

Policy Brief

TEEB Country Studies

Implementation, Integration and Utilisation

(TEEB – The Economics of Ecosystems and Biodiversity)

**Results and Recommendations from an International Expert Workshop
held 21-24 May, 2013 on the Isle of Vilm, Germany**

Bettina Hedden-Dunkhorst¹, Leon Braat², Heidi Wittmer³, Jasmin Hundorf⁴, Kees Hendriks², Nathalie Rizzotti⁵, Karsten Grunewald⁶, Jeroen Panis⁷, Markus Erhard⁸, Ravindra Singh⁹, Robert Bradburne¹⁰, Lennart Kümper-Schlake¹, Lile Hu¹¹, Ivana Petrov Rančić¹²

¹ Federal Agency for Nature Conservation (BfN), Germany

² Alterra - Wageningen University and Research Centre, The Netherlands

³ Helmholtz Centre for Environmental Research (UFZ), Germany

⁴ UNEP, TEEB Office, Economics and Trade Branch, Switzerland

⁵ Federal Office for the Environment (FOEN), Switzerland

⁶ Leibniz Institute of Ecological Urban and Regional Development (IOER), Germany

⁷ Agency for Nature and Forests of the Government of Flanders, Belgium

⁸ European Environment Agency (EEA), Denmark

⁹ Biodiversity Programme, GIZ, India

¹⁰ Department for Environment, Food and Rural Affairs (Defra), United Kingdom

¹¹ Chinese Research Academy of Environmental Sciences, China

¹² State Institute for Nature Protection, Croatia

Keywords: The Economics of Ecosystems and Biodiversity, TEEB Country Studies, ecosystem services and values, policy relevance, mainstreaming ecosystem services and biodiversity

Main Message

TEEB (The Economics of Ecosystems and Biodiversity) is an international initiative that highlights the economic and social values and benefits of nature with the aim to provide policy support for its maintenance. Inspired by the success of the international study to inform related policy discourses, today numerous countries across the world develop TEEB Country Studies (TCS). A TCS identifies ecosystem services that are vital to meeting the country's policy priorities and makes recommendations on how these services can be integrated into decision-making. Recommendations - depending on the country context - can include policies for poverty alleviation, subsidy reform, land use management, protected area manage-

ment, securing livelihoods, investment in natural infrastructure restoration and national accounting to include natural capital.

Despite substantial differences in terms of scope, focus, approaches and methodologies, most TCSs share the aim to take stock of a country's natural capital, assess its values and capture these values by offering appropriate policy options. Key challenges for the implementation of a TCS are 1) to determine its scope, 2) to capture and deal with trade-offs between different ecosystem services and 3) to maintain policy relevance.

TCSs are supported by UNEP's TEEB-Office that hosts the international TEEB process. A number of national, regional and international political processes and initiatives complement TEEB's goal of making the values of ecosystem services and biodiversity visible, including for example: National Biodiversity Strategy and Action Plans (NBSAP), the United Nations System of Environmental-Economic Accounting (SEEA) or the global partnership for Wealth Accounting and Valuation of Ecosystem Services (WAVES). UNEP's TEEB-Office facilitates to link TCSs to these initiatives. At the international level, Target 2 of the CBD (Convention on Biological Diversity) Strategic Plan 2011-2020 asks Parties to integrate biodiversity values into national and local development and poverty reduction strategies and planning processes and to incorporate these values into national accounting systems by 2020. At the regional level, the European Commission's request to map, assess and value ecosystems and their services and to promote the integration of these values into accounting and reporting systems has recently stimulated an intensive negotiating process among and within member states. Linking TCSs to these and other related initiatives can add value and generate substantial synergies that ultimately enhance policy responses to sustain ecosystem services.

Ecosystems and their services impact on many aspects of society and economy. TCSs can, for instance, be utilized to support countries' current efforts to move towards a greener economy (including the greening of the business sector) or to influence sustainable development at the local level. Revealing insights on externalities, the values of ecosystem services or the economic impact of different use options can provide a basis for decision-making on subsidy reforms, help to refine local government regulations or to develop locally adapted market- or non-market-based instruments that safeguard ecosystem services. The economic importance of ecosystems at different levels can be highlighted through planning tools like spatial planning or natural capital accounting. Decision support from these tools can be substantially enhanced when integrating information on the status, trends and values of ecosystems and biodiversity.

