Sub-Global Assessment Network

SGA NETWORK

Lessons learned from carrying out ecosystem assessments:

Experiences from members of the Sub-Global Assessment Network

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Summary

❑ Lesson 1: Define clear, policy-relevant questions

Clear research questions are vital. Questions should be defined in close consultation with key audiences and users and should reflect the assessment's wider objectives.

❑ Lesson 2: Carefully plan and set clear boundaries of scope and scale

A realistic study design that takes account of the assessment's context and settings will help ensure its objectives are met.

❑ Lesson 3: Be inclusive

An ecosystem assessment is designed to provide a holistic overview and a cross-cutting analysis of existing data including ecological, sociological and economic components. The experience, skills and perspectives of the people involved should reflect this diversity.

❑ Lesson 4: Apply a clear governance structure

The assessment team as a whole will hold a large pool of collective knowledge. The governance and leadership of an assessment is critical for getting the most out of this collective capacity.

❑ Lesson 5: Promote the assessment concept

All stakeholders should feel ownership of the assessment from the outset and see value in the process and products. This may require some 'selling' of the assessment concept in the start-up phase to generate awareness and interest. External communications need to be strategic and well directed to convey the assessment's value to key users.

❑ Lesson 6: Understand the decision-making context

For assessment results to be adopted and put into action, practitioners must understand the context in which they are going to be used and how the results are going to be incorporated into decision making processes. The assessment needs to be relevant to a range of decision-making contexts and priorities, and to consider local, national and international perspectives.

❑ Lesson 7: Exchange with experts

Remember, there is a whole community of ecosystem assessment practitioners who may be able to provide assistance and expert advice.

❑ Lesson 8: Appreciate the need to understand, use and present different types of information

An ecosystem assessment is a data hungry process but inevitably data gaps will occur. It is important to bear in mind that integrating information from various sources increases the effectiveness of the assessment and contributes to a better understanding of the issues at hand. The ability to manipulate and use a range of data sources is critical to ensure gaps are adequately handled and different types of data are aligned into a coherent output.

Introduction

In this document, we bring together the experience of over 70 practitioners who have carried out ecosystem assessments in more than 30 countries worldwide on local, national and regional scales. We present the key lessons learned from their experiences and offer a set of simple, practical first steps for those instigating new assessments. We hope that these lessons can inspire practitioners, helping them to define priorities, forestall some common challenges and create a clear pathway for action.

The **Sub-Global Assessment (SGA) Network** was initiated following on from the **Millennium Ecosystem Assessment (MA)**. The MA illustrated clear links between the environment and people by considering ecosystems and the valuable ecosystem services they provide. The SGA Network was set up in its wake, to provide a structured knowledge sharing platform for assessment practitioners actively involved in sub-global assessments around the world, at all scales. The overall aim of the Network is to promote and facilitate improved capacity in undertaking assessments and using the results. Since the MA, **The Economics of Ecosystems and Biodiversity (TEEB)** initiative has also been undertaken, contributing considerably to the assessment knowledge base, in particular the valuation of ecosystem services. Following TEEB, many countries have also initiated country level studies, which have many similarities to ecosystem assessments and help to inform more specific policy decisions. The TEEB initiative also works closely with the SGA Network to ensure efforts and outputs are linked and streamlined.

As the ecosystem service concept is increasingly incorporated into national and international obligations, there is a growing recognition of the value of ecosystem assessments for informing decision making. Despite this, the supply of timely and accurate scientific information for assessments is hindered by significant gaps in knowledge and capacity. The SGA Network helps to identify and fill these knowledge gaps, informing decision-making through a diversity of tools, processes and approaches. Collective achievements of the Network aim to mutually support relevant global processes including the **Multilateral Environmental Agreements (MEAs)** and the recently established **Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)**.

The lessons outlined here are an attempt to synthesise opinions given by SGA Network members at the third SGA Network Annual Meeting in Bilbao, December 2011. During this meeting Network members were asked to identify significant challenges they had faced in the field of ecosystem assessment, potential solutions to these challenges, and from these, derive the main lessons learned in terms of 'the most important things a practitioner should think about when beginning a new sub-global assessment'.

Despite the complexity and diversity of ecosystem assessments, it is clear that common lessons emerge. This is a positive sign that the SGA Network can capitalise on its collective experiences, with members working collaboratively towards a more productive future.

This document offers a set of introductory practical guidelines, aimed at ecosystem assessment practitioners tasked with managing an assessment process. It seeks to be a simple, 'first-steps' guide and should be seen as supplementary to, rather than in replacement of, more comprehensive technical literature, to which we refer the reader, in particular, **Ecosystems and Human Well-being: A Manual for**

Assessment Practitioners (hereafter referred to as the MA Methods Manual). We do not seek to explicitly address every single challenge faced by the network members, but look for commonalities. Many of the steps illustrated here are underpinned by an underlying need for successful engagement and outreach – inclusiveness throughout is key. It is hoped that by considering these initial steps, practitioners can gain the momentum they require and address later challenges before they occur.

Overall, we hope that this document will contribute to the growing body of ecosystem assessment literature and support the on-going development of ecosystem assessments through the promotion of cooperation, information sharing and good practice.

Key terms:

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (CBD).

Ecosystem services: The benefits that people obtain from ecosystems (MA, 2005).

Ecosystem assessment: A social process through which the findings of science concerning the causes of ecosystem change, their consequences for human well-being, and management and policy options are brought to bear on the needs of decision-makers (MA, 2005). It provides the connection between environmental issues and people, considering both the ecosystems from which services are derived and the people who depend on and are affected by changes in the supply of services (Ash et al., 2010).

Sub-global assessment: The MA sub-global assessments were designed to meet the needs of decision makers at the scale at which they are undertaken; strengthen the global findings with on the ground reality; and strengthen the local findings with global perspectives data and models. Assessments at sub-global scales are needed because ecosystems are highly differentiated in space and time, and because sound management requires careful local planning and action (MA, 2005).

CBD definitions: http://www.cbd.int/forest/definitions.shtml

MA (Millennium Ecosystem Assessment). 2005. Ecosystems and human well-being: Synthesis. Washington, DC: Island Press.

Ash et al. 2010. Ecosystem Services and human well-being: a manual for assessment practitioners. Washington, DC: Island Press.

Contents

Getting started

The challenge: Ecosystem assessments are complex. They can cover a variety of topics, scales and approaches. They bring together multiple forms of existing knowledge, from multiple perspectives. Assessment practitioners need to identify their own assessment's stages and components and set out a realistic plan for achieving its objectives. A successful ecosystem assessment will engage its stakeholders throughout and will need a strategy for doing so. Deciding where to start, how to plan and direct data gathering and analysis, and what and who to include in the process is a complex challenge in itself.

