makers (and scholars interested in regime development and design) can learn something about states' preferences by observing how many and which states join which components of the regime. (3) If on the one hand, participation's patterns tell us about states "placement" (= preferences) over the specific issue governed by the regime complex, that very same "preference profile" is - in its turn - shaped by a variety of factors which characterize states that decide to commit to a specific kind of international cooperation model (or international cooperation in general). Notwithstanding the fact that preferences are key elements in the analysis of many aspects of an International Relations agenda,<sup>634</sup> few studies have systematically analysed states' preferences with respect to international institutions or tested conventional model over the determinants of states preferences vis-à-vis international cooperation.

Traditional scholarship suggests that such preferences should vary systematically on the basis of systemic features as well as national intrinsic characteristics. Those factors are both domestic and relational (pre-existing linkages among states and between each state and the area of concern - including the way the perspective agreement is designed). A variety of factors that determine states' willingness to support international treaties both domestically and not will be considered in the following

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<sup>633</sup> Franck, *The Power of Legitimacy Among Nations*. Kaplow

<sup>634</sup> States create institutions on the basis of their preferences about solving international cooperation problems (Downs, Rocke, and Barsoom, "Is the Good News about Compliance Good News about Cooperation?"; Koremenos, Lipson, and Snidal, "The Rational Design of International Institutions.")

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section as control values. These include power and independence,<sup>635</sup> domestic politics,<sup>636</sup> legal systems,<sup>637</sup> regime type,<sup>638</sup> reputation,<sup>639</sup> normative benefits,<sup>640</sup> international diffusion mechanisms (overall adherence, political and economic integration),<sup>641</sup> and treaty design.<sup>642</sup>

As already made clear in Chapter 1, this work embraces a “graded” approach to regime consequences and explores the three dimensions of output, outcomes and impact with regard to the bioweapons non-proliferation regime complex (see figure 1.10). The first part of the chapter focusses on implementation and compliance and builds on the assumption, derived from the theoretical argumentation in Chapters 1 and 2 and the empirical evidence in Chapter 3, that an increased participation to the regime (both in terms of outputs and outcomes) is both a signal of regime’s success and a trigger to allow its further development. In other words, if more and more states express their consent (by ratification - or other types of participation – and obedience) to an increasing number of institutions (whether formal or informal) which embody the principles expressed in the core treaties of the regime, this tells us something about the health and success of the overall regime itself. At the same time, the increased density of the regime (both components and members) can further enhance the regime objectives through mechanisms as (issue/time) linkages (which supposed to mitigate the distribution problems) and social influence (backpatting and opprobrium). These two mechanisms are reasonably thought to be key in the bio-weapons non-proliferation regime (where real a system of inspection has never been approved and would be in any case virtually unfeasible).

The second section of the chapter addresses the matter of regime impact in terms of states’ proliferation choices (BW pursuit and possession), enlighten the main

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<sup>635</sup> Milewicz and Snidal, “Cooperation by Treaty.”

<sup>636</sup> Haftel and Thompson, “Delayed Ratification.”

<sup>637</sup> Goodliffe and Hawkins, “Explaining Commitment.”

<sup>638</sup> Vreeland, *Institutional Determinants of IMF Agreements*; Vreeland, “IMF Program Compliance”; Neumayer, “Do International Human Rights Treaties Improve Respect for Human Rights?”

<sup>639</sup> Simmons, “Capacity, Commitment, and Compliance.”

<sup>640</sup> Kelley, “Who Keeps International Commitments and Why?”

<sup>641</sup> Bernauer et al., “A Comparison of International and Domestic Sources of Global Governance Dynamics.”

<sup>642</sup> von Stein, “The International Law and Politics of Climate Change.”



limitations regarding such an investigation, and show some preliminary results and way forward.

## Research Design

### **The Dataset**

Under this perspective, this work tests its arguments on a newly created dataset which merges existing data about states attributes (relevant to WMD proliferation and IOs membership) and their specific degree of participation to the biological weapons regime. In particular, this project has developed 2 new variables to account for any state consent to the BW regime complex (embeddedness and embeddedness index – which give reason of states’ ratification rates between 1899 and 2014).<sup>643</sup>

The dataset processes country-year as units of analysis and include information concerning any state’s participation to the biological agents’ regime (signature, ratification or other signal of consent when ratification is not an option).

Contrary to common literature (especially quantitative oriented) and in line with the rest of this work, the regime is not considered limited to the biological weapons core treaties (the Geneva Protocol and the BTWC), but incorporates all those international arrangements relevant to the biological weapons’ government, including softer forms of international law (if multilateral in nature and of substantial relevance for the governance of biological agents). Moreover, in consideration of the intrinsically dual-use nature of biological agents, the recent “securitization” scholarship (see Chapter 2), the practical turn which overtook the discipline, additional arrangements have been included if having a consistent mandate and if considered critical by experts in leading positions within the BWC ISU and UNODA (notwithstanding the fact that they precisely belong to issue areas other than security, namely environment and health). In other words, all the institutions selected do have some impact on biological agents and do have biological agents’ relevant mandates although they would be traditionally traced back to policy spaces other than security and arms control. The approach of

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<sup>643</sup> From 2000 onwards, except from participation/ratification data are not available and for this reason most statistics are drawn on the period 1945-2000.

providing the broader list as possible, also gives the opportunity to other scholars to conduct narrower or more specific analysis (by singling out only certain information). Nonetheless, although comprehensive, the list only includes arrangements which provide substantive additions to existing governance (and go beyond simple adjustments, reaffirmation/prorogation of intents, and amendments of previous treaties).

Finally, the present analysis focuses on arrangements that (1) have a universal reach: participation is open (or soon have become open) to the majority of recognized states (all states, UN members or WHO members); (2) do not have a regional focus. A second restriction applied to the list resulting from the interviews and subject to the qualitative assessment performed in Chapter 3, stems from the need to produce some indicator/measure of participation (although not necessarily in the form of a formal accession).

The resulting sample include 24 arrangements, 15 of which directly deal with security concerns, 3 of which are connected to environmental protection issues and 6 attain to the global health domain (see table 3.1).

For each of these institutions, the following information have been collected: eligibility,<sup>644</sup> signature, ratification, accession, exit, re-entry, general status. Each treaty is also categorized on the basis of the area it belongs. The classification is made in consideration of the main objective and purpose of each initiative, although most treaties (especially the ones that fall under the security group) include provisions related to more than one category and would require a secondary treaty type variable. To start with, as it will be explained in the next section, the dataset has been functional to the elaboration of an “embeddedness measure” and an “embeddedness index” which account for the type of participation the biological agents’ regime display.

### **The dependent variables**

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<sup>644</sup> Not all states are considered eligible to join all agreements. Treaties can be bilateral, some can be limited by geography, or by membership in another treaty or institution (see GP and PSI). In the specific of the present analysis, with the exception of the Global Partnership (2002) and The Proliferation Security Initiative (2003) that were initially open to a limited set of countries, the other were characterized by open access.

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The first and immediate regime consequence is represented by any state expressed consent to be bound to the international commitment under consideration (output).<sup>645</sup> This consent can be expressed in various ways. With reference to treaty law, consent takes a clear manifestation in the signature and, especially, ratification of the treaty convention. Where the institutions under analysis are not formal treaties or binding international agreements and do not envisage formal signature/ratification procedures, other measures have been used as proxy for consent (e.g. as acceptance to invites or participation to the opening meetings/conference – this is the case with the Global Partnership for WMD and PSI, or in terms of “permanence” in an organization whose bodies have voted for the constitution of the arrangements itself as in the case of the International Health Regulations, 2005).

Ratification is clearly not the unavoidable consequence of a negotiation neither the only option for states that are exposed to a raising arrangement. Obviously states can just avoid signing or ratifying the treaty,<sup>646</sup> or proceed to ratification only after having included a series of reservations (which in most cases weaken the commitment they accept). Becoming able to account for reservations, although posing methodological problems, definitely represent a way of improvement to the present analysis. In fact, the decision to adopt reservations can lead to juxtaposed interpretations. On the one side, they can signal states’ willingness to undertake only the commitments that conform with their domestic constitutions (in a way this would be a sign of support to the rule of law), especially in consideration of the fact that a similar approach is perfectly consistent with a positivist systems. On the other side, especially when diffused and reiterated, reservations can be interpreted as a refusal to fully commit to the regime’s proposed ruling.<sup>647</sup> The case of 1925 Geneva Protocol is exemplary. By juxtaposing reservations, many states affirmed their right to retaliate in kind basically

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<sup>645</sup> Another and potentially preliminary form of regime support is leadership (the willingness of a state to take an active role in the creation of a new law settlement). Although extremely relevant and harbinger of interesting insights in the case of biological agents’ regime, such analysis has been covered in chapter 3. Indeed, while leadership can be crucial in the development of international law (or in signalling a state’s effort to shape the content of arising international law) is clearly not required for a state to be considered supportive of a regime.

<sup>646</sup> Under this perspective, examples from the US case are manifolds cutting across diverse issue areas. With reference to arms control agreements best known examples include the Strategic Arms Limitation Talks (II) and the Comprehensive Test Ban Treaty.

