

Dr. Luca Nonini (luca.nonini@unimi.it), Prof. PhD Marco Fiala (marco.fiala@unimi.it)

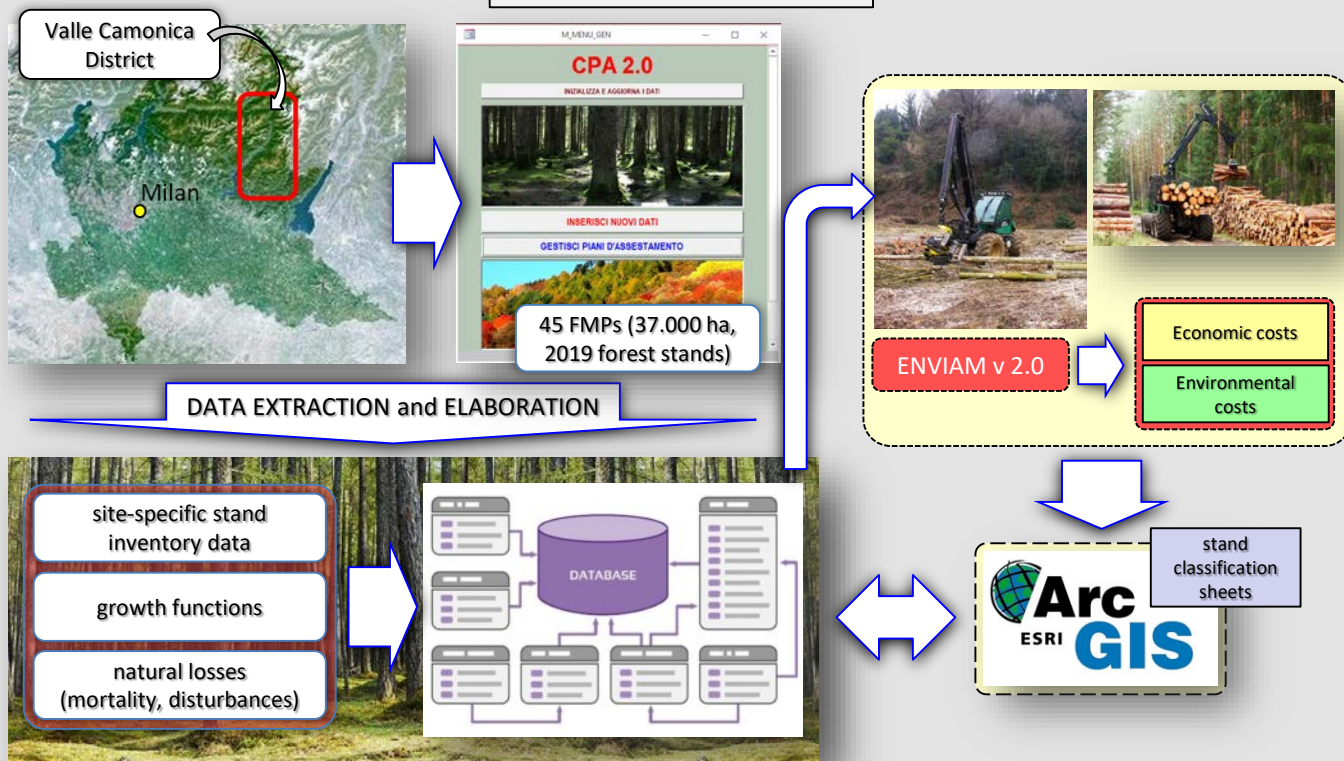
INTRODUCTION

- Quantification and mapping of forest Ecosystem Services (ESs) is essential to identify effective forest management practices and to support environmental institutions in the decision-making processes;
- To mitigate climate change, the most important forest ESs are: (i) carbon stock and (ii) woody biomass supply;
- The use of models based on site-specific primary (measured) data collected in Forest Management Plans (FMPs) is essential to support the sustainable forest management.

GENERAL OBJECTIVES

- To develop a model to quantify and map (1) carbon stock (ES_1) and (2) woody biomass extracted from the forests (ES_2) at stand level using site-specific primary data:
 1. ES_1 (modeling of carbon dynamics in forest): to calculate the mass of carbon ($t \cdot year^{-1}$) stocked in different pools over time according to the forest management practices;
 2. ES_2 (analysis of woody biomass harvesting chains): to calculate the mass ($t_{DM} \cdot year^{-1}$) of different woody assortments extracted from the forest over time and economic ($\text{€} \cdot t_{DM}^{-1}$) and environmental costs ($t_{CO2eq} \cdot t_{DM}^{-1}$) of the machinery chains.

MATERIALS and METHODS



RESULTS

- Development of an interactive model for multi-level forest management. Direct users will be Mountains Communities (U_1) and supply chain operators i.e. forestry enterprises (U_2) Regarding U_1 : information about woody biomass (and C) and its evolution over time will be provided to support sustainable and multifunctional planning and management; regarding U_2 : indications to minimize the economic and environmental costs of woody biomass production will be provided to promote a greater use of local forestry resources.