Here we discuss two aspects of this challenge: defining the questions that the assessment will address; and setting its scope.

Lesson 1: Define clear, policy-relevant questions

Clear research questions are vital. Questions should be defined in close consultation with key audiences and users and should reflect the assessment's wider objectives. Chapter 1 of the MA Methods Manual introduces the importance of being policy-relevant while chapter 2 describes the importance of stakeholders and forms of participation. In terms of first steps, the SGA Network members found the most useful questions are often:

- **Demand-driven:** i.e. focused on a political window of opportunity with links to national priorities, particularly human well-being and long-term development goals;
- **Policy-relevant and useful:** i.e. applicable to a topical policy question and can be translated for use by decision makers; and
- **Applicable to key sectors:** national planning offices, industry, business, agriculture, and the general public, as they will be the final users of the assessment.

Practical tips:

- Involve key stakeholders from the outset (Lesson 3) to give them a sense of ownership, which in turn can greatly improve the assessment's impact.
- Treat stakeholders as the users of the assessment, and tailor key questions towards their needs and concerns.
- Conduct a "user needs assessment" to identify questions that are important to target audiences.
- In some cases, it may be appropriate to stimulate initial demand by proposing an assessment to decision makers as a useful tool for resolving particular issues (see Lesson 5).

Box 1 shows how SGAs at local, national and multi-national scales have identified policy-relevant questions by involving local decision-makers, responding to national government recommendations and aligning with global strategic aims.

Box 1: Policy driven assessments – Local to global

Responding to the needs of local decision makers and interest groups can significantly increase the value of an assessment

Local scale assessments in Guatemala and Thailand supported by the UNDP-UNEP Poverty Environment Initiative (PEI) respond to a clearly articulated policy-relevant question that reflects an important "need" or "problem" expressed by local decision-makers and interest groups. For example, in Guatemala the assessment asks "*How can the decision making process be strengthened to ensure consistency of implementation among municipal development plans and central government investment for the benefit of social actors, reducing vulnerability, improving food security and provision of environmental services within a framework of climate change and social equity?*" In Thailand a policy-relevant question has been formulated for each of its three pilot sites to respond to specific poverty-environment challenges and interests. For example, in Nan Province the policy-relevant question is "*How can the Provincial Development Policy better integrate agricultural development, centred on commercial crops, with conservation efforts to both enhance well-being and maintain ecosystem services*?" In both countries, the assessment teams engaged with local decision makers at the beginning of the assessment process to introduce the assessment objectives and process. As part of the consultative process, the policy-relevant questions were elaborated with the participation of local decision-makers and interest groups. Responding to the needs of decision-makers increases the likelihood that the assessment process will be of interest and value to them, and in turn lead to an improved management of ecosystems services and associated benefits.

*Monica Lopez and Alex Forbes, **UNDP-UNEP Poverty-Environment Initiative**, Regional Programme Advisers*

Developing an assessment with careful consideration of the wider policy context can ensure integration of priorities and on-going work through multiple levels.

The new **EU Biodiversity Strategy to 2020** contains six interrelated targets in support of a headline objective to halt the loss of biodiversity and the degradation of ecosystem services by 2020, and to restore them as far as feasible. Target 2 in particular requires that by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems. Recognising the need to improve knowledge of ecosystems and their services in the EU, "*Member States, with the assistance of the Commission, will 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*". This provides a policy context for an Ecosystem Assessment for Europe, building on on-going activities at national, European and global levels, in particular the **UK National Ecosystem Assessment** and the CBD **Strategic Plan for Biodiversity and the Aichi Biodiversity Targets**.

To work towards implementing this target the EU Working group on Mapping and Assessment of Ecosystems and their Services (MAES) was created, with a mandate to support Member States in undertaking the work necessary for the 2014 delivery, with the assistance of the European Commission and expert contribution. This will help to ensure an integrated Europe-wide effort.

Key questions and core tasks have been developed in relation to these overarching policy targets which address status and trends of ecosystems and ecosystem services, drivers of change, impacts on human well-being, priority setting, and economic implications.

*Anne Teller, **European Commission**, Directorate-General for Environment, Nature and Biodiversity*

Lesson 2: Carefully plan and set clear boundaries of scope and scale

A realistic study design that takes account of the assessment's context and settings will help ensure its objectives are met.

Considering the following issues during the planning phase can help to clarify how objectives are going to be met, and set the structure and direction for the assessment:

- **A clear, practical overview of the entire assessment process**, including a realistic scope, limitations, and step-by-step mapping of how research goals will be attained.
- **A conceptual framework** to organise and align ways of thinking about the assessment and focus key issues and relationships.
- **An analytical framework** to direct data gathering and facilitate synthesis across different components and knowledge systems. This can help to identify the kinds of information required, where it might be found and how it can be integrated into an overall message.
- **A governance structure** including roles and leadership and decision-making guidelines (see Lesson 4).

Chapters 2 and 3 of the MA Methods Manual provide more detailed theory on developing governance structures and conceptual frameworks, but it is important to consider all of these features in parallel and keep them under continuous review. The following practical tips build upon this:

Practical tips:

- In terms of context and settings, key considerations include geographical boundaries, types of ecosystems and ecosystem services, and social, political and economic characteristics.
- Build on tried and tested tools and approaches, such as an MA-like framework, but adapt them to specific requirements.
- The analytical framework should be shaped by two factors: key questions and assessment context, i.e. the types of systems and services that are relevant to the assessment area and key users. Box 2a shows an example of how user needs and concerns across multiple sites and scales were drawn into a single framework.
- Administrative documents with terms of reference can help to keep the assessment on track (see Lesson 4).
- Be realistic with the scope and geographical scale of what you can achieve, given the available resources (i.e. budget, data available, etc.). A pilot assessment may be a good starting point to identify key issues and priorities. Box 2b provides an example of how pilot studies can be used to shape analytical frameworks.
- Be flexible – your plan should be kept under constant review, allowing room for on-going iteration and adaptation to contingencies. This can be particularly important during the start-up phase, to ensure the research questions addressed are the ones of most interest, relevance and use.

Box 2a: A standardised analytical framework can set out key considerations from the outset and balance flexibility and rigour

The **Tropical Forest Margins sub-global assessment**, lead by Alternatives to Slash and Burn (ASB), successfully integrated research from multiple sites and scales and distilled key messages for a wide range of users. Over 80 national and international organisations were involved through an approach which balances both flexibility and rigour, enabling a 'dynamic learning' process.