<sup>647</sup> Not without reason, one of the few comparative studies of reservations to human rights treaties, suggest that democratic countries with the strongest commitment to the rule of law are the most frequent reservations-adopters (Neumayer, “Do International Human Rights Treaties Improve Respect for Human Rights?”)

adulterating the scope of the agreement from a “non-use” to a “no-first-use” (today the number of reservations appear diluted by the increased membership, although still amounts to 23 over 140 state parties).

That said, in consideration of the fact that, in the present investigation the objective is the assessment of states embeddedness in the broad regime (regime-complex), the simple analysis of each institution’s independent ratification rate doesn’t serve the purpose. For this reason, two complex indexes have been developed (embeddedness and embeddedness index). To evaluate the extent to which states are “embedded” within the regime, for each country-year the dataset provide for the absolute numbers of agreements joined (embeddedness) and the share of agreements for which each state is eligible that is actually joined (embeddedness index = that is the number of individual institutions of which a state is member divided by the number of treaties the state is eligible to join). This second measure, unlike a raw count of treaty membership, does not advantage states that are eligible for a greater number of agreements.

A second type of regime consequence is represented by compliance.<sup>648</sup> This is also the most intuitive measure of states participation to international institutions although, as thoroughly explained in Chapter 1, as such compliance cannot be reduced to a dichotomous variable and its assessment is generally far from being straightforward. First, a complex-regime (but also a single institution) broadcasts several rules (and compliance can be high for some of them and low for others). Second, the determination of compliance presupposes agreement on the interpretation and application of often vague international norms. Finally, and with regards to regimes’

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<sup>648</sup> An intermediate form of regime participation/support (between consent/ratification and compliance) is represented by implementation or internalization. With no doubts, this is the most demanding for states which participate into a regime complex or ratifying a specific institution. The process whereby international legal norms and rules are incorporated into the domestic legal order can be expensive and time consuming. For those (often monist) states that automatically incorporate all treaty law into domestic legal order, ratification can be considered a proxy of implementation – although as explained in detail in Chapter 3, in most cases adaptation of national legislation and enforcement measures is needed. In any case, assessing implementation require an itemised approach (rule by rule, regulation by regulation) that is not compatible with analysis which follows. Some insights concerning the degree of implementation/internalization of the regime can be retraced cross-referencing data from specific sections of some compliance tools (BWC return, 1540 reports and WHO questionnaires).

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broader effects, formal compliance with international law does not necessary translates into problem solving.<sup>649</sup>

This work captures states' compliance with three main institutions within the bio-agents' regime (BTWC, 1540, and IHR) in terms of their willingness to produce and deliver – according to the respective institutional commandments – specific reporting tools. These comprise the BWC Confidence Building Measures Returns, the 1540 National Reports, and the WHO International Health Regulation Questionnaires/Country Reports.

In compiling these tools, states are required to account for the status of implementation and compliance they have reached under that specific arrangement.

Finally regime consequences can be described in terms of overall impact. Traditionally, in terms of dependent variables, this has meant considering the number of countries that have supported in a given time some type of offensive proliferation activity (BW pursuit) or have maintained stockpiles (BW possession).

### **The independent variables**

#### **External factors**

##### *(1) Interdependence.*

Liberal institutionalism posits that, under conditions of interdependence, uncertainty about other states preference and high transaction costs of interaction can be mitigated by the establishment of international institution that facilitate cooperation. Already-in-place institutions (by increasing transparency) also facilitate negotiations over new arrangements or the revision of the existing ones and are assumed to prevent them from uniquely pursuing short-term relative gains. On the contrary, institutions move them towards positive-sum outcomes, the promotion of shared interest, and help them to overcome collective action problems. Furthermore, failure to participate in a treaty (even when benefits of membership do not outpace those accruing to states when implement unilateral efforts) could lead to reciprocal negative

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<sup>649</sup> RAUSTIALA and SLAUGHTER, "International Law, International Relations and Compliance"; Lisa Martin, "The Rational State Choice of Multilateralism,"

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actions by other state that would undermine the advantages of unilateral strategies (issue-linkages). The “entanglement” argument relies both on contractualism and knowledge-based (weak and strong) theories of international regimes and postulates that greater involvement in international organizations and world economy enhance states propensity to sign and ratify additional treaties.

*(1.1) Involvement in other international organizations*

Membership in international organizations (IOmb) is here operationalized simply by the number of IOs of which a country is a member in a given year.<sup>650</sup> The data are derived from the Correlates of War Project (COW), Form-2,<sup>651</sup> which provides for a dataset organized by country-year (for each state in the system the dataset clarifies its IGO memberships in any given year).<sup>652</sup>

*(1.2) Integration in world economy.* Integration in world economy is measured by two variables:

(1.2.1) The first one (openness) is taken from Horowitz and Narang (2014) and accounts from trade openness in terms of exports and imports as a share of GDP (whether/how much a country is considered to be open to trade each year).<sup>653</sup>

(1.2.2) The second one (EXP) is taken from the trade dataset of the Correlates of War project. This is the result of the effort to code trade flows between states for the period 1870-2014. The data include information on both bilateral trade flows and total national imports and exports. The National (Monadic) Trade dataset contains information on individual states import and export levels in current U.S. dollars.<sup>654</sup>

*Relevance/hypothesis:* Countries that display higher degree of interdependence with other countries in the system (with higher membership score and that trade more intensively) are also expected to show higher degree of participation in the framework of the BW non-proliferation regime.

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<sup>650</sup> Diplomatic exchange (from COW) could be an alternative operationalization for this measure <http://www.correlatesofwar.org/data-sets/diplomatic-exchange>

<sup>651</sup> Pevehouse, Jon C., Timothy Nordstrom, and Kevin Warnke. 2004. "The COW-2 International Organizations Dataset Version 2.0," *Conflict Management and Peace Science* 21:101-119.

<sup>652</sup> The project also differentiates on the basis three distinct variables according to whether a state has full, associated or observer membership. In the present dataset, the most inclusive criterion has been privileged – the one that include any type of membership.

<sup>653</sup> Horowitz and Narang, "Poor Man's Atomic Bomb?"

<sup>654</sup> Barbieri, Katherine and Omar M. G. Omar Keshk. 2016. Correlates of War Project Trade Data Set Codebook, Version 4.0. Online: <http://correlatesofwar.org>.  
<http://www.correlatesofwar.org/data-sets/bilateral-trade/international-trade-1870-2009-v3-0>

(2) *Capacity*

With respect to the international political sphere, the distribution of state interests (framed in terms of legal and economic integration) are not the only elements to be reflected in international legal outcomes. According to a realist perspective, the distribution of power/capacity is the most consequential factor in the equation, with great powers and particularly hegemonic actors more likely to prevail in distributive bargaining. Neoliberals – championed by Ikenberry who makes reference to the United States - posits that hegemonic and multilateral power might generally be more supportive of strong international law (having a leading role in their creation, they are also expected to be more prone to compliance with rules that disproportionately reflect their own interests.)<sup>655</sup> In line with these consideration are Neumayer's findings concerning environmental regimes. He shows how powerful states would more likely participate in multilateral agreements in order to demonstrate their importance in world politics, of which environment represents one part.<sup>656</sup> It is also true that, after the 1970s and concurrent decolonization process, a G-77 group of newly independent and less developed countries gained fully-fledged access to several international institutions from where they could sponsor a common cause. Under this perspective, we could have expected great powers to progressively become less supportive to international constraints that may have come to reflect the preference of the global south (the issue and its implication has been widely discussed with reference to International Health Regulations in Chapter 3). In order to operationalize and measure national capacities, the following variables have been used:

(2.1) Income: to control for the effect of power it is possible to rely a country's wealth. A country's wealth is usually measured by the log value of GDP per capita.<sup>657</sup> Since income may also have a non-linear effect on the likelihood of ratifying international treaties, the squared value of the log of GDP per capita is also included.

Under this perspective, it has to be said that most of the recent literature on international cooperation (especially in the environmental field) has viewed income

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<sup>655</sup> Ikenberry, *Liberal Leviathan*.

<sup>656</sup> Neumayer, "Do International Human Rights Treaties Improve Respect for Human Rights?"

<sup>657</sup> These data are from Horowitz and Narang, 2014

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per se as a factor that promote cooperation (even when detached from power status – supposing it were possible). More specifically it has been show that economics (and in particular trade) is the clearest and most consistent predictor of treaty commitment preferences including with respect to non-economic policy areas.<sup>658</sup>

(2.2) *Power*: to control for the effect of power, a second variable is the “Composite Indicator of National Capability (CINC)” which accounts for six categories: military expenditures, military personnel, energy consumption, iron and steel production, urban population, total population.<sup>659</sup>

*Relevance/hypothesis*: As anticipated economic power has been consistently associated with regime participation, so we expect the same trend to apply to the BW regime complex. As far as material capability (CINC) is concerned, we would expect that countries displaying lower military investments are more prone to participate in regimes that support a reduction of armament. Nonetheless, states with lower military capacity could be willing to start a BW program to access some WMD (for prestige etc.) In relation to the proliferation of BW (pursuit and possession), the effect of CINC would be dubious. On the one side states with modest military capacity could chase biological weapons as strategic equalizer, on the other side (especially in recent time), the high investments required to achieve advanced (versus rough) and effective programs may discourage such endeavours.

