Mapping Ecosystem Services to Human well-being (MESH): managing landscapes to achieve Sustainable Development Goals

Mapping Ecosystem Services to Human well-being – MESH – is an ecosystem service assessment and mapping toolkit developed by Bioversity International, CGIAR, and the Natural Capital Project in support of a Science for Nature and People (SNAP) project on ‘Making Ecosystems Count in the Sustainable Development Goals (SDG)’.

MESH is an integrative modelling framework that calculates ecosystem service production functions and maps ecosystem service provision under different landscape management scenarios. The base model of MESH integrates and extends ecosystem service models from the Natural Capital Project’s ‘InVEST’ toolkit into a graphical framework (Figure 1) and includes methods to automatically create input data, define scenarios and visualize outputs (without the need to use, e.g., ArcGIS). Development is underway to integrate models from King’s College London’s ‘WaterWorld’ policy support tool. Other models can easily be incorporated into MESH via a model plugin framework.

www.naturalcapitalproject.org/MESH.html
This link will be live starting from mid-November 2015

Figure 1: MESH interface

www.bioversityinternational.org
www.naturalcapitalproject.org

Photo: Fishing on Rupa Lake, Nepal. Upstream and downstream communities work together to develop fishing regulations to ensure sustainable benefits for all. Credit: IWMI/N. Palmer
An extension to MESH that is under development, MESH-SDG, will generate outputs and indicators that are specific to the SDGs, based on findings from research and stakeholder consultation during the SNAP project. MESH-SDG will be designed to populate values for up to twelve SDG-relevant indicators (see Figure 2). These outputs will provide a basis for making comparisons of progress towards multiple national SDG targets across different scenarios of ecosystem change, for example, arising from land-use planning or investment decisions.

MESH can either run on global datasets where local data is not available or user-provided datasets for specific contexts and finer scale studies. Pilot studies in the Volta Basin will be used to test and validate the accuracy and utility of MESH in decision-making and feedback into model improvements.

Ecosystem changes can be linked to some SDGs more readily than others. We consider only those SDG targets where scientific evidence for linkages between ecosystem change and the target is convincing. MESH-SDG will link ecosystem change to six SDGs: food security (SDG2), health (SDG3), water (SDG6), sustainable cities (SDG11), climate (SDG 13), and conservation of terrestrial ecosystems (SDG15).

MESH-SDG outputs are designed to respond to the information needs of stakeholders seeking to achieve the SDGs, using the best available science (see Figure 3).

**Figure 2:** Current modelling capabilities of MESH and future modelling capabilities of MESH-SDG.

**Figure 3:** Example of MESH-SDG workflow in an intervention decision-context.