Plot level indicators were developed for each assessment topic, which reflected user needs and concerns regarding specific outcomes regarding land-use, land cover change and resource management.
A standardised analytical framework was adopted to compile and summarise data on the indicators from multiple sites with a comparative, multidisciplinary approach (see figure). This facilitated assessment trade-offs across land-uses.

	Global environmental concerns	Agronomic sustainability	Smallholders' socioeconomic concerns	Policy and institutional issues
Natural forest				
Forest extraction				
Complex, multi-strata agro forestry systems				
Simple tree crop systems				
Crop/fallow systems				
Continuous annual cropping systems				
Grasslands/pasture				

Flexibility allowed space for individuals to learn at different rates and maintain conflicting opinions. This is particularly important during priority setting, to accommodate different views and facilitate disciplinary and functional integration.
Boundary roles including communication, translation and mediation of assessment coordinators are key to integration across functions and across knowledge systems.

*Tom Tomich, **UC Davis Agricultural Sustainability Institute**, former **ASB** Global Coordinator*

Box 2b: A pilot study helps to develop an integrated framework to capturing diverse concepts of well-being

During an assessment of the role of ecosystem services from rainforests in well-being of Aboriginal people in Northern Queensland, Australia, local-scale studies within different aboriginal communities highlighted that well-being had diverse meanings across different communities.

Pilot studies and focus group meetings in the early stages of the assessment were important for capturing these different perspectives and informing the development an integrated conceptual framework to capture broad perspectives.
An analytical framework was developed which combined both scientific and local knowledge systems, synthesising socio-economic and ecological data together and identifying the links amongst diverse factors. The conceptual framework enabled inclusion of diverse values, while standardised methods helped to distil general messages, to scale-up and to implement assessment work at local and regional scales.

*Kamal Sangha, **James Cook University**, Australia, Northern Queensland assessment coordinator*

Maintaining a balance between all components

The Challenge: The ecosystem approach is multi-layered and complex: co-ordination and integration of all components, with well-balanced inputs and resource allocation, is a challenging yet critical task.

A clear conceptual framework (see Lesson 2) can facilitate this by providing an overview for participation and inclusion from the outset, but as the assessment progresses all strands of work need to be aligned into a coherent output. These issues can be addressed by including the right people, managed within in an appropriate organisational structure to create clear roles and responsibilities.

Lesson 3: Be inclusive

An ecosystem assessment is designed to provide a holistic overview and a cross-cutting analysis of existing data including ecological, sociological and economic components. The experience, skills and perspectives of the people involved in the assessment should reflect this diversity. Chapter 2 of the MA Methods Manual discusses strategies for participation and governance, including some critical criteria to consider. Successful teams within the SGA Network often include:

- **A range of technical knowledge and expertise**, touching on aspects of natural sciences, social sciences, and economics, to fulfil a broad scope of assessment objectives and provide credibility.
- **Varied and complementary skills-sets**, to include not only analytical skills and data management, but also people skills such as team work, leadership, organisation and project management. This can facilitate coordination and integrated management of knowledge, processes and people – not everyone is good at everything.
- **A range of relevant stakeholder interest groups** to provide on-going guidance throughout the process. This secures buy-in, legitimacy and the production of well-balanced, widely applicable outputs. Box 3a shows how engaging stakeholders on the ground can ensure recognition of key perspectives.
- **Consideration of multiple levels and types of authority**, both formal and informal, and at different geographic scales, from village elders and local mayors to national planning offices and UN focal points. Integration of top down and bottom up approaches is important (Box 3a).
- **Experienced scientists and facilitators.** Experienced scientists as authors and reviewers can help to ensure the inclusion of the most up-to-date scientific information, while individuals with experience of managing MA-like processes are better equipped to direct assessment work, co-ordinate the entire process and maintain a holistic overview throughout.

Practical tips:

- When developing stakeholder engagement, think about who is going to use the assessment and how to attain appropriate geographical, sectoral and institutional coverage. More specifically:
    - Within the scientific community, think about both governmental agencies and academia;

    - Within the private sector, think about industries such as agriculture, mining, fishing and tourism; and
    - Within wider civil society, think about engaging volunteer organisations and NGOs. See **Box 3b** for an example of how an inclusive user group helped to generate policy impacts.
- High profile and inclusive initiatives will create their own momentum but some formalised procedures and guidance are necessary. Assigning specific roles, tasks and responsibilities, based on people's skill-sets can help to engage and manage people effectively. **Box 3c** provides an example of how clear organisation helped to engage experts (also, **see Lesson 4**).
- Comprehensive planning, with careful consideration of all components from the outset can help to highlight where specific skills and expertise are required (**see Lesson 2**).
- Different groups bring different understandings of concepts and language. It is important to ensure a shared understanding from the outset through developing a unifying conceptual framework in a participatory manner (**see Lesson 2**).

Box 3a: Engaging and empowering local people can instigate change from the bottom up

The majority of the natural resources in Fiji, and many other Pacific Islands, are owned by indigenous communities facing escalating pressure to exploit them for short-term financial incentives. Top down government instigated resource management plans have not worked as hoped in many cases.

Taking a different approach, the **Lomani Gau ecosystem assessment** is an initiative rooted in the empowerment of local people, who are attempting to realise sustainable management of their natural resources on Gau Island. It recognises that for the approach to work, local communities must take ownership of the initiative and determine its direction. This involves innovative participatory learning and action methods, with collaborative efforts of a network of NGOs, educational institutions, development agencies and government departments supporting the sixteen villages on Gau Island. Regular consultative meetings and workshops are undertaken and villagers identify environmental problems and formulate their own integrated resource management plans, based on traditional practices and local culture. Some accomplishments under this initiative include:

- Protection and restoration of coral reefs, mangrove forests and coastal vegetation
- Reduction of deforestation through promotion of sustainable land-use practices, better monitoring and control of harvesting and wild fires
- Widespread introduction of smokeless stoves in the home, which reduces dependency on firewood and has associated health benefits of reduced smoke inhalation
- Improvement of waste management and drainage systems, and better watershed protection
- Improvement of animal husbandry, such as the fencing of domesticated animals, which has allowed people to cultivate nearby lowland areas
- The creation of alternative livelihoods in some villages, to achieve a balance between development and environmental conservation

This has been possible thanks to allowing the local people to learn for themselves that better natural resource management makes economic, ecological and cultural sense. Trust and genuine concern are essential. Educational workshops promote awareness and train local people in surveying, monitoring and managing natural resources. Youth and women are harnessed as powerful social forces, promoting an ethic of self-determination and independence. Leadership comes from traditional authority, with village chiefs advocating the project acting as 'pillars of strength' and promoting fairness and transparency. Further, those involved collectively communicate their activities to the island and provincial councils to solicit support.