(3) *Policy diffusion effect/contingent behaviour*

Decisions by countries to join international institutions are most probably influenced by other countries decisions to participate (and comply). This reciprocity is key in arms control commitments, as widely discussed and proved by institutionalist literature on international cooperation and game theory. Recently large N-empirical research have devoted the due attention to this factor as a determinant of institutional participation under the rubric of “international policy diffusion”. Simmons defines policy diffusion as occurring when government policy decisions in a given country are systematically conditioned by prior policy choices made in other countries (sometimes mediated by

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<sup>658</sup> Horowitz and Narang, “Poor Man’s Atomic Bomb?”

<sup>659</sup> <http://www.correlatesofwar.org/data-sets/national-material-capabilities>



the behaviour of international organizations or even private actors).<sup>660</sup> Along these lines, normative theories argue that formal agreements can have transformative effects on the behaviour of participants states not only by changing the strategic environment but also through socialization mechanisms (macro and microprocesses).<sup>661</sup>

In order to account for policy diffusion, I have used framework convention system effects (BWC and CWC) measured as the proportion of BWC joiners to the total number of states in the world.

*Relevance/hypothesis*: We expect that higher system effects relates to higher degree of participation to the upcoming components of the regime complex and with lower level of BW pursue and possession.

### **Domestic factors**

#### *(1) Democracy/polity*

Many reasons have been formulated to account for the fact that democratic countries are more likely to participate to international institutions making credible commitments than non-democracies: democratic institutions are supposed to be stronger than non-democracies, democratic decision-makers more accountable to their electorates, audience costs and transparency are higher in democracies.<sup>662</sup> Although all the above applies mainly within democratic dyads and conclusions cannot be directly deduced that also hold in a monadic sense, it is worth to check for this measure (also because domestic political regime type is thought to affect a wide range of other international outcomes).<sup>663</sup> Indeed, democratic political systems offer much higher degree of civil liberties, such as freedom of speech, freedom of the press and association which have proven very relevant in pushing for the creation and the expansion of the regime on biological weapons (see the geopolitical origin of the

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<sup>660</sup> Simmons, Dobbin, and Garrett, "Introduction."

<sup>661</sup> Finnemore and Sikkink, "International Norm Dynamics and Political Change"; Wendt, "Constructing International Politics."

<sup>662</sup> Fearon, "Domestic Political Audiences and the Escalation of International Disputes."

<sup>663</sup> Including the ability of states to win wars Reiter and Stam, *Democracies at War*; Lipson, "Performance under Ambiguity."

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BTWC outlined in Chapter 3). Democracy is also a key determinant of treaty compliance.<sup>664</sup>

So-called “supply-side” features of democracy are measured with an index capturing the extent of democratic participation in government. The present analysis makes use of the “Polity Score” index included in the Horowitz e Narang dataset that accounts for the following elements: presence of competitive political participation, guarantees of openness and competitiveness of executive recruitment and existence of institutionalized constraints on the exercise of the executive power. Polity Score ranges from +10 (most) to -10 (least democratic).

*Relevance/hypothesis:* Democracies are expected to be associated with higher level of participation to regimes in general and to the BW non-proliferation in particular insofar the latter supports a well-established principle of humanitarian law (non-use) and has evolved as a proper taboo for democracies.

## (2) Civil Unrest

The measure for domestic unrest is taken by Jo, Gartke (2007), who in their turn have constructed the index based on Banks 1999 dataset. They have weight the number of reported domestic conflicts in three categories (including anti-governmental demonstrations, strikes and riots) by the size of a state’s population.

*Relevance/hypothesis:* Countries have utilized CBWs in the past to quell domestic protests and defeat violent opponent to the regime which should have pushed governments away from institutions that ban those weapons. Toxins (like Sarin) have also been repeatedly used during the ongoing conflict in Syria. Such outcome is dubious however because the government may fear that non-conventional arsenals may fall into the hands of rebels of militant minorities.

## (3) Civilization and Region

Another key factor that may affect treaty participation to the BW regime is states’ civilisations.<sup>665</sup> The argument posits that both international conflict and cooperation are shaped by cultural factors, independently of concerns over power and economics.

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<sup>664</sup> Simmons, “International Law and State Behavior.”

<sup>665</sup> Huntington, *The Clash of Civilizations and the Remaking of World Order*.

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In this view, the world would be composed in civilisations (eight, in the case of Huntington's description) which display diverse patterns of similarities and dissimilarities.

As a proxy for civilizations, the current dataset has included a categorical variable for world regions to control for specific features of the bio-agents' regime. The regions are: North America, South America, Europe, Asia, Africa, South-Est Asia, Australia and Pacific

*(8) Prestige/Status*

States' ability to influence the terms of the treaties and their acceptance increases their incentives for participation (in terms of treaty ratification). In particular it has been shown that a states' support for and influence on multilateral treaties is contingent on both might and independence.

(8.1) As a measure of "major power status" (Majopw) for the period 1945-1975, this work adopts Jo, Gartke (2007) classification which builds on the standard COW classification and acknowledges as major powers (from 1939 onwards): The United States (1939-1975), United Kingdom (1939-1975), Soviet Union/Russia (1939-75); France (1939-1940 and 1945-1975); Germany (1939-1945); Italy (1939-1943). For the period from 1975 to present we consider major power status the G8 countries (G7 + Russia after 2014) that means: USA, Canada, UK, France, Italy, URSS/Russia, Japan, Germany.

(8.2) The measure of Regional Power (Regpow) status is constructed (in line with Jo, Gartke 2007) using Schweller's definition of "pole", a "state with at least half of the resources of the most powerful state in the [regional] system".<sup>666</sup>

*Relevance/hypothesis*

Because States' ability to influence the terms of treaties and their acceptance increases their incentives for treaty ratification, we expect multilateral powers—states that are powerful and independent from the United States—support multilateral legal cooperation because this would offer them an opportunity to shape treaty content (higher participation).<sup>667</sup>

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<sup>666</sup> Schweller, *Deadly Imbalances*, 46.

<sup>667</sup> Milewicz and Snidal, "Cooperation by Treaty."

### *(9) National Security*

The security environment is an obvious motive that can change states' preference vis-à-vis regime participation. International security push states to look for institutional participation when their own defence mechanisms are weak, so to enjoy other countries protection. The presence of a nuclear umbrella may be for example sufficient for the protégés to dampen concerns about security risks and represent an incentive for joining the BW non-proliferation regime. On the other hand, in order to increase its own security a low-income state could in theory decide to acquire some substitute weapon (like the BW) which would provide status without necessarily burdening the national budget too much (as a nuclear program would do).

Under this perspective, the dataset includes 5 variables to account for the role of security in regime's participation decisions:

As a proxy for nuclear umbrella, we control for (9.1) whether a country has or not a nuclear-armed ally, since that it potentially influences a whole range of national choices about weapons acquisition.

We also control for (9.2) whether a country is in an enduring rivalry<sup>668</sup> and for (9.3) the degree of participation to militarized interstate disputes (MID) and for (9.4) whether a country face a nuclear threat. Finally, we control for (9.5) the numbers of borders (land and sea) a state share with other states.<sup>669</sup>

#### *Relevance/hypothesis*

We expect states suffering a condition of perceived or real *national insecurity* may decide to maintain the possibility to use strategic equalizers (BW) to threatening their use during crisis bargaining and avoid binding commitments of non-proliferation

#### Preliminary results

#### **Consequences: outputs**

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<sup>668</sup> The variable is taken from Horowitz and Narang

<sup>669</sup> From 10 to 13 - the variable is taken from Horowitz and Narang

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Participation in the regime covering biological agents is extremely broad: all recognized states with no exception are currently part of at least one agreement within the regime complex.

Figure 4.1 uses this measure to trail the average level of state membership in the regime. The grey line tracks the annual mean for the share of eligible treaties joined (right axis). The blue line shows the numbers of agreements for which states are eligible every year, while the orange line is the mean number of agreements joined, both scaled on the left axis.

As the figure shows, the share of agreements (within the regime complex) to which states are a party has remained relatively stable since the 80s even as the total number of agreements has increased (doubled in the last 40 years). This finding is consistent with results from investigation performed with reference to the nuclear non-proliferation regime where the trend is found stable starting from 70s, when the number of agreements began its rapid rise.<sup>670</sup> The rate of joining has largely kept pace with the rate at which new agreements are created. From the 60s indeed, the index has moved from 20% to 60%. This way of thinking about regime embeddedness (found in Kaplow forthcoming book) captures an important relationship between treaty membership and policy preferences. More treaties joined roughly equates to stronger support to the overall regime goals.<sup>671</sup>

Figure 4.1, however obscures significant variation in membership among regions and states.

The embeddedness index introduces indeed a substantial variation in the depth of states participation for geographical regions and single states (impairing its outcome and potential effectiveness).

