ForestMap – The next generation of forest maps – adapting a Nordic success story across the globe

Forests provide countless values to people and society, both in developing as in developed countries. For the developed countries, the main value has been from wood and products from wood. In many developing countries, the forest is still seen as a common right of access, supplying firewood, food and building material. Today, new societal values are provided by the forests, important to human well-being. Presumably, the most important value of the forests is that they have been identified to have a major role in global climate change, where deforestation, afforestation and new strategies to actively increase carbon sequestration, are very important processes. Moreover, the forests are critical habitats for biodiversity and there is increasing evidence that biodiversity contributes to forest ecosystem functioning and the provision of ecosystem services.

However, there is very little global discussion on how improved management of productive forests could contribute to mitigation of climate change and enrichment of biodiversity. If forest owners could utilize efficient decision tools for improved management and precision forest management, they would benefit with higher yield and net turnover, which in turn motivates them to further improve the management. Higher net turnover is also a motivating factor to reinvest in additional management and afforestation, hence, creating a positive loop that mitigate climate change by increased carbon sequestration and is beneficial to biodiversity. Extrapolated to the global forest estate of 3.9 billion hectares, these data suggest that about 77% of the world’s forest is owned and administered by governments, about 4% is reserved for communities, about 7% is owned by local communities, and about 12% is owned by individuals.

In the above context, a fundamental need from forest stakeholders is data about the forest state and change in terms of biomass, tree species composition, and forest cover. However, depending on the stakeholder, the need of data, required accuracy, willingness to pay and need of decision support is very much variating. When also considering that many stakeholders are illiterate and may not have adequate competence to interpret data into management decisions, there is a clear need for a solution that also can strengthen equality (including gender equality) among stakeholders.

The ForestMap project will provide new means for forest mapping globally and provide new open data crucial for sustainable forest management and mitigation of climate change. The overall objective is to advance the societal values of forest use by developing and evaluating a new methodology to produce forest maps across the globe. The project will develop easily applicable methods for forest map production using crowd-sourced data from smartphones and remote sensing data from space- and airborne systems. Artificial Intelligence (AI) algorithms will be developed in order to produce tailor-made forest maps to stakeholder’s needs, corresponding to their willingness to pay. The societal value of the forest maps used in existing and new business models will also be explored.

Research partners: Linnaeus University, Swedish University of Agricultural Sciences, University of Helsinki, Marmara University / Istanbul Technical University

Industry partner: Katam Technologies AB

Test areas: Sweden, England, Turkey, Uganda, Chile