Through this approach the Gau people have been given the power and freedom to help themselves, establishing a new environmental ethic, which is diffusing into neighbouring areas and will hopefully set the standards for future generations.

"People are learning from each other and are fostering closer social linkages. The whole of Gau Island is today united to make better environmental management the basis for rural development … and addressing the challenges they face." – Joeli Veitayaki, assessment coordinator

*Joeli Veitayaki, **University of the South Pacific**, Lomani Gau ecosystem assessment coordinator*

Box 3b: An inclusive user group helps to generate policy impacts

The role of the User Group in the ***UK National Ecosystem Assessment*** was to help to inform the approach and dissemination of the assessment to ensure that the evidence and outputs delivered met the specific needs of key user groups, thereby maximising the assessment's impact, influence and utility.

A key group of 22 stakeholders were identified in part through an expression of interest process that took place before that assessment was commissioned. The Stakeholder Group was purposely kept quite small to provide an opportunity for perspectives to be heard and comments taken on board. However, during the identification process many more relevant stakeholders were recognised and these were drawn upon throughout the assessment when wider stakeholder engagement was required, at country-level meetings , for example, (held in England, Northern Ireland, Scotland, and Wales) to help develop the scenarios, to access data and during the peer review of draft reports.

Organisations that were invited to join the Stakeholder Group could be placed in one of three categories and illustrate the broad range of perspectives that were considered in the UK National Ecosystem assessment process:

- **Government environment bodie**s (including the Environment Agency and the Forestry Commission)
- **Environment sector NGOs, consultancies, and rural and marine livelihoods organisations** (including the Wildlife Trusts and the National Farmers Union)
- **Non-environmental government bodies, business sector and education organisations** (including the Department of Health and the Mineral Products Association)

The User Group helped to maintain a connection with and reminder of the phase that follows the completion of an ecosystem assessment, the on-the-ground, practical implementation of the concepts that form the basis of an assessment through an ecosystem approach.

*Claire Brown, Coordinator of the **UK National Ecosystem Assessment**, **UNEP-WCMC***

Box 3c: Comprehensive planning and a clear organisational structure can secure broad participation of specialists

Natural Capital of Mexico uses current biodiversity knowledge to assess states and trends in biodiversity conservation. It considers the impact of public policies and the influence of human, institutional and financial capacities on the management and conservation of Mexico's natural capital, looking at both the current state and the outcomes of different future scenarios. The assessment was based on the Millennium Ecosystem Assessment, and carefully adapted to the specific biological, cultural and socio-economic needs of Mexico. A multi-skilled and inter-disciplinary team was deemed a priority in order to accomplish a rigorous scientific assessment, but was also a major challenge since specialists were required to commit their time and experience on an ongoing, voluntary basis.

Broad participation of specialists was made possible by comprehensive planning, including a clear, integrated organisational structure for conducting assessment work, transparent rules and regulations for participants, and a conceptual framework that aimed to balanced legitimacy, credibility and relevance.

The guidance of a general coordinator provided an overall vision and direction to the entire assessment team, while a group of independent editors assigned responsibility of chapters and volumes to different authors, harmonising different experiences to fulfill the aims of each volume. These important roles were held by prominent scientists with comprehensive experience in working on biodiversity issues and a demonstrated ability to convene experts from the different fields of study required for the assessment.

In turn, chapter authors invited contributing authors to enrich the content of the chapters, fill knowledge gaps and illustrate a range of perspectives.

All chapters were reviewed by independent academic experts from relevant fields. Reviewer comments were assessed one by one and, in the case of discrepancies, discussed with volume editors and resolved through negotiation.

Patricia Koleff, Technical director and Natural Capital of Mexico co-ordinator, ***CONABIO***

Lesson 4: Apply a clear governance structure

The assessment team as a whole will hold a large pool of collective knowledge. The governance and leadership of an assessment is critical for getting the most out this collective capacity. Effective governance and leadership ensures continuous engagement and co-ordination of all groups, as well as tracking progress against objectives, timelines and budget. Chapter 2.3.2 of the MA Methods Manual discusses how to design a governance structure, with a focus on the role of the advisory group. It is important to remember there is no one way to set up a governance structure. Members of the SGA Network found the following considerations useful:

- **Assign specific roles, tasks and responsibilities** with clear achievable goals and deadlines to enable monitoring of progress. Consider specific skills when assigning these roles. In particular, the following types of roles will be important:
    - **A champion**, such as a **chair** or co-chair, to oversee technical analysis and maintain a broad overview. This overseeing role should be held by an eminent scientific expert, with MA-like experience. This can increase legitimacy of the role as well as legitimacy and momentum for the entire assessment through 'championing' (see Lesson 5 and Lesson 6).
    - **Overall co-ordination**, by an independent **secretariat**, with responsibility for administration, project management and oversight of the entire process. This co-ordinating role should be held by a politically independent body, with proven people and project management skills.
    - **An expert group**, which will bring together knowledge from all scientific areas to directly design, lead and review technical aspects of the assessment. This group can provide quality assurance, help to develop key messages and facilitate outreach and communication to the scientific community. This group should consist of a range of scientific experts who can liaise between scientific working groups and advise the chairs and the secretariat.
    - **A range of representative users** to maintain ownership and guide outputs (see Lesson 3).
- **Communication channels** within this structure are critical too, for a continuous dialogue within and between groups. This ensures coherence and can provide opportunities for collaboration and creativity. The Secretariat will have a vital role in facilitating communication.
- Aim to strike a balance between formalised guidance and flexibility. Individuals will require room to learn at different rates and maintain conflicting opinions. An on-going iterative process will be necessary to accommodate this (see Lesson 2, Box 2a).

Practical tips:

- Develop and publicise transparent process documents for all those involved in the assessment. In particular, comprehensive Terms of Reference for the different roles to make it clear where responsibilities lie and who has final decision making powers.
- Be aware that flexibility is particularly important during the question setting phase to allow for concerns to be voiced and addressed.
- Hold regular meetings to maintain communication and ownership, and fairly negotiate problems and alterations.

- Be aware that you will need different types of meetings for different people and objectives, as well as joint meetings between groups.

Box 4: Assigning roles within a clear governance structure helps to secure balanced engagement and distribute work across components

The **Japan *Satoyama Satoumi* Assessment (JSSA)** was undertaken by more than 200 national and international authors, stakeholders and reviewers, with a process modelled on the MA (Fig 1). The clear assessment framework helped to balance different areas of work in an inclusive process.