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<sup>670</sup> JM Kaplow, the "Nuclear Regime Complex: A new dataset"; 12  
[http://dl.jkaplow.net/CGGK\\_Nuclear\\_Regime\\_Dataset.pdf](http://dl.jkaplow.net/CGGK_Nuclear_Regime_Dataset.pdf)

<sup>671</sup> However, as a proxy of underlying regime preferences of member states this simple additive measure has some limitations: this measure assumes for example that the same amount of information is provided by each decision to join which does not fully mirrors reality. If not all treaties provide the same level/type of information (as it is actually the case), then a simple additive measure of regime embeddedness will overstate the importance of some agreements (of minor significance). Secondly, such a measure is censored at 0/1 in a way that makes it difficult to distinguish between states that merely lack the opportunity to join treaties, and those that would prefer to abstain. Under this perspective, consider a state that has not ratified any agreements and is eligible for a single treaty and a second state that has not ratified any agreements being eligible to, let's say, 10. The two states have the same share of eligible agreements but these circumstances raise the possibility that there are differences in their underlying preferences. This second shortcoming has very limited implications in the case of the BA regime because all but two agreements are open to all countries.

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Figure 4.2 shows regional data for 9 regions ((1)North America; (2) South America; (3) Western Europe; (4) Central and Eastern Europe; (5) Sub-Saharan Africa; (6) Middle East and North Africa; (7) South East Asia; (8) Far Eastern states; (9) Oceania.

Europe and the Americas (North and South) show higher level of embeddedness with a media index of 0,52 compared to Asia and Africa that display a media index of 0,4. Oceania lags behind this value displaying a media which never overtakes 0,38. When looking at single states participation to the regime, significant variation can also be appreciated. The United Kingdom, for example, is on average member of more than 90 percent of the treaties for which it is eligible; US 64%; Russia/URRS 74%; China 71%; and India 47%, while Cote d'Ivoire, Somalia, Cambodia, Brunei, Eritrea, Somalia, Namibia, Micronesia, Vanatu and St. Kitts have each joined less than 20% of possible arrangements. The top ten "ratifiers" include UK, Norway, Denmark, Belgium, Netherlands, Sweden, Bulgaria, Romania and Japan. Looking more broadly at the ratification behaviours of states since the end of the Cold War (vis-à-vis 76 multilateral treaties spanning a wide range of issue areas), Elsig et al. have found the top nine ratifiers are all European, as are sixteen of the top twenty, on the contrary US, India, China and URRS/Russia ranked respectively 67<sup>th</sup>, 71<sup>st</sup>, 69<sup>th</sup>, and 97<sup>th</sup> in their ratification rate.<sup>672673</sup>

Figures from 4.3 to 4.6 provide a snapshot of regime membership – measured against the share of eligible agreements that a state has joined – for all states across 4 years: 1965; 1980; 1995; 2010.

The largely expected result that a substantial variation exist among regional areas, in no way detracts its value. First of all, the regime density distribution seem to confirm managerial explanation to treaty participation which identify in the lack of capacity the modest participation (or compliance) to international law requirements and not necessarily to a lack of willingness. The lack of capacity can in its turn relate both to a lack of resources or the absence of a domestic regime able to support the initiative. Under this perspective, the potential link between some specific state features (GDP, democracy, etc.) and a state's propensity to join international agreements including

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<sup>672</sup> Elsig et al "Who is in love with multilateralism", 2011

<sup>673</sup> Elsig, Milewicz, and Stürchler, "Who Is in Love with Multilateralism?"

the ones listed the framework of BW regime complex. Figure 4.7 breaks down regime membership based on a states' polity score.<sup>674</sup> The blue line plots the average regime membership (embeddedness index) of democracies (states with Polity score greater than or equal to 6), the orange line represents anocracies (Polity score between -6 and +6), the grey line represent autocracies (states with Polity score less than or equal to 6). These results are consistent with what found with reference to the nuclear non-proliferation regime.

This potential connections are further investigated by means of statistical regressions (OLS panel data) which take embeddedness and the embeddedness index as dependent variables (see tables 4 and 5).

A second reason why a variation between geographical areas is interesting lays in the fact that several countries in the Global South enjoy very low degree of participation, which may indicate a modest trust in the disarmament pledge by major powers or a lack of confidence in the implementation of the "cooperation and development" side of the regime (whereof they would largely benefit).

Figure 4.8 and 4.9 provide snapshots of regime participations - measured in terms of numbers of agreements joined – organized per issue area and tested both in absolute terms and corrected per states system membership.

### **Output determinants**

The model makes use of OLS Panel Data (fixed effects) to estimate the correlation between international and domestic variables (independent variables) on embeddedness and the embeddedness index. The models adopts a standard cross-section time series data structure for the period 1961-2000. While there are reasons to treat goodness-of-fit statistics with caution, the  $R^2$  indicates that the findings open the floor to further discussion possibly accounting for many determinants of regime embeddedness (participation). At the present stage of analysis model 1 seems the most interesting one (see Table 4.1). The results reported in the two model reveal that most of the "external variables" identified behave as expected. As far

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<sup>674</sup> Marshall, Jagers, and Gurr 2010 <http://www.systemicpeace.org/polity/polity4.htm>

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interdependence is concerned, countries that display high overall International Organization memberships (and trade more intensively in model 1) also show higher degree of participation in the framework of the BW non-proliferation regime.

Although the results over GDP are not clear (in the two models  $g_2$  differ in the direction and size of the statistical significance of their coefficients), the Composite Index of National Capabilities (CINC) is negatively and significantly correlated with embeddedness and embeddedness index confirming the idea that the countries displaying lower military investments are more prone to participate in regimes that support a reduction of armaments. This would also apply to BW programs in consideration of the fact that high investments (time and resources) are today required to achieve advanced (versus rough) and effective BW programs and may discourage such endeavours.

Regional power status is positively associated with regime's participation – this is also in line with the idea that regional powers support multilateral legal cooperation because it offers the opportunity to shape treaty content/adaptation.

Results confirm that higher BTWC (framework convention) system effects relates to higher degree of participation to the other components of the regime complex.

With reference to model 1, as far as domestic factors are concerned both national regime (democracies vs. autocracies) and civil unrest are statistically significant. Democratic countries show higher regimes participation rate and vice-versa countries suffering internal instability tend to display lower degree of participation to the regime. Among the remaining variables the more promising in relating with regime's participation are the presence of a nuclear ally (negatively and statistically significant association) and nuclear threat (positively and statistical significant association).

**Consequences: outcomes**

International institutions vary widely in their overall levels of compliance. As explained the debate about compliance has revolved around questions such as: why do states choose to comply with institutions and why do they choose to comply more with some



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of them and less with others maybe within the same regime framework? What factors drive changes in compliance behaviour over time?

Figures 4.10 and following describe the different level of compliance displayed vis-à-vis three critical individual elements of the regime for which measurable tools for compliance exist (BTWC; 1540; IHR) across time and space (plus regional sub-setting mode). The documents under scrutiny are the Confidence Building Measure (CBM), for the BTWC; the National Reports, in the case of Res. 1540; and WHO questionnaires/reports with regards to the International Health Regulations. By completing and delivering such documents (whether it is a CBM, a 1540 Report or a WHO questionnaire), states give a double contribution to compliance analysis. On the one hand, the regime requires states to produce these documents (under a legal or political binding command). In this respect the delivery rate would signal compliance with regards to that specific commitment. On the other hand, these documents – despite are not sold as verification tools in themselves, for obvious political reasons – de facto collect precious information concerning the state of the overall implementation of the regime's rules (see Table 4.3)

Figures 4.10 and 4.11 refers to BTWC and its Confidence Building Measure (and also show the number of states that have made their CBM public available in the conference website); Figure 4.13 refers to Res. 1540 and show the delivery of reports, reports' addenda, implementation plans, requests for assistance and visits performed; finally figure 4.14 refers to WHO-IHR questionnaires.

### ***Considerations concerning BTWC Confidence Building Measures***

The Second Review Conference saw the beginning of international pressure to introduce within the framework of the BTWC some kind of verification procedures. The resulting discussion led the Assembly to agree on a politically (and not legally) binding tool, the so-called Confidence Building Measures (CBM). In general terms, the document would have granted the exchange of information around each member (1) bio defence activities, (2) suspect outbreaks (whose epidemiology seemed to deviate from a normal pattern), (3) encouragement of publication of results related to the

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Convention, and the active promotion of contacts among scientists. The Confidence Building Measures shall not be considered a tool of compliance in legal terms, although, if filled in good faith and read by trained experts, can provide a very relevant and comprehensive pool of information over the status of the Convention's implementation and the BW profiles of delivering states.

Back in 1986, the Conference did not specify the modalities for CBM submission but established for this purpose an "Ad Hoc Meeting of Scientific and Technical experts from state parties to finalize the modalities for Exchange of Information Data" that in 1987 produced a report detailing the modalities for the CBMs' submission making explicit the fact that information should have also been made available to WHO.<sup>675</sup>

The Third and the Sixth review conference re-examined the CBMs and agreed to modify and expand them, more precisely the sixth review conference issued recommendations to make the instrument more user friendly (e.g. by adopting revised reporting forms) and considered how to enable fuller participation in the CBM during the intersessional programme. The Seventh Review Conference saw the removal of the CBM D section on "active promotion of contacts" (former CBM part D) and focus on the need to increase the number of submissions (by a study to be conducted during the following intersessional programme including the examination of options for electronic means of submissions).

Today the CBM structure envisages that state parties would share information (open access or by means of a governments restricted access system) on the following: research centres and laboratories (CBM part A.1); national defence research centres and development programs (declaration, description, facilities) (part A.2); outbreaks (part B); on publication of scientific results (part C); legislature, regulations, and other measures (part E); past activities in offensive and or defensive biological research (part F); vaccine production facilities (part G), see table 3.