Key challenges for TCSs are to mainstream the values of biodiversity into related sectors (for example, energy, regional development, finance, agriculture, forests, climate or poverty alleviation) and to emerge from a study-based initiative to a continuous process that stimulates policy results, which ultimately contribute to the conservation and sustainable management of ecosystems and their services.

This policy brief summarizes the discussions of an expert workshop on the implementation, integration and utilization of TCS. The workshop was held 21-24 May 2013 on the Isle of Vilm, Germany.

1 What is TEEB and why is it an Important Initiative?

TEEB, introduced at the G8+5 Summit in 2007, is an international initiative that provides evidence of the economic and social benefits of ecosystem services and biodiversity by highlighting their non-monetary and monetary values and estimating the costs of their loss and

degradation. It combines expertise from natural and social science to draw attention and guide actions that safeguard ecosystem services for future generations (TEEB, 2013).

A global meta-analysis on the economics of nature and numerous case studies from around the world reveal the enormous, yet often unrecognized, economic values of ecosystems and biodiversity. TEEB also provides useful entry points for policy makers at various levels (international, national, regional and local) and business to adjust their actions towards sustainable development. By emphasizing the need to link science and policy at an early stage and to frame any study within a policy context, TEEB takes an approach that offers a basis for informed decision-making.

At a time when societies worldwide increasingly strive towards green economies and the attainment of sustainable development goals, TEEB contributes by highlighting values and benefits of ecosystems and biodiversity for human well-being. By proposing suitable policy tools and instruments, it suggests ways to sustain the values and to realize the benefits. Yet, mainstreaming TEEB findings and recommendations further into related economic sectors and processes remains a major challenge. One important step in this regard is to carry out TEEB studies at the country level.

2 TEEB Country Studies – Cases, Approaches and Challenges

Inspired by the international TEEB process a number of countries started to carry out TEEB studies, while other countries, including China express strong interest to do so. The focus and scope across the studies differ substantially, depending on who initiated the study (e.g. governmental, non-governmental or scientific institutions), its prime intention and purpose, the approaches chosen as well as capacities and resources available. Yet, despite the differences, most TCS share the overall aim to recognize and take stock of natural capital, demonstrate its monetary and non-monetary values and to capture these by offering policy options for a more sustainable use of ecosystem services.

In 2011, influenced by the Millennium Ecosystem Assessment (MEA, 2005) and TEEB, the **United Kingdom** (UK) became the first country to complete a comprehensive National Ecosystem Assessment (NEA)¹ including some economic analysis of ecosystem services and biodiversity. The results provided the basis for the Natural Environment White Paper released by Defra (Department for Environment, Food and Rural Affairs) in the same year. Now, building on the results of the NEA, further economic valuations of ecosystem services, analyses of macroeconomic implications, assessments of cultural values, policy testing and applications are in progress to supplement the NEA.

Nordic countries (Denmark, Finland, Norway and Sweden) as well as **Georgia** recently finalized TEEB scoping studies². A scoping study provides a useful basis to better focus a subsequent TCS. The Nordic countries identified and classified ecosystem services and their indicators in the region and came up with a synthesis of the biophysical status and trends of ecosystems as well as their socio-economic importance and monetary values. The study also provided initial suggestions for potential policy response and a basis for individual country studies in the region.

¹ <http://uknea.unep-wcmc.org/>

² <http://www.teebweb.org/countryprofile/nordic-countries/> and <http://www.teebweb.org/publication/teeb-georgia-scoping-study-2013/>

In **South Africa** the Department of Environmental Affairs is taking the lead to synthesize evidence of ecosystem values and relevant case studies and to develop a framework, a road map and a communication strategy for a TCS. Mainstreaming biodiversity into the Green Economy landscape is an important component of South Africa's TEEB related activities and its upcoming National Biodiversity Economy Development Strategy. Yet, further reflections are necessary on how to integrate TEEB into the NBSAP.

Brazil started a TEEB process in 2010 aiming to strengthen national development policies related to poverty alleviation, energy supply, deforestation and private sector engagement. Mainstreaming ecosystem services and biodiversity into respective economic sectors is a major goal. The study includes a gap analysis to complement existing research on the status and valuation of ecosystems. Like the international TEEB study, Brazil takes a target group approach synthesising knowledge for national, regional and local policy makers, citizens and business. Each segment is supported by a number of national and international key partners and most strikingly, both, the Ministry for the Environment and the Ministry for Finance jointly coordinate the process.

