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The "Forest Community Fingerprint" concept - A tool to assess the resilience of forest-depended communities

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On a global scale around 350 million rural people are entirely dependent on forest resources for their daily livelihoods. In fact, forest resources play an important role for improving the lives of forest-dependent communities and for poverty alleviation. But in most cases these communities require targeted policy and management strategies that foster the sustainable use of forest resources in order to improve the livelihood benefits. However, to direct management decisions it is essential to understand the factors interaction that lead to forest ecosystem depletion and to define priorities. Several studies have provided methodologies to estimate and analyse the forest dependencies of rural communities worldwide. However, whether forest-dependent communities are resilient to changes and are using their resources in a sustainable manner is hardly documented.

To quantify the true value of forest resources for rural communities, the European Neighbourhood and Partnership Instrument East Countries Forest Law Enforcement and Governance II (ENPI East FLEG II) Program is concentrating on the human-nature dynamics across Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and Ukraine. Household surveys were performed within the program's framework in these countries to gather information about the human dependency on boreal forest ecosystems at community as well as household levels. The complexity of the survey design and the amount of data collected required a sophisticated tool to quantitatively compare the communities among each other and to derive conclusions about existing forest use and forest functionality patterns.

Here we present the "Forest Community Fingerprint" (FCF) concept, a novel approach to synthesise the in situ data and to provide a robust estimate of the resilience of 36 forest-dependent communities. The FCF is based on six parameters which provide a comprehensive picture about the facets of forest use. These parameters are 1) Human resources, 2) Financial capital, 3) Market System, 4) Forest-based Knowledge, 5) Forest Ecosystem Stability and 6) Infrastructure. Each of them is scored basing on the household survey data and provides a sound assessment of the communities' sustainability and well-being. Our study found that in total seven communities out of 36 are at risk of degradation and need immediate actions, while five communities are in a steady state. However, the majority of communities (24 communities) are considered as in the transition phase, meaning that further analyses need to be performed in order to implement well-directed actions that increase their resilience.

The developed empirical concept is a broad approach that requires further adaptation for local conditions. However, in the current state it can already identify communities at risk and give a first insight into the complex relationship between socio-economic aspects and the facets of forest use. Developing a tool to estimate absolute values for baseline levels of forest functionality would be the next step in our approach. But even now, the FCF can be used as a tool to help stakeholders and policy makers in taking immediate measures to improve rural livelihoods and to promote local poverty alleviation strategies.