- The whole assessment process was governed by a **multi-stakeholder board** and a **governmental advisory committee**, representing key users across national and local scales. This included national and local governments, academics, and non-governmental organisations. The Board acted as a governing body to direct the assessment process and provide inputs from their representative institutions. This facilitated identification of users' needs, endorsement of the results and communication of the outcomes back to the institutions and their field. The governmental advisory committee was created at a later stage in the assessment in response to the need for further commitment from national governmental agencies.
- The **Science Assessment Panel** comprised of 13 national and international experts from various disciplines within natural and social sciences. The panel directed the technical and scientific work and ensured the credibility and accuracy of the information generated.
- The assessment work was undertaken by a network of scientists and other experts who were organised into **thematic chapter groups** and **geographical cluster working groups**. Assessment sites were determined through an open process at the beginning of the assessment – interested stakeholders could express their desire to be involved and propose sites themselves. This led to the selection of over 60 sites, which were grouped into five major clusters, by considering ecology and climate, demographic and socio-economic variables and administrative and geographic heterogeneity. Throughout the work, some cluster groups had sub-advisory bodies drawn from local stakeholders to provide locally specific inputs into the assessment.
- The entire review process was overseen by an independent **Review Panel**, to ensure that all comments were adequately handled by the authors.
- The **United Nations University Institute of Advanced Studies (UNU-IAS)** acted as a **Secretariat**, serving to manage logistical, administrative and technical support for the assessment.

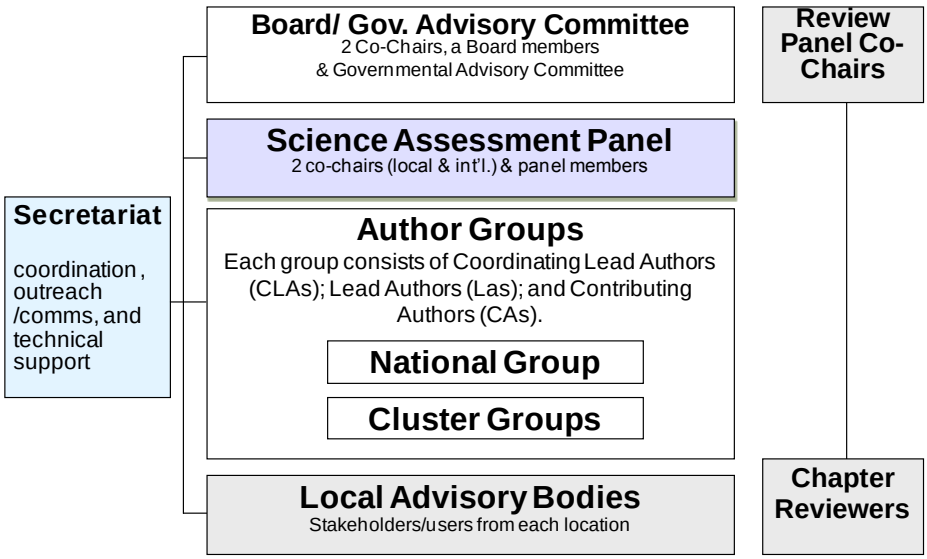

Fig 1: JSSA assessment framework

*Maiko Nishi, JSSA co-ordinator, **UNU-IAS***

Securing buy-in

The challenge: Securing buy-in from stakeholders, i.e. their committed support for an assessment, is the basis for securing funds and generating action. Buy-in from a range of decision-makers – politicians, land managers, businessmen, village elders, town mayors, and the general public – is critical for instigating substantial behavioural change. Without adequate buy-in, an ecosystem assessment becomes an academic exercise with little impact on the ground.

However, buy-in can be difficult to get. Environmental concerns are often given low political priority and scientific research may not be clearly understood or valued. The political environment can be complex, turbulent and vulnerable to short-termism. Stakeholders differ in their values, needs and priorities. For this reason, this section relates very closely to '**Getting started**', since it is important to secure buy-in from the outset.

Buy-in can also be difficult to keep. An imbalance in participation or power in an assessment process increases the risk of losing independence and objectivity, which in turn impairs the credibility of its findings. Retaining stakeholders' commitment to take action requires that assessment outputs be relevant to those expected to use them. Opportunities to further secure buy-in need to be exploited as the process develops.

Despite these challenges, buy-in can be secured by a comprehensive engagement process and communication strategy, which: incorporates appropriate representation of views amongst different perspectives; encourages an ethos of on-going communal learning; aims to understand different priorities; and reaches out to a wide audience with salient results and outputs. Chapter 2 of the MA Methods Manual emphasises the importance of buy-in, however SGA Network members have found that promoting the assessment concept and understanding the decision-making context are useful when initiating this process.

Lesson 5: Promote the assessment concept

All stakeholders should feel ownership of the assessment from the outset and see value in the process and products. This may require some 'selling' of the assessment concept in the start-up phase to generate awareness and interest. External communications need to be strategic and well directed to convey the assessment's value to key users. Section 2.6 of the MA Methods Manual discusses how to communicate assessment findings and the importance of defining a communication goal, but communications need to begin far before conclusions are reached. Promoting the assessment from the outset can be achieved through the following considerations:

- Develop communications as early as possible to ensure relevance and ownership from the outset. See **Lessons 3** and **Lesson 4** for tips on engagement and governance.
- Aim to take a **demand driven** approach so that the assessment fulfils a **need**. Well-directed 'marketing' of the assessment concept prior to the assessment can help to generate demand. See **Lesson 1** for guidance on making policy linkages.

- Be capable of **articulating assessment concepts** and **benefits** before the process begins, to a variety of audiences and through a variety of media and fora. Section 2.6.3 of the MA Methods Manual discussed communication formats and **Box 5a** provides some practical examples.

Practical tips:

- An initial **pilot study** can facilitate communal learning through 'learning by doing'. This helps to verify concepts, **stimulate interest** and **establish the need** for a more comprehensive assessment. See **Lesson 2**, in particular **Box 2b**, which demonstrates the value of pilot studies.
- New opportunities to secure buy-in continuously emerge as the assessment process develops. Ownership, confidence and trust can be created through learning together, sharing results and illustrating how results provide relevant information for key users. It is important to exploit these opportunities, and this can be facilitated through effective communication (see below) , inclusivity and strong governance (see '**Maintaining a balance between all components**')
- Develop a comprehensive **communications plan,** considering **who** to engage, **how** best to engage them and **when**. Section 2.6 of the MA Methods Manual discusses communication strategies and formats. **Box 5b** also provides an example of how a communications plan can secure engagement of important audiences.
- Use different **languages** and **communication tools** for different audiences, focussing on their specific priorities.
    - Identify linkages to major national priorities, particularly human well-being and Millennium Development Goals, and provide evidence of success with reference to specific examples.
    - Consider a broad range of media and think about efficient and effective distribution of communication products. For example, websites are key communication platforms which can be easily accessed, widely distributed and segregated into different sections for different audiences.
- Eminent members of the assessment can act as 'champions', opening channels within their sectors and to higher levels of authority. This can establish useful contacts and create platforms for communication.
- Collaboration and integration with existing initiatives can also help to secure financial support during concept development, identify valuable existing experiences to build upon, and mainstream ecosystem assessment concepts into existing priorities. See **Box 5c** for an example of how the ecosystem approach was integrated into existing work.