India launched a national TEEB study in 2011 and released an 'Initial Assessment and Scoping Report' in 2012. TEEB India, initiated and steered by the Ministry of Environment and Forests, aims to assess and value costs and benefits of ecosystem services, provide policy recommendations to foster sustainable development and conservation at national, state and local levels, identify tools for improved biodiversity-related business practice and provide recommendations to raise public awareness of the contribution of ecosystem services and biodiversity towards human welfare. The study, which is coordinated by a Steering Committee and supported by a Scientific and Technical Advisory Group, focusses on coastal and marine ecosystems, forests and inland wetlands. While the TCS is carried out at the national level, it will draw evidences and lessons from field based case studies.

The Netherlands initiated a TEEB process in 2011 to raise awareness of nature's values in Government as well as among the business community and citizens. Another major objective is to mainstream the values of ecosystems and biodiversity into economic decision-making. Meanwhile analyses and modeling referring to ecosystem services related to cities, the business sector, green space and health as well as the Caribbean overseas territories (Bonaire) have been completed. Studies related to spatial planning, further Caribbean islands and trade chains are about to be published. The latter analysis is quite unique in the landscape of TCSs, because it investigates the impact or footprint of human consumption in the Netherlands on ecosystem services in other countries.

The **German** TSC (to be completed in 2015) recognises and synthesises existing evidence on ecosystems and biodiversity and their values and at the same time puts strong emphasis on communicating the process and the results to decision-makers and the public. Initiated by the Ministry for the Environment, the study fosters the science-policy interface and aims to contribute to the implementation of the National Biodiversity Strategy and international obligations by generating additional economic arguments for nature conservation. In three main reports the status and value of ecosystems and biodiversity in cities and rural areas as well as the impact of climate change are analysed. A final report will synthesise the results and discuss relevant policy instruments.

The **TEEB National Implementation Project** (2013 - 2016) is a European Commission sponsored project that supports the implementation of TEEB projects in five countries (Bhutan, Ecuador, Liberia, Philippines, Tanzania). Technical support for these projects includes the compilation of a TEEB Guidance Manual (completed, see below) and training for TEEB implementation at the national level. Each project will be implemented through the technical

and logistical support of a host country institution, in close cooperation with national government ministries and in cooperation with relevant UNEP divisions as well as regional offices and other national and international organizations.

These examples illustrate the diversity of TCSs in terms of focus and scope according to countries' priorities and needs. Yet, **key challenges of TCSs** are often quite similar. They frequently refer to the scope of the study and methodologies to be used, trade-offs, stakeholder involvement and policy relevance.

Decisions on **the scope** need to be taken according to the geographical coverage of the study (e.g. a full national assessment versus a case study approach) as well as the types of ecosystems, the services and interrelations to be analysed. It is usually most effective to also limit the policy scope of the study by defining policy questions to be addressed by the TCS and by deciding if policy objectives aim on targets at the national, regional or local scale. In this regard a scoping study could be a useful first step to identify relevant policy questions as well as ecosystem services, potential interactions and the availability and accessibility of data and information. More specifically, and in relation to **valuation methods** used, choices need to be made, for instance, on discount rates to be considered when valuing costs or benefits of ecosystem services over time or on how to account for risk and uncertainty, non-linear relations or scaling issues.

Circumstances that significantly increase the complexity of a study are interdependent policy goals or **trade-offs** between different ecosystem services. Trade-offs imply that, when one service increases, other services decrease, for example, increasing cropping intensity in a wetland can decrease the ability of the wetland to balance water supplies in a certain region or affect water quality. In the context of policy decisions, trade-offs may inflict conflicts of interest, because a specific decision can favour one group over another.

In this regard **stakeholder involvement** and communication are crucial to foster transparent and informed choices. With limited human and time resources available, however, the question always remains who should be involved, which sectors, organisations or individuals and to what extent. Experience demonstrates that once a clear understanding of the TCS's objectives and scope exists, a stakeholder analysis can help to identify the extent and sequence of stakeholder involvement and thereby ensuring later buy-in on the implementation of potential recommendations.

A third key challenge is related to **policy relevance** or, in other words, how to guarantee that TEEB results are relevant and implementable by policy makers and practitioners. In this regard a TCS is most effective if:

- relevant policy questions are identified at an early stage and adapted during the course of the study
- TEEB results respond to national policy objectives and/or international policy obligations and specifically consider national policy priorities (for example, poverty alleviation, energy security, climate targets)
- policy processes are well understood and feasible policy instruments are investigated
- TEEB results relate to national legislation, regulations and relevant spatial planning
- important stakeholders are involved and specifically civil society and the media recognize and support the study (both are important to influence policy).