While there has been over the course of the years a slow, but steady increase in the submission by state parties the overall level of participation remains low with less than half of all state parties having regularly exchanged information and data and ten State

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<sup>675</sup> Representative from 39 state parties participated in the meeting, and an expert from WHO was on hand to provide with a technical contribution.

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Parties having submitted CBMs for the first time during the last 5 years and one State Party for the first time ever as an independent State.

During the Seventh Review Conference (2011), it was decided to further support the fuller participation in the CBMs during the intersessional programme in 2012 and 2013. Notwithstanding the activities undertaken, participation in the CBM has barely increased in the years since then. The majority of state parties which return their CBMs, do so on a regular basis. However, there is a significant number of states that participate irregularly and over half of them that do not participate at all. Between 65 and 72 submissions were received annually between 2012 and 2016 with 33-44 % of them made publicly available on the BWC website. It is relevant to notice a peak in submission in the years between 2003-2015 with the 2015 witnessing the highest-ever participation rate in the CBM process with 72 states submitting declarations, which nonetheless only amounts to less than a half of the state parties, (possibly in the view of the then-upcoming 8<sup>th</sup> RevCon in 2016) (see figures 4.11 and 4.12). It is also worth recalling here that the Eight Review Conference has indeed registered a record in national participation with 124 state parties joining the meeting and 83 Working Paper submitted (see figure 4.12).

It is though unclear why states do not participate in the CBM process. The Implementation Support Unit (the sort of Conference Secretariat created in 2006) has received little information on the reasons why this is so. (1) Technical difficulties in the completion of the annual submissions seem to represent a major reason for the low submission rates in the Global South (see figure 4.12). This explanation would be in line with a “managerial” model of compliance (see Chapter 1). Consistently, with the aim of providing technical assistance and support to those States requesting it, as of May 2016, offers have been placed by Canada, Cuba, UK, and the US on the Cooperation and Assistance Database on the BWC website. (2) A second reason that could explain the modest number of CBM returns is that many states do not see any benefit providing the information if cannot benefit from other contributions (if they don't have the resources to extrapolate valuable data from other states returns, because of language constraints and the technicality of the issue under investigation). Under this perspective, it has to be mentioned that the Implementation Support Unit (ISU) is not mandated to carry out any aggregated or specific analysis of the content

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of CBM returns, and - due to the variation in the format and language of submissions - can only compile the most basic statistics. Consequently, the effort to drain information from such a tool still lays in the individual capacity of states or in the capacity of the International Organizations that have granted access to their content (e.g. the WHO). Because most of the CBMs are not public, not even non-governmental research centres (or NGOs) have the opportunity to derive any information from them (except in few circumstances and in the framework of governmental sponsored projects – this has been the case in the UK and Switzerland). (3) Finally, states could simply be motivated by the decision to hide illicit activities or simply avoid making public a modest engagement to implement the positive obligations the Convention conveys. The Implementation Support Unit had made the expansion of CBM returns one of its warhorse.

However, even if the Convention would largely benefit from an increased number of CBMs return, surviving limitations, linked to the present format of the CBMs, have been identified in the following aspects: (1) Although information is provided about material capabilities and facilities owned by reporting states, much less knowledge is broadcasted concerning how biological capabilities are used; (2) While addressing national legislation to implement the BTWC, they do not explicitly cover the laws, regulations, institutions, policies and enforcement mechanisms relevant to laboratory biosafety and dual-use research. Likewise, no information is transferred concerning member states participations to other relevant international agreements (IHR, UNSC 1540, etc.) neither the tool has been integrated (formally or informally) with other international instruments which convey supplementary or complementary information; (3) The CBMs' focus is on state programs when emerging challenges include non-state actors' BW acquisition, incidental and accidental release; (4) finally, as said, the mechanism do not produce aggregate data (lack of an institution through which parties can elaborate on information shared, compare activities, review and analyse information) which could also work as a sort of accountability framework.

***Considerations concerning the 1540 Reports and Matrices (Bio)***

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Resolution 1540 *inter alia* provides for the establishment of the *Security Council 1540 Committee* to oversee the Resolution's actual implementation. The Committee works as "subsidiary body" and is composed of the fifteen current members of the Security Council (five permanent members plus ten non-permanent members).<sup>676</sup> The Committee has 4 main areas of work: implementation; assistance; cooperation with relevant IOs; and transparency and media outreach. With regards to the first area (implementation), the Committee is tasked with the evaluation and completion of national reports so as to produce "Matrices" which indeed account for the overall progresses in the implementation of the Resolution.<sup>677</sup> Although performing statistical analysis on the data acquired, the Committee does not exercise any action nor investigate and prosecute alleged violations of non-proliferation obligations. Consistently, it is made clear, in the 1540 website and elsewhere, that the Matrices are not a tool of compliance, nonetheless many relevant information concerning states' WMD proliferation profiles are there. This is especially true with regards to biological agents: a great deal of details otherwise not accessible or very hard to find are conveyed through the matrices.

Concerning the status of implementation of the Resolution 1540, the most recent report (as of this writing), was published on the 1540 Committee website in December 2016. It reveals that, although little progress was made, much remains to be done to accomplish the objective of full implementation of the Resolution. The analysis that follows build on the information included in the December 2016 Review integrated with the two previous comprehensive reviews (2008 and 2011) covered by Olgive-White in her chapter "UN Security Council Resolution 1540: Origins, Status, and Future Prospects."<sup>678</sup>

Since the adoption of the Resolution in 2004, 176 states have submitted national reports. Between 2016 and the previous reporting period (ended in 2011), 8 additional countries have contributed with their first national report (Cote d'Ivoire, Rwanda,

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<sup>676</sup> The Committee's mandate has been renovated by Res 1673, 1801, 1977, 2055

<sup>677</sup> In line with 1540 Resolution obligations, member states were supposed to report to the Security Council, no later than 6 months after the resolution's adoption, about the steps they have taken or plan to take to implement its provisions. The 1540 National Implementation Reports of the Security Council Committee pursuant to Resolution 1540 offer an in-depth assessment of the degree of implementation and compliance states have been able to reach.

<sup>678</sup> Knopf, *International Cooperation on WMD Nonproliferation*, 140–62.

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Congo, Liberia, Malawi, Capo Verde, Sao Tome, Zambia and Haiti).<sup>679</sup> Haiti became the 177<sup>th</sup> state to have delivered its first report (in December 2016) dropping the number of non-reporting states to 16 (13 of which are from Africa and 3 from Asia-Pacific).<sup>680</sup> As of December 2017, the number of Additional Reports also have increased since the 2011 Comprehensive Report, with 64 countries having submitted at least one “Addendum” at the request of the 1540 committee.<sup>681</sup> Of those states that submitted Additional Reports, 13 states have provided for more than one report, and the total number of additional documents/reports produced since 2011 count for a total of 80 additional files - in the form of addenda, notes, etc.).<sup>682</sup> As anticipated, information included in National Reports and additional documents drain into the Matrices. In the 2016 Comprehensive Review document, it has been observed an overall increase of about 7% in the measures recorded in the matrices. Of a total of 64,075 possible measures to be adopted, the measures recorded in the 2016 matrices scored 30,632 (48%). Of this overall total, the percentage of the possible measures recorded for biological weapons is 42% (versus 51% for the nuclear category and 50% for chemical). On a regional basis, Africa accounted for 28% of the total possible measures recorded (vs. 39% Latina America and the Caribbean; 41% Asia-Pacific; 80% Eastern Europe; 85% other states). Africa and Eastern Europe are described as registering the higher increase with respect to the previous reporting period. This pattern seems to be associated with enhanced and substantive engagement of the Regional Organizations in supporting the implementation of the Resolution.

Concerning Paragraph 1,<sup>683</sup> the data from the matrices show that 139 states have now explicitly expressed their commitment to the “non-provision of support to non-state actors for the activities described” (vs. 129 in 2011).

Concerning Operative Paragraph 2,<sup>684</sup> the Committee observes that there has been a significant increase in measures recorded since 2011 (confirming the trend already in

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<sup>679</sup> the previous Comprehensive Review was release in 2011

<sup>680</sup> Central African Republic, Chad, Comoros, DPRK, Equatorial Guinea, Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Mozambique, Solomon Island, Somalia, Swaziland, Timor-Leste, Zimbabwe.

<sup>681</sup> 63 until April 2016 and 64 with Pakistan submitting in 2017 (after the closure of the Comprehensive Review Reporting period and for this reason excluded by the document S/2016/1038)

<sup>682</sup> Including India submitting its second additional document in 2017, same as above

<sup>683</sup> Legally binding instruments, organizations, codes of conduct, arrangements, statements and other issues

<sup>684</sup> Operative paragraph 2 obliges states to adopt and enforce appropriate effective laws which prohibit any non-state actors to manufacture, acquire, possess, develop, transport transfer or sue nuclear chemical or biological weapons their means of delivery

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place since 2008). States have implemented those provisions in various ways, including by means of constitutions that make obligations under international treaties self-executing in domestic laws, penal codes, specific legislation to implement national implementing measures derived by non-proliferation framework conventions. The Committee has noted that the most significant increase in measures is recorded for the implementation of the legal proscriptions (vs. enforcement measures) on non-state actors gaining access to nuclear, chemical or biological weapons and their means of delivery with an overall increase of 15% in measures recorded by comparison with those recorded in 2011. Specifically, as far as BW are concerned, there has been an absolute increase of 13% in recorded measures covering biological agents. Of the overall total (15% increase), measures related to nuclear weapons represented 61%, those related to chemical weapons 74%, and those related to biological weapons 62%.