Box 5a: Strategies for communicating with research partners, practitioners and policy-makers across multiple sites and scales

The **Tropical Forest Margins SGA** draws on work from widely dispersed sites including Peru, Cameroon, Vietnam and Indonesia. The assessment requires a concerted communications effort, spanning international, national and sub-national boundaries, to involve a range of stakeholders, at different levels. Research partners, practitioners and policy-makers need to have a sense of ownership of the process and results. Active involvement of these interest groups with the assessment has helped to link national and sub-national level strategies to ecosystem services. Specific activities to facilitate this include:

- Participating and sharing experiences in national and sub-national round-tables, policy dialogues and sub-technical working groups;
- Active contribution of the assessment in reviewing national laws or national and sub-national strategies;
- Sharing knowledge and assessment findings with various audiences through active participation to national and international scientific and policy events-workshops, display of assessment-outputs reports and policy briefs and website communication; and
- Stimulating stakeholder learning through capacity building activities and soliciting active participation in SGA related joint seminars.

The assessment team found that engaging with various stakeholders throughout the entire process is critical to ensure the sustainability of assessment work. It enables continuous review of how well stakeholders understand the key concepts; an understanding of the opportunities and challenges in specific national and regional contexts; and the chance to deal with any issues that arise. Further, pro-active engagement is key for combating short-termism – policy-makers often change, re-engagement with each generation is essential. These steps secure ownership, confidence and trust.

*Florence Bernard, Programme Associate, **ASB Global Coordination Office***

Box 5b: Developing a comprehensive communications plan ensures effective outreach

The **Millennium Ecosystem Assessment in Biscay (EEMBizkaia)** is a local scale assessment which has achieved success due to a clear outreach and coordination strategy. An extensive communication plan was carried out in coordination with researchers, local authorities and NGOs, ensuring stakeholder participation from the outset and the subsequent socialisation of results. Key aspects of this communication plan included:

- **Involving stakeholders at multiple stages of the assessment**; either in educational workshops, research surveys and interviews, or sharing results via conferences or modern media channels.
- **Encouraging direct contact and continuous communication** between all stakeholders and the technical assessment team to voice problems and concerns and guide outputs.

Specifically, local, national and international conferences and workshops were conducted to articulate the assessment benefits to key audiences. This was alongside continuous development of outreach materials and publications in both specialised journals and the general public media, including short, simple **audio-visual media** to convey key messages in a friendly manner and engage diverse interest groups. Further, continuous communication with international partners and other multidisciplinary teams, particularly the Millennium Ecosystem Assessment of Spain, ensured coordinated efforts, engagement with the wider community and scaling of results.

With widespread buy-in from a range of key stakeholder, results of the assessment are being integrated into policy and implemented by local technical authorities.

*Igone Palacios and Nekane Viota, assessment co-coordinators, **University of the Basque Country***

Box 5c: Take a diverse approach for generating interest and securing funding

The Indian Urban & Rural Millennium Ecosystem Assessment (IURMA) was conducted by a partnership between **Research and Action in Natural Wealth Administration (RANWA)** and the **Covenant Centre for Development (CCD)**. They further collaborated with existing initiatives to get their assessment work off the ground in India by integrating the MA framework into a pre-approved project which was already supported by various national and international bodies, including the Indian government.

The assessment team used a practical, solutions-based approach focussing on 'hot-topics' for policy-makers and the general public, particularly energy, transport, health, water, and food security. They segregated different components of their assessment according to the interests of different groups and potential donors, packaging the benefits of the assessment to appeal to specific needs to align the assessment concept with their interests and ensure relevance.

This enabled ecosystem assessment concepts related to key priorities to be studied in parallel to existing projects. Local outcomes were then integrated into national level processes during user workshops.

Utkarsh Ghate, Director at Covenant Centre for Development (CCD) and co-ordinator of IURMA

Lesson 6: Understand the decision-making context

For assessment results to be adopted and put into action, practitioners must understand the context in which they are going to be used: the users' needs and how the assessment results are going to be incorporated into decision making processes. This is easier to do if the right combination of people has been assembled from the start. The assessment needs to be relevant to a range of decision-making contexts and priorities, and to consider local, national and international perspectives. The MA Methods Manual stresses the importance of relevance, credibility and legitimacy; understanding the decision making process through the following practical steps can help to secure these characteristics (also see Lessons 3 and Lesson 5 for further guidance on inclusivity and engagement).

- **Be independent and maintain political neutrality.**
- Ensure planned outputs are informed by an understanding of **how** decision makers are going to use them. See Box 6 for an example.
- Participatory development of products that **translate scientific results into policy-relevant information** is essential (see Lesson 8). This can be facilitated by **inclusivity** (see Lesson 3).
- **Avoid being policy prescriptive**, your role should be to provide information not recommendations. This allows findings to be applied to a range of decision making contexts, policy settings, and used by a variety of policy-makers.
- **Ensure temporal relevance -** remember that assessments take time. Short-termism of political agendas and unpredictable political volatility make assessments vulnerable to changes in power or political settings. This can result in a loss of buy-in, political will and relevance. If information is being developed to fit into a decision making process that will take place during a certain time period, the assessment must be concluded before that period.
- **Ensure spatial relevance** – take into account political and administrative spatial boundaries. Bear in mind potential political limitations on national and local responses to trans-boundary assessments.
- Take a diverse approach. Engage stakeholders with different types of interest and authority. This can reduce dependence on particular parties, helping to make the assessment more resilient to change. See Box 5c for an example of diversifying by segregating an assessment into different topical components.

Practical tips:

- Ensure the assessment is directed by independent groups - use independent expert reviewers and separate scientific experts and co-ordinators from political groups. Political buy-in is important but the assessment should be allowed to evolve free of political bias.
- Establish and maintain a common language to ensure shared understanding of concepts from the outset (see Lesson 2).

Box 6: Developing assessment outputs based on an understanding of how decision makers are going to use them ensures relevance and usability

New Zealand's Ecosystem Services Programme informed the development of their ecosystem service models by an understanding of how decision makers intended to use the information, thus aligning the outputs with policy-makers needs on different spatial levels. Land management officers were interested in using the assessment of ecosystem services to inform progress towards conservation goals. For example, regional authorities in New Zealand are applying soil conservation practices to reduce erosion and improve water quality. They wanted to assess the validity of their methods and identify other beneficial management strategies.