In general, placing policy at the centre of a TCS is crucial for implementation.

These and further challenges as well as technical and operational guidance on how countries may conduct a TCS are addressed in the **TEEB Guidance Manual for Country Studies** published in May 2013 (<http://www.teebweb.org/resources/Guidance-Manual-Teeb-country->

[studies](#)). While fostering the idea of a country specific implementation, the manual outlines and discusses major steps that a country may follow in the process of implementing a TCS. These steps range from the initiation of a study to the analysis of related policy, the valuation of ecosystem services, communication and finally the application of findings.

3 Integrating TEEB Country Studies into the International Landscape of Ecosystems and Biodiversity Policy

Following the Rio Conference in 1992, the importance of biodiversity and ecosystems gained increasing recognition over the last two decades. This resulted in the establishment of the Convention on Biological Diversity (**CBD**) and numerous (inter-) governmental, non-governmental and scientific initiatives at the international, regional, national and sub-national level. There is a potential that by further linking TCSs to related initiatives substantial synergies can be generated.

At the international level, encouraged by the CBD's Strategic Plan for Biodiversity 2011-2020 and Decision IX/9 parties are currently in the process to review, update and revise their **NBSAPs** (National Biodiversity Strategy and Action Plans). The updated NBSAPs will be utilized to integrate biodiversity targets into national development and poverty reduction strategies. TCSs could add value to NBSAPs by providing important information on the status and trends of ecosystems. Besides, ecosystem indicators - that are often an integral part of TCSs - can support monitoring efforts in order to track NBSAP implementation (see CBD, Aichi Targets, especially Target 2, 3, 11).

In addition, TCSs are closely interlinked with two international initiatives related to national (natural capital) accounting. Initiated by the UN Statistical Commission, the UN **System of Environmental-Economic Accounting** (SEEA) is a multi-purpose system generating a wide range of statistics and indicators to monitor the interactions between the economy and the environment and to better inform decision-making (SEEA, 2013). WAVES (**Wealth Accounting and Valuation of Ecosystem Services**) is a global partnership initiated by the World Bank in 2011 to enable more informed decision making that supports genuine green growth and long-term advances in wealth and human well-being. WAVES aims to foster efforts to integrate values of natural resources into national and environmental accounting through pilot projects in member states. It utilizes internationally agreed standards and develops standard approaches for ecosystem service accounts (WAVES, 2013). Both initiatives focus specifically on national accounting. Linking them to TCSs - that usually take a wider scope often including various ecosystem services - interactions, trade-offs as well as monetary and non-monetary values can on the one side increase the inclusiveness of national accounts and on the other side help to mainstream TCS results.

The **UNEP TEEB-Office** located in Geneva, Switzerland, links TCSs to related international and regional initiatives. It also provides TCSs with an information platform, guidance and technical training. Moreover, the office overlooks current developments and initiates and supports further sectoral and biome specific TEEB studies to be compiled (for example, TEEB and the Green Economy, prepared as an input to Rio+20, TEEB for Water and Wetlands or TEEB for Oceans and Coasts. In addition, development cooperation organisations, for instance, **GIZ** (German International Cooperation) in the case of Brazil, Germany and India, provide inter-country and international links through dialogues, workshops and exchange forums.

At the regional level, an interesting example for cooperation and institutional support to member states is provided by the **European Commission**. In 2011, the EU adopted its Bio-

diversity Strategy to 2020 “*Our Life Insurance, our Natural Capital*”. In Target 2, Action 5 of the strategy member states are asked to “map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020” (EC COM (2011) 244). Supported by the European Environment Agency and the Joint Research Centre, the European Commission has initiated a process to implement the tasks as outlined in Target 2, Action 5. This includes the setting-up of a MAES (Mapping and Assessment of Ecosystems and their Services) Working Group and six thematic pilot studies focussing on different ecosystem types and their services as well as on natural capital accounting, in order to develop a coherent conceptual framework and to explore data, methodologies and scaling issues. Fostering the exchange with TCSs could provide insights on how major MAES challenges, especially related to trade-offs between ecosystem services, scaling-up, scenario-building etc. can be addressed at the country level.