A cross-comparison of information provided in 2008-2011 and 2016 also shows that, in general, the number of states with a legal framework in place to prohibit non-state actors WMD activities is higher than the one of those states, which have enforcement measures in place to punish violators. Focusing on biological weapons, table shows that there has been (between 2011 and 2016) a noteworthy increase in the absolute numbers of states having adopted legal frameworks (down side of figure 3.8) to prohibit biological weapons especially in the areas covering: "use" (>37); "transport" (>45); "possession" (>44); "accomplice" (>40) and "financing" (>40) denoting insufficient/inadequate pre-existing relevant measures in those area. Although "financing" (>57) and "accomplice" (>42) were already areas of significant increase for the period 2008-2011 the areas interested by major increase in states adopting measures were: use (>50), assistance (+40); acquisition and manufacturing (+29 and +26). In complex, the areas where major increases (since 2008) are registered are "use" and "financing" (>87 and >97). Such financial controls are mainly related to the legislation on counter-terrorism financing and money laundering and to the establishment of financial intelligence centres. If we still look at the absolute numbers concerning the legal framework (down-side; table 6), we see that manufacture, acquisition, use accomplice, assist and financing are the areas where a higher number of states have measure in place. Instead low implementation areas are transport and

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means of delivery (105 and 97), which only represent half of UN membership. In addition, as observed for the remaining categories (nuclear and chemical), the absolute numbers related to enforcement (upper-side of table 6) are lower than those concerning the legal framework. Moreover, if a general increase in the number of states that implemented enforcement measures is observed, the total number of states remain very low in relation with particularly worrisome areas (stockpile, develop, means of delivery) where only around 80 states have issued enforcement measure.

*What is also quite striking is that notwithstanding the fact that state parties to the BTWC are required to adopt provisions that overlap with a number of the those included in the 1540- Paragraph 2, the raw numbers concerning the BW area were still extremely low in 2008 (when the BTWC was already close to universality).*

In general, the Committee has noticed that overall increase in measures recorded for the accounting and security obligations contained in paragraph 3 (a) and (b) was 5 % by comparison with the increase registered between 2008 and 2011. For biological materials, for example the number of states having in place a legal framework related to border controls is 176 (versus 167 in 2011 and 120 in 2008). Of this overall total, the biological area contributed only for 27%. With regard to accounting for and securing “materials related to” biological weapons the overall rate of implementation measures linger, indeed, far behind in comparison to the outcomes registered for materials related to nuclear and chemical weapons. In addition, there has been little or no increase in measures compared to those registered in 2011 (with the exception of accounting for transport and physical protection measures which showed a slight increase – responsible for that 27% contribution). The data suggest that a very limited number of states have implemented measures in these areas with absolute numbers ranging from 45 and 69 (1/3 of UN membership).

Interestingly enough, the number of states having measures in place (with regards to op. para 3(a) and (b)) increased between 2008 and 2011 (both with reference to legal framework and enforcement), but in some cases, those decrease in 2016, which is a rather paradoxical outcome (figure (2)). *The Committee has attributed the drop to a more rigorous interpretation by members of the laws related to biological weapons (or a better understanding of what they are all about). In any case, and because of the*



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*modest scoring under this paragraph, the Committee expressed in 2016 the view that states “should take urgent action to adopt measures to account for and secure materials related to biological weapons”.*

*What above seem to confirm, once again, that a lack of capacity contributes to non-compliance outcomes.*

Under the issue (border control) also enforcement measures increased since 2011. These increases concern all the sub-areas of border controls: brokering, transport services and financial services for trade transaction/illicit trafficking. Nonetheless, especially as far as this latter category is concerned, the number of states having taken related measures remain low. With regard to technical support, an increase was also registered, both under the legislative and enforcement profile, from 71 and 75 states in 2011, to 85 and 112 in 2016. However, the Committee has noted that such support must mainly be related to detection equipment (which may not correspond to an increase in capacity). *As far as export controls are concerned, a reduction in the number of states that have adopted measures related to biological agents support broadcasts again the idea that either a more rigorous approach in coding for the norms either an initial misunderstanding on its substantial contents must have taken place.*

In summary, the implementation statistics (both legal framework and enforcement measures) imply more modest performance in the biological weapons' field than in the nuclear or chemical weapon ones. Although more and more states have introduced provisions for criminal or administrative penalties to enforce measures related to biological weapons, those states that have done so, still represent a minority of the entire system, exposing a serious gap in the regime. This gap is most noticeable when the numbers are compared with those related to the accounting of nuclear weapons, which are relatively well covered, at least in legislative terms.

Areas of BW control exist where the number of states having legislation/enforcement in place show a drop from 2011 to 2016 (this is often the case under operative paragraph 3a and b). As said, this apparently inconsistent outcome may signal a lack of rigorous interpretation of the laws related to biological weapons or a modest understanding and their contents.

Scholars seem to have an increasing number of indicators to measure states' degree of participation to Res. 1540, including the addition of letters of experience, additional

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information to reports, action plans (since res 1977), requests and offers of assistance matchmaking, and country visits. It is indeed clear that the 1540 Committee is performing a relevant amount of work, and the results, where measurable, are significant. Nonetheless, in the words of the Committee itself, the burden of fighting non-state actors WMD acquisition ultimately rely on states and can only be effective “if all states, irrespective of whether they possess a potential associated with WMD and their means of delivery, implement fully the requirements laid down in the Resolution.”

***Considerations concerning the State Party Annual Reporting (WHO-IHR)***

The International Health Regulations (2005) has raised a series of debates linked to the potential violation of state sovereignty, its consistency with other treaties (environment, trade etc.), and to the operational involvement of WHO in situations (security-related) the might compromise the Agency’s political neutrality. Under this perspective the document accepts the idea the Organization mandate covers Public Health Emergencies (including Public Health Emergencies of International Concerns PHEIC) irrespectively of their origin (natural, deliberate, accidental).<sup>685</sup>

The IHR is to all intents and purposes an international “regulation,” thus compliance with its provisions is mandatory for WHO members unless they opt out.

Under IHR (2005), WHO members are requested (art. 5) to “develop certain minimum core public health capacities” which include: (1) detection, assessment, notification and reporting of events (2) surveillance and response (annex 1A); (3) introduction of requirements for designated airports, ports and ground crossings (annex 1B).

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<sup>685</sup> See also Res. 54.14 (2001) and 55.16 (2002) which called on member states to “treat any deliberate use, including local, of biological, chemical, and radiological attack to cause harm also as a global public health threat”. The passage is significant because it admitted a traditionally security matter (CBRN) in WHO’s remit, although indirectly - through the all-risk approach adopted by the resolution. The following IHR revision, although confirming the general support to the all-risk approach, opened the floor to serious consultations/confrontations among member states and regional groups on the role of WHO should have had in security relevant matters. In particular a southern bloc of states (EMRO, SEARO, WPRO) acted vocally against the inclusion of international security elements in the text of the treaty in the form of words like “threat” (substituted by the wording risk), “CBRN”, and any other language that would explicitly grant the WHO the power to undertake suspect treaty violations involving weapons of mass destruction (e.g. in the case of Biological Weapons and the BWC). See Weir, “A Genealogy of Global Health Security.”

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The same article 5 together with art. 54 and WHA 61.2, require states to provide WHO with self-compiled “State Party Annual Reporting” (SPARs) named National Reports (for the biennium 2009-2010) and National Questionnaires (between 2010 and 2016). These self-assessment instruments of compliance are published on the WHO website – “Global Health Observatory (GHO)”. The trend of IHR-WHO questionnaires returns is described in figure 15 (regions corresponds to WHO regions).<sup>686</sup> In 2012, the WHA Assembly went further (WHA 65.23) by urging State Parties to take the necessary steps to prepare and carry out appropriate national implementation plans in order to ensure the required strengthening, developing and/or maintenance of the core public health capacities as provided for in the IHR. The IHR Review Committee also suggested that the Secretariat should have developed options to move from an exclusive self-evaluation approach to an “external evaluation” model that combines self-evaluation, peer-review and voluntary external evaluations involving a combination of domestic and independent experts (WHA 68.5). In 2015 a tool was developed with this scope: The Joint External Evaluation Mechanism (which has been assigned a Secretariat (the JEE)). The JEE and related activities are currently performed under the WHE/CPI – “Core Capacity Monitoring and Evaluation” branch of WHO (and often jointly with the Global Health Security Initiative). The JEE tool combines the GHSA Action packages and IHR capacities.<sup>687</sup> The JEE Process includes: 1. Country request; 2. Self-assessment; 3. Five-days mission with plenary sessions (all relevant ministries sit in); 4. Report finalization (review by all team members and approval by host country). The consequences of these decisions and processes over the compliance and compliance oversight of regime implementation are apparent.