The spatially explicit models generated by the Ecosystem Services Programme can be applied throughout New Zealand, with a level of accuracy appropriate for regional and local policy development, allowing rapid evaluation of land-use change scenarios. Work was presented to regional authorities in charge of environmental policy and planning and helped decision-makers set targets for reducing soil loss and quantitatively assessing progress and co-benefits from soil conservation measures.

*Anne-Gaelle Ausseil, **Landcare Research**, ecosystems and global change researcher*

Broadening the technical basis

The challenge: Assessments are complex and multi-disciplinary, but it is essential that they are scientific, methodical and based on timely and correct information. This requires specific expertise across numerous lines of research. Involving the right people (Lesson 3) and setting clear priorities and boundaries from the outset (Lesson 2) can help to prevent limitations in technical capacity, but with such a broad approach, knowledge gaps are inevitable. This can be particularly problematic for more specialised analytical components, such as valuation and scenarios, where the availability of appropriately trained experts is limited. Added challenges of limited data availability, scientific uncertainty, dealing with multiple scales and consolidating diverse types of information mean an integrated ecosystem assessment can be very technically challenging.

More specifically, incorporating local knowledge is an important component of the assessment process, both to secure buy-in and ensure a holistic analysis, but since such information lacks a peer review process, this can raise questions around epistemology and reliability.

Detailed technical guidance on measuring and monitoring ecosystem services and human well-being can be found in Chapter 4 of the MA Methods Manual. Other useful resources include CBD technical series 58: Developing ecosystem indicators: Experiences and lessons learned from Sub-Global Assessments and other initiatives, and Measuring and Monitoring Ecosystem Services at the Site Scale: Introducing a practical toolkit. But despite the technical complexity involved, a number of simple practical considerations emerge. In particular, early anticipation of these potential barriers and communication with the wider ecosystem assessment community can aid knowledge transfer and capacity building - other practitioners are highly valuable resources too. Further, a flexible integrated approach can support a continuous learning process and on-going incorporating of new knowledge into the assessment.

Lesson 7: Exchange with experts

There is a whole community of ecosystem assessment practitioners who may be able to provide assistance and expert advice. Ideally, expert consultation should aim to:

- **Build local/national capacity** with more experienced scientists acting as mentors for young scientists.
- Form **collaborative partnerships** with other institutions which can allow access to data, training opportunities and on the ground support.
- Provide knowledge which is **contextually relevant**, fitting into the scope and conceptual framework of the assessment.

Practical tips:

- Networking and communication within the ecosystem assessment community can identify and create opportunities for collaboration and information exchange.

- Involve local scientists and students in technical work and take a 'learning whilst doing' approach. This not only provides the added advantage of tacit knowledge, but also builds local capacity for future assessment work.
- Engage in exchange visits with other local assessments for practical experience and knowledge transfer. In particular think about:
    - **Contextual relevance**, such as common national priorities, cultural settings and ecosystem types, so that the experiences and knowledge gained is applicable.
    - **Existing gaps and complementarities of skill-sets and expertise**, to maximise the opportunity for knowledge transfer.

Box 7 provides an illustrative example of the benefits of exchanges between closely related countries.

Box 7: South-south exchanges with closely related countries can improve technical knowledge and understanding and set new initiatives in motion

The **UNDP-UNEP PEI** has promoted south-south exchanges between assessment teams. During 2011 **PEI Lao PDR** and **PEI Thailand** organised a bilateral study and shared country experiences on economic valuation of ecosystem services in the context of ecosystem and human well-being assessments.

As well as sharing a border and similar ecosystem features, PEI Thailand's northern focal provinces share strong cultural and linguistic ties with Lao PDR. Following their in-country valuation research, both teams exchanged experiences, reviewed methodologies and agreed on specific activities to take the collaboration forward.

As a follow-up the two countries are developing a joint proposal on information sharing and learning on poverty-environment mainstreaming to be submitted to an **ASEAN working group**. PEI Thailand has also commissioned three multidisciplinary teams to undertake this assessment work. As an expansion of the south-south cooperation, the PEI Lao PDR and the PEI Thailand team participated in a UNEP workshop organised in October 2011, in which lessons learned on the methodology and results of the Valuation of Ecosystem Services were shared amongst other initiatives in Africa and Asia. For two days, topics such as challenges encountered, solutions and best practices were shared by over 10 countries.

Monica Lopez and Alex Forbes, UNDP-UNEP Poverty-Environment Initiative, Regional Programme

Lesson 8: Appreciate the need to understand, use and present different types of information

An ecosystem assessment is a data hungry process but inevitably data gaps will occur. It is important to bear in mind that integrating information from various sources, e.g. both peer-reviewed science and traditional knowledge, increases the effectiveness of the assessment and contributes to a better understanding of the issues at hand. Using different information sources not only makes the assessment more valid but also serves to secure buy-in and the necessary practical support. The ability to manipulate and use a range of data sources is critical to ensure gaps are adequately handled and different types of data are aligned into a coherent output. This is no doubt a complex, technical element of the assessment but the following considerations serve as a practical starting point:

- The assessment team should be prepared to leverage contacts and engage the wider scientific community to **collect existing data**.
- Expertise in understanding and using a **wide range of knowledge and information sources** is required, from local knowledge to economic statistics. This needs to be considered when assembling your team.
- It will be necessary to manipulate and align both **qualitative and quantitative data** using appropriate metrics and statistics, and work with data from **multiple scales.**
- It is essential to present data in an objective, transparent **policy-relevant format.** Box 8a illustrates an approach for communicating information to decision makers.
- **Standardisation** of methodologies for data collection and analysis through a **shared analytical framework** can facilitate consolidation into a coherent output (see Lesson 2).

Practical tips:

- Ask stakeholders and funding bodies to identify and provide access to potential data sources.
- Appreciate data limitations; quantitative data can be difficult to obtain but qualitative information can be interesting and useful.
- Some data will not be free to use - include a budget line for accessing data and data licenses.
- Establish an integrated database, a framework for analysis and a standardised set of indicators from the outset, in to which all data should feed, to maintain coherence and relevance across data sources (Box 8a).
- Don't be afraid to highlight what is *not* known. Even if there is a lack of data the process itself can generate important outcomes: building capacity through 'learning by doing' and stimulating support for future research. Including uncertainty is also vital for maintaining credibility. Box 8b shows how continuously building a more substantial knowledge base can eventually stimulate impacts. The assessment process can begin with 'learning by doing' and later evolve into a refined data generation process.
- Data considerations are particularly important in assessments involving indigenous groups. As well as facilitating broader participation, local knowledge and values acquired through experience and observation can offer valuable insights on biodiversity. This type of information, also known as

traditional ecological knowledge (TEK), often handed down from one generation to the next, can serve to uncover natural cycles, emerging trends and build historic baselines where recorded scientific data is absent or insufficient. In this context, there is a need to identify innovative ways to link different knowledge systems, while respecting unique cultural beliefs and settings. See **Box 8c** for an example of the value of TEK and how it can be incorporated into an assessment.