These examples show that linking TCSs to the international landscape of natural capital related initiatives can generate substantial added value in terms of advancing methodological, but more importantly, policy issues. Further communication and cooperation with related initiatives and processes will be useful.

4 Utilising TEEB Country Study Results

Because ecosystems and their services affect many aspects of society and economy, TCS findings have a great potential to inform and influence numerous facets of human life. Workshop participants discussed the contributions of TCS in the context of 1) the green economy, 2) sustainable development at the local level, 3) greening the business sector, 4) spatial planning and 5) natural capital accounting.

The **green economy** has become a leading economic concept for many countries around the world. Linking TCSs to countries’ efforts towards a transition to a green economy can highlight the role of biodiversity in a green economy and support nature based solutions. This is especially relevant for developing countries where employment to a large extent depends on ecosystem services. TCSs can, for instance, reveal market externalities through valuations and support necessary subsidy reforms by providing insights into the impacts of various use options. In the agricultural and energy sector, embedding the concept of ecosystem services can contribute to establish sustainable food and energy supply strategies.

For **sustainable development at the local level** TCSs can offer insights on ecosystem services and natural capital as demonstrated by many case studies, for instance, on the utilization of wetlands or the benefits of mangroves. This knowledge can allow local government regulations to be refined, modes of production and procurement to be adapted or locally adapted market-based instruments, like payments for ecosystem services (PES) and other incentives that safeguard ecosystem service to be developed (TEEB, 2010). Experience shows that local decision-makers and leaders are crucial stakeholders in this regard.

Greening the business sector is an important component to achieve sustainability targets. TCSs can encourage a transformation of business by revealing insights on the dependence of business on nature and her services or by showing the impacts of trade chains on ecosystem services, like in the case of TEEB Netherlands. In addition, because business largely depends on policies and regulations, TCSs can provide valuable information that reflects the impact of alternative ecosystem related regulations on business. Furthermore, knowledge on

changing consumer behaviour and preferences towards nature-friendly products and services can stimulate the development of new business models. Existing Business & Biodiversity initiatives supplement TCSs by establishing standards and advancing best practices.

Spatial planning can be enhanced when ecosystem services are included and the economic potential of maintaining these services is disclosed. This could lead to more informed decision-making, potential conflict prevention and an opportunity to identify compensation strategies at an early stage. The EU Biodiversity Strategy to 2020 Target 2 that requests member states to assess, map and value ecosystem services and to integrate the values into accounting and reporting systems contributes to raise awareness for TEEB among planners.

In relation to **natural capital accounting** TCSs can offer overall logic and guidance as they usually have a broad scope and emphasize social and intrinsic values of nature. Besides, TCSs can assist in data selection processes and offer a platform for dialogues to explain the purpose of natural capital accounting to statisticians. Vice versa natural capital accounting can provide a structure for data gathering for a TCS and ensure that ecosystem service flows (rather than only natural capital stocks) are considered.

In summary, the examples show how - by utilizing and integrating TCSs into economic development concepts as well as planning and accounting mechanisms - synergies can be generated that contribute to better informed decisions. Beyond those issues discussed, TCSs have a potential to generate synergies with many more political, social and economic processes and initiatives. The challenge now is to facilitate the mainstreaming of TEEB and translate study results into policy. In this regard, it becomes evident that TCSs should be accompanied and followed by a process that facilitates continuous adaptation to assessments and valuations of ecosystems and their services, as well as their mainstreaming into relevant economic and social sectors. An enduring process would contribute to support a paradigm shift from over utilization of ecosystem services towards their protection and sustainable management.

References

EC COM(2011) 244. Our life insurance, our natural capital: an EU biodiversity strategy to 2020, Brussels

MEA (2005). Millennium Ecosystem Assessment: Ecosystem and human well-being: Scenarios, Vol 2. Island Press, Washington

SEEA (2013). System of Environmental-Economic Accounting 4 September 2013.

<http://unstats.un.org/unsd/envaccounting/seea.asp>

TEEB (2010). A Quick Guide to The Economics of Ecosystems and Biodiversity for Local and Regional Policy Makers

TEEB (2013). The Economics of Ecosystems and Biodiversity. 4 September 2013. <http://www.teebweb.org/>

WAVES (2013). Wealth Accounting and Valuation of Ecosystem Services. 4 September 2013. <http://www.wavespartnership.org/waves/>

Workshop presentations and results can be viewed and downloaded at: <http://www.teebweb.org/the-international-workshop-teeb-country-studies/>