**Consequences: impact**

As said, effectiveness attains to the degree to which a regime solves the problem that motivated its formation. In this case the regime was raised to outlaw the use of

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<sup>686</sup> <http://www.who.int>

<sup>687</sup> JEE core capacities are organized in terms of “prevent”; “detect”; “respond”; “other IHR-related hazards and PoE”

biological weapons and evolved in a way that included the ban on possession, development and circulation of biological agents that could be used as weapons by states and non-states actors. The scope is obviously extremely broad. Traditionally the two typical dependent variables used to account for non-proliferation treaties' impact are programs and possession of the weapons under governance.<sup>688</sup>

In order to give reason for time changes in proliferation attitudes (potentially linked to biological agents' regime), states' proliferation postures (pursuit and possession) should be studied with respect to overall participation into the BW regime-complex (embeddedness and BWC system effect) and controlled for several traditional determinants of WMD proliferation adjusted for BWC features (see "qualifications", below). As we have explained in the previous chapters, proliferation is usually linked to the capacity to develop a weapon and the desire (willingness) to do so.

### **Dependent variables**

Proliferation activities are usually classified in terms of pursuit and possession. The pursuit variable has been created for countries pursuing biological weapons in a given year. BW pursuit codes 1 if a country pursues a biological weapon in that year and 0 otherwise. Pursuit is defined as a country that is reportedly an active seeker trying to acquire the capability to produce, weaponize and stockpile a biological agent. Consequently, pursuit states have some background capacity, nor sponsor or fund duals use research of concern, but they are actively attempting to get some kind of weapons capability.<sup>689</sup> Biological weapons possession codes 1 if a country possesses a BW weapon/arsenal in that year and 0 otherwise.

### *Qualifications (concerning the model for the study of BW regime effectiveness)*

#### *Biological Weapons "Capacity"*

The production of a few weaponized biological agents or chemicals do not require intrinsic capabilities that a state, however small and under-developed it might be, may

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<sup>688</sup> Jo and Gartzke, "Determinants of Nuclear Weapons Proliferation"; Horowitz and Narang, "Poor Man's Atomic Bomb?"

<sup>689</sup> Author's conversation with Horowitz, February 2016

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not possess: biological weapons have been used on the battlefield since the dawn of civilisation and chemical weapons were already undisputed protagonists during WWI. On the contrary, it must be said that the development of full-spectrum of biological programs and deployable arsenal, meant to be deployed for systematic military actions, represents a very different challenge.

Satisfactory accounts for states' capability to pursue biological weapons remain intangible, as the growing literature in the field of STS proves.<sup>690</sup> Likewise, to the best of my knowledge, ready to use indicator of biological weapons latent capabilities are not available as it is in the case of nuclear weapons.

A few efforts have been made to develop such indicators: the Scientific American Worldview has been evaluating countries according to their biotechnology capacity since 2009 and in its current 2014 version ranks 54 countries;<sup>691</sup> Ernst & Young have produced a biotechnology industry report for the last 5 years, which is unfortunately geographically limited to Australia, Canada, the US and Europe (<sup>692</sup>); the Bioweapons Monitor also produced its own ranking in 2011, which can be found at the end of the 2011 Issue.<sup>693</sup>

Theoretically, assessments should incorporate several information concerning each country national life-science and the global biotechnology industry's landscape.

A country's capacity for working with bio-agents of particular concern or conducting activities with high misuse potential would probably account for overall (1) economic capacity; (2) number and types of facilities (GDP; BSL3 and BSL4 Labs; Vaccine Production Facilities); (3) country scientific know-how.<sup>694</sup> A composite index serving this scope should probably include "research and development expenditure % of GDP"; number of researchers in R&D per million people and number of technicians in R&D (World Bank DATA); scientific and technical journal articles published on specific

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<sup>690</sup> Vogel, "Expert Knowledge in Intelligence Assessments," 39–71; Vogel, "Necessary Interventions"; Ouaghrham-Gormley, "Barriers to Bioweapons," 80–114; K. Vogel, "Bioweapons Proliferation."

<sup>691</sup> See <http://www.saworldview.com/scorecard/2014-scientific-american-worldview-overall-scores/>

<sup>692</sup> See <http://www.ey.com/GL/en/Industries/Life-Sciences/Beyond-borders-Matters-of-evidence-biotechnology-industry-report-2013---Point-of-view-matters-of-evidence>

<sup>693</sup> See <http://www.bwpp.org/publications.html>

<sup>694</sup> Knowledge of how to construct nuclear weapons has spread with the passage of time. Researchers in the Manhattan Project in the United States and elsewhere had no idea at first whether the device they were building would actually function. Subsequent proliferators often benefited from equipment and expertise developed elsewhere. Diffusion equals the log transformation of the number of years since 1938. The diffusion of nuclear technology and knowledge probably does not occur monotonically. Log transformation of the time trend allows us to discount differences in later periods much more than those in the earliest periods.

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subjects (e.g. mentioning CRISPR, in the case of bio), patents' requests mentioning specific words (CAS9, CRISPR); national funding of projects involving dual-use research of concern; (4) global facilitators (growth of GenBank <sup>695</sup>; worldwide number of papers mentioning specific topics (CRISPR, since 2007); overall number of patent application that mention specific words (Gene-drives, CAS9, CRISPR; commercially available kits.

Such an assessment reflects the so-called biotech-revolution's interpretation of bio weapons' development (as opposed to social/evolutionary model). Nonetheless, the drawbacks of revolution-models approaches are well explained by the work of Kathleen Vogel and Sonia Ben Ouagrham-Gormely. The two scholars' understanding of bio weapons proliferation is precisely the one of a "socio-technical endeavour" that requires incidental capacities and procedures, transmission and diffusion of so-called tacit-knowledge and implicit skills, and the presence of circumstantial social circumstances. Unfortunately, a large-scale assessment of these conditions although desirable would be not feasible on the large scale (multi-year, multinational studies). An alternative and probably most viable option to produce a valuable CB "capability index" is reasoning in relative terms, taking as threshold values few specific values displayed by countries that have actually initiated programs and developed weapons in the past (properly adjusted for the growing dimension of the pharmaceutical and biotechnological industry).

*Biological Weapons desire ("Willingness")*

As far as "willingness" - related factors are concerned, things are somewhat easier to grasp. Horowitz and Narang have observed that the same factors responsible for nuclear proliferation also play a role in explaining under which conditions states may want to pursue bio and chemical programs (Biological Weapons seem to work as complement of nuclear weapons at the pursuit stage and as substitute at the possession stage). The United Kingdom dismantlement of its offensive biological weapons program in 1956 is a case in point. More in general, Horowitz and Narang have observed that after acquiring nuclear arsenals, states are much less likely to

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<sup>695</sup> <http://www.ncbi.nlm.nih.gov/genbank/statistics>

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initiate or maintain biological and chemical programs. Under this perspective, becomes necessary to take into account those findings in the effectiveness model of BW by including within control values each country's nuclear profile. The authors have investigated the combined pursue of chemical, biological and nuclear weapons in concert by making use of "survival curves" of pursue and possession of one weapon vis-à-vis the acquisition of pursue of the other two. They have demonstrated that states that possess both bio or chemical weapons, pursue nuclear weapons sooner than countries with either bio or chemical weapons, and that both groups pursue nuclear weapons much sooner than countries without any CBW. This suggests that countries view CBW not only as insufficient to provide for their security, but that they increasingly seek nuclear weapons once they acquire chemical or biological weapons. On the contrary, countries possessing nuclear weapons are at essentially zero risk of initiating pursuit of chemical or biological weapons over time (these two survivor functions appear as one overlapping line). Countries pursuing biological weapons, on the other hand, still have a large desire for chemical weapons. They "fail" and pursue chemical weapons at a significantly higher rate. Controls are not statistically significant. Finally, when turning to estimating the effect of both nuclear and chemical weapons pursuit and acquisition on the risk of initiating biological weapons, scholars' results provide support for the notion that biological weapons (in addition to chemical weapons) can also be appropriately considered a "poor man's nuclear bomb". Two additional findings are reported:

First, countries have generally pursued chemical weapons at a much higher rate in general than biological weapons. This potentially suggests biological weapons are much harder to acquire. Second, after adding an extra curve that depicts how the joint pursuit of chemical weapons and nuclear weapons influences the probability that a country pursues biological weapon, the two scholars note that the probabilities of pursuit are extremely similar across three conditions: chemical weapons pursuit, nuclear and chemical weapons pursuit, and chemical weapons possession. This would suggest that biological weapons are perceived as "superior" weapons, in many ways, to chemical weapons. If chemical weapons were a plausible substitute for biological weapons, we would expect the probability of biological weapons pursuit to decline

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significantly as a country shifted from pursuing chemical weapons to acquiring chemical weapons.

All that considered it is interesting to observe that regression models (logit) which correlate BW possession and pursuit on the one side and “embeddedness” or “BWC System Effect” on the other are not always statistically significant and weak.

On the one side there is a strong evidence (see Horvitz and Narang) that membership in the BWC (measured by BWC system effects) is associated with a lower risk of biological weapons pursuit which would obviously clearly indicate that a growing norm against the proliferation of biological agents (offensive programs) had a power effect on the pursuit of such agents.<sup>696</sup> On the other side the same results cannot be confirmed when controlled for BWC ratification only or embeddedness for absence of statistical significance. As far as possession is concerned, when decent  $R^2$  measures are obtained, results are still hard to explain (contrary to expectations but in line with some findings in the nuclear domain) insofar higher participation to the regime appears positively associated with BW possession (see table 3.5). This result would suggest that, at least in the period under analysis (up to 2000), while participating in the regime states have violated its basic provision, namely BW disarmament.