Box 8a: An integrated information system can ensure transparency and usefulness for decision support

As part of the follow-up phase of the Integrated Ecosystem Assessment of Western China, a cross-agency integrated information system has been created to provide datasets to provincial governments which are relevant to strategic planning. It currently holds 54 databases, covering the entire of Western China, encompassing information on administrative boundaries, agriculture and land-use, biodiversity, cultural heritage sites, infrastructure, mineral resources, and ecosystem characteristics such as soil properties and vegetation cover. This enables the coordination of cross-agency spatial information; improves public accessibility and transparency; and the up-scaling and development of appropriate ecosystem monitoring and assessment tools across the whole of Western China. A coordination team consisting of a number of independent agencies are responsible for data sharing and consistency, and the data is continuously available to government authorities to inform regional strategic planning and policy implementation.

*Xiangzheng Deng, **Chinese Academy of Sciences**, Professor and co-ordinator of the follow-up assessment in Western China*

Box 8b: Identifying and building on gaps helps to develop further information and improve impacts

Following on from the publication of the **Argentine Pampas Sub-Global Assessment** report, policy-makers and land managers continued to ignore the importance of ecosystem service provision in land-use policy. The assessment practitioners had found it difficult to engage the policy community from the outset but the challenge revealed some important lessons and significant progress in data usage and methodologies.

The assessment team found that the methods used for pricing services were too subjective, and needed to be explicitly connected to the ecosystem functions associated with ecosystem service provision in order to be translated into practical policy action. Developing objective biophysical data based on the functional value of ecosystem services supplemented the economic methods and provided explicit links between ecosystem function and its value to society.

Further follow-up work identified that using stocks of biomass and water, and their associated fluxes, were useful biophysical metrics to assess and present ecosystem service provision. Capitalising on this progress, several new assessments began in different regions of Argentina, and data could be consolidated and up-scaled. On the country scale, it was demonstrated that trade-off analysis of different ecosystem services is important for supporting sound land-use policies in critical areas of Argentina.

Following this, various meetings and workshops were held to address the issues and implications for policy and evaluate progress. Data manipulation into a more policy relevant format facilitated the communication of results to decision-makers.

Through continuously identifying and building on data gaps, publishing concepts and findings in credible scientific journals, and improving the approach to data presentation, results eventually reached the attention of policy-makers.

*Ernesto Viglizzo, **INTA Argentina**, former coordinator of National Environmental Management*

Box 8c: An inclusive process for incorporating traditional ecological knowledge into assessments

Conservation of Arctic Flora and Fauna (CAFF) is the biodiversity working group of the **Arctic Council**, with a mandate to address the conservation of Arctic biodiversity, and to communicate its findings to the governments and residents of the Arctic, helping to promote practices which ensure the sustainability of the Arctic's living resources. The **Arctic Biodiversity Assessment (ABA)** is the first overall assessment of Arctic biodiversity, which focuses on how Arctic ecosystems and species are changing in the face of cumulative pressures. ABA will also form the baseline for future monitoring and assessment in the Arctic.

The ABA draws on the most recent and authoritative scientific publications, supplemented by TEK from Arctic residents, which has been formed over generations through their historical connection to nature and the land. The two knowledge systems serve to complement each other, providing a more comprehensive representation of the status of biodiversity as well as increasing the relevance of findings to local people. This is facilitated by CAFF's organisational structure, the management board is occupied by country representatives of the eight Arctic states as well as six indigenous groups to ensure that Arctic stakeholders are heard and TEK is recognised and integrated into CAFFs activities. In order to incorporate TEK within the ABA specifically, two TEK coordinators were appointed for Eurasia and North America. Their role was to gather TEK for inclusion in the assessment, and provide on-going guidance to authors to insure it was included appropriately.

The ABA is now undergoing an extensive peer review process including a specific review by the Arctic Council countries and Permanent Participants, which includes six indigenous groups. The final report will be accompanied by a special TEK compendium to communicate the wide range of TEK gathered during the ABA process.

*Kari Fannar Larusson, **CAFF**, Program Officer*

Where can I get relevant advice?

The Sub-Global Assessment (SGA) Network (www.ecosystemassessments.net)

The Sub-Global Assessment (SGA) Network seeks to create a global knowledge-sharing platform for practitioners involved in ecosystem assessment at regional, sub-regional, national and sub-national levels. The intention is to promote and facilitate improved capacity in undertaking assessments and using the results. Achievements of the SGA Network will support relevant global processes such as IPBES and the Multilateral Environmental Agreements.

The Ecosystem Service Partnership (ESP) (www.es-partnership.org/esp)

ESP is primarily a network of scientists, academics and researchers, which seeks to enhance the science and practical application of ecosystem services assessment by coordinating collaborative efforts on ecosystem services at the global, national and local level. It aims to link practitioners, researchers, and stakeholders around the world who are working toward better understanding, modelling, valuation and management of ecosystem services and natural capital.

BiodiversityKnowledge (www.biodiversityknowledge.eu)

BiodiversityKnowledge is an EU project to support networking of knowledge on biodiversity and ecosystem services in Europe. The overall aim of BiodiversityKnowledge is to create a platform to promote links between knowledge holders and policy and decision making by ensuring that the best available knowledge is made available to governments and other decision-makers in Europe through developing a Network of Knowledge for European expertise and through improving the science-policy interface by helping to focus the support of science and scientists on the needs of those setting policy and making decisions

The Economics of Ecosystems and Biodiversity (TEEB) network (www.teebweb.org)

TEEB is a major international initiative to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation, and to draw together expertise from the fields of science, economics and policy to enable practical actions moving forward.

Ecosystems and Human Wellbeing: A Manual for Assessment Practitioners (www.unep-wcmc.org/EcosystemsHumanWellbeing.pdf)

This manual was compiled following on from the MA to allow for the wider adoption of the MA conceptual framework and methods. It is a more comprehensive, technical guide, which can be consulted in conjunction with this document. It contains numerous case studies of best practice, offers a practical guide for undertaking ecosystem assessments and includes tools and approaches that can assess options for better managing ecosystems.