If statistics seem to indicate that the regime may have had some role in curbing proliferation, it did not impact on possession. This result although apparently counter-intuitive fits historical examination (with major possessors countries interrupting their programs before or much later the signature of the BWC). It is worth recalling here, however, that empirical analysis of these types, as explained in Chapter 2, must be regarded with cautions for several reasons (extremely limited number of cases and modest variation, poor measures of proliferation and possession, weak accounts for temporal dependencies, autocorrelation, etc.)

Nonetheless, it is still possible to offer a general picture of the BW proliferation scenario (in the period 1945 – 2000). Always building on Horowitz and Narang 2014 dataset (which builds and improves on Horowitz 2004) for both possession and pursuit

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<sup>696</sup> Horowitz and Narang, “Poor Man’s Atomic Bomb?,” 530.



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measures, it is possible to account for a number of 21 countries have pursued, at different times and for diverse timeframes, biological weapons (see figure 4.15).

As a consequence of this alternation, the number of states being simultaneously active in the bio-weapons' field has never exceeded the threshold of 10% of states in the system.<sup>697</sup> Among these countries, 9 have supported BW illicit activities after ratifying the BTWC. While two of them credibly possessed effective stockpiles, Russia and China, the remaining seven only reached pursuit stage (Laos, North Korea, Iraq, Iran, Libya, Vietnam, and Cuba). Generally, a positive trend in the number of countries pursuing biological weapons is observed from the sixties up to the end of the Cold War and a steadiness afterwards with only 4 programs states reported in the year 2000 (although assessments are limited by the lack of reliable data).<sup>698</sup>

According to the Biological Weapons Prevention Project, today 25 states have today defence programmes (that are indeed legitimate under the BTWC). Ten of them have been past proliferators, the remaining are countries that had never performed offensive research before initiating a defensive programme. All of the 25 countries have military labs, but only 10 countries have civil labs dealing with dual-use pathogens aside military facilities.

It is indeed the above described scenario that allows for a more generous account of the present effectiveness at least in curbing BW proliferation drive. Indeed several factors should have led to an increased number of pursuers: (1) more states have reasonably become "capable" to set up BW offensive programs (because of economic growth, more accessible and cheap technology (2) increasing reliability of such weapons (due to genome editing techniques, see Chapter 2); (3) more states may have wanted to recur to strategic equalizer insofar bound by the NPT not to seek nuclear

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<sup>697</sup> The numbers of states simultaneously pursuing or possessing nuclear weapons reach the peak value of 16 countries in 1987, but it settles at 8 countries to the turn of the century.

<sup>698</sup> States' behaviours vis-à-vis chemical weapons is very similar to the one just described for bio-weapons, although the size of chemical active states is larger, with a total of 49 pursuers or possessors (variously distributed in the time period under consideration).

It's quite apparent that, if on the one side the number of states pursuing chemical weapons has drastically diminished in the second half of the 1990s, the number of chemical weapons possessors experienced a considerable and constant growth from 2% up to 9% of total states in the system.

Interestingly enough the CWC (framework convention for the chemical weapons) was signed in 1993 and entered into force in 1997.

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weapons (with nuclear weapons acquisition being one of the most effective trigger of BW abandonment).

### Conclusions

Existing quantitative research struggles to define and operationalise the increasingly complex variety of actors and issue areas encompassed by non-proliferation regimes and none of them has focused exclusively on the ones covering biological weapons. Under this perspective, the present chapter has tried to take advantage of this complexity and of the depth of variation that exists in the BW regime.

Sure, regime complexity, as the one described in the case of the bio-weapons regime, can open the floor to negative externalities. Scholars and practitioners have blamed the multiplication of international laws, rules, and obligations for introducing ambiguity into international commitments (diminishing legal clarity and the power of the restrictions imposed); for making it easier for states to shrink on international obligations and to avoid punishments for doing so; for opening the floor to forum shopping; for complicating precedent-setting and making compliance with international institutions harder also for those states that would be willing to abide.<sup>699</sup> Along these lines, regime complexity, would force states to disperse resources and foreign policy decisions across organizations and can forecast instability (throughout contested multilateralism).<sup>700</sup> Additional undesirable effects that have been linked to the regime complexity include: cross-institutional strategizing, the asymmetrical distribution of legal and technical expertise, and the fragmentation of reputation, altogether able to erode the significance of institutions in multifaceted environments.<sup>701</sup> Under this perspective complexity would show the potential to make the overall regime content indifferent at best, if not inefficient.

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<sup>699</sup> Alter and Meunier, "The Politics of International Regime Complexity"; Hafner-Burton, von Stein, and Gartzke, "International Organizations Count"; Raustiala and Victor, "The Regime Complex for Plant Genetic Resources"; Barnett and Finnemore, "The Politics, Power, and Pathologies of International Organizations"; Kelley, "Who Keeps International Commitments and Why?"

<sup>700</sup> Morse and Keohane, "Contested Multilateralism."

<sup>701</sup> Drezner, "The Power and Peril of International Regime Complexity."

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Nonetheless, the analysis offered in the present chapter has highlighted the potential benefits of regime complexity for both policy-makers and researchers.<sup>702</sup> As shown in the previous Chapter 3, the BW regime complex has indeed proved able to (1) accommodate multiple interests creating a common ground for states (with potentially very different characteristics and priorities) to cooperate (including by linkages that enlarge the scope for deal-making); (2) has offered a cooperation's structure easier to manage. But more importantly the regime has given birth to a mutually reinforcing system of compliance measures and "in-kind" oversight mechanisms as the Confidence Building Measures, 1540 reports, and WHO/IHR Questionnaires, whose performance has been analysed in details in the present chapter.

Chapter 3 had already reported a general increase in the membership with regards to the BW regime complex individual institutions. The findings of the present chapter point in the same direction. With respect to the overall BW regime participation, the analysis has shown that states' joining rate (measured as ratification or other type of consent) has largely kept pace with (when not exceeded) the rate at which new agreements have been created revealing a still strong support for the regime main principles. Nonetheless, significant variation in membership among and within regions is equally clear. With Europe and the Americas leading the way, the Global South lags behind when it comes to ratifying international commitments over biological agents. The latter finding, matched with additional controls (for national economic capacities and national regimes), seems to suggest that modest participation, where existing, is attributable to a lack of capacity more than a lack of willingness. Participation is also largely influenced by other countries decision to participate - as shown by the significant and positive association with BWC System Effect (proportion of BWC joiners to the total number of states in the world). Always with regards to participation (= embeddedness) determinants, an interesting finding is the one which, in line with general wisdom, highlights how countries with lower military investments are more prone to participate to the BW non-proliferation regime.

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<sup>702</sup> Hafner-Burton, von Stein, and Gartzke, "International Organizations Count"; Keohane and Victor, "The Regime Complex for Climate Change."

The chapter has also scrutinized, with reference to the three main agreements constituting the regime complex, reporting rates. In general the regime registers decent level of compliance with such requirements - with politically binding measures (CBM) marking lower returns than legally binding ones (1540 National Reports and WHO Reports). The latter two also register higher marks in terms of both promptness of response (modest lag since the injunction became effective) and in terms of overall number of documents delivered to the reporting authority. The diverse degree of performance can be attributed to diverse factors (beyond their legal profile) which include the issue area at stake, the friendliness of the tools in itself (and the capacity of the state to enter answers into the document format), the openness/secretcy assigned to the information collected, and the assistance that is offered to states in performing the task.

As anticipated, effectiveness (broadly indented) is hard to grasp and the establishment of a binary relation between the regime and specific proliferation outcomes is virtually impossible. The size and features of such effectiveness has been already discussed in the findings of the previous Chapter and is not repeated here. However, the quantitative analysis in the present chapter has suggested that some additional indicators of success are present. Not only states have sponsored more (and more demanding) initiative, and have progressively ratified or consented to the existing ones, but it seems that they have also ameliorated the quality of their participation (e.g. more participants at BWC Review Conference and more Working Paper presented). A growing number of states have shared information on their ongoing programs dealing with DURC or Select Agents and opened their laboratories in the framework of assistance and external evaluation missions. This background suggests that, when not already at work, room exists in the framework of the present regime for social mechanisms to operate (learning, mimicking, persuasion and social influence) eventually empowering regime effectiveness. Nonetheless, the present section has served the purpose of revealing how states still struggle to adapt their national legislation to the regime's requirements (with disappointing statistics in comparison with both the nuclear and chemical field). Especially, with regards to non-

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state actors, legal and, in particular, enforcement measures, the states which have introduced appropriate provisions are still a minority. Similar feedbacks come from the SPARs (WHO) with regard to preparedness and response in cases of emergencies. These are clearly areas where the regime still has a long way ahead.

In terms of the number of BW proliferators and possessors that would be registered if the regime were not in place, the present investigation has shown that a conclusive assessment is not credible at the present stage of research for many reasons including data limitations. The analysis has nonetheless reasonably suggest that the fleet of BW offensive activities would be far more crowded and lively in the absence of the BW regime-complex.

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