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**INCORPORATING BIODIVERSITY AND ECOSYSTEM SERVICE VALUES INTO NBSAPS:
ANNEX – COUNTRY CASE STUDIES**

Note by the Executive Secretary

1. The Executive Secretary is circulating herewith, for the information of participants in the seventeenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, a report entitled: “Incorporating Biodiversity and Ecosystem Service Values into NBSAPs: Annex – Country Case Studies”.
2. This document contains country case studies to accompany the reports “Incorporating Biodiversity and Ecosystem Service Values into NBSAPs: Roadmap to support NBSAP practitioners” (UNEP/CBD/SBSTTA/17/INF/6) and “Incorporating Biodiversity and Ecosystem Service Values into NBSAPs: Guidance to Support NBSAP Practitioners” (UNEP/CBD/SBSTTA/17/INF/6/Add.2).
3. The report is presented in the form and language in which it was received by the Secretariat.

* UNEP/CBD/SBSTTA/17/1.

INCORPORATING BIODIVERSITY AND ECOSYSTEM SERVICE VALUES INTO NBSAPS

ANNEX – COUNTRY CASE STUDIES



This guidance has been produced as an output of a joint UNEP-WCMC and IEEP project, funded by Defra, and in collaboration with the CBD Secretariat to examine the *'Lessons learnt from incorporating biodiversity and ecosystem service values into NBSAPs'*.

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Document Development

This annex originates from a joint UNEP-WCMC and IEEP project, undertaken in collaboration with the CBD Secretariat to identify the '*Lessons Learned in Incorporating the Values of Biodiversity and Ecosystem Services into National Biodiversity Strategies and Action Plans*'.

The project pulled together a significant knowledge base which integrated a literature review with the knowledge and experiences of CBD Parties themselves. An on line survey was disseminated to CBD National Focal Points or where suitable, alternative country representatives with a significant role in NBSAP revision. As well as remote follow up with survey respondents, six case study countries were identified for in-depth consultations (Micronesia, Georgia, Burkina Faso, Norway, Guatemala and South Africa). The countries were chosen to represent different approaches, geographical regions, capacity levels, socioeconomic contexts and stages in NBSAP development.

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Further information

This annex accompanies the Guidance for incorporating biodiversity and ecosystem service values into National Biodiversity Strategies and Action Plans document, one of two key outputs of the project *'Lessons learnt from incorporating biodiversity and ecosystem service values into NBSAPs'*:

Roadmap: an easily accessible tool to support Parties in incorporating biodiversity and ecosystem services into NBSAPs. This document provides succinct information on how values can be incorporated, the entry points at different stages of NBSAP updating process, and the different approaches to support incorporation of values www.unep-wcmc.org/roadmapforNBSAPs_1027.html.

Guidance document: The guidance document compliments the road map and provides more detailed information of experiences and lessons learned, as well as further technical information on process and approaches www.unep-wcmc.org/guidanceforNBSAPs_1026.html.

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1. Case Study: Burkina Faso

1. NBSAPS DEVELOPMENT: GOVERNANCE AND STATUS

Status of update, from history to today to plans for the future

Plans for the revision of the NBSAPs have been prepared and the NBSAP revision process is about to start. The funds for the revision process have been partially gathered. The Strategy needs to be revised and adjusted to conform to the CBD Strategic Plan 2011-2020. The Action Plan will cover a period of five years and will be updated in 2015. It is foreseen that in March 2015, the Burkina Faso's Strategy and Action Plan for biodiversity will be available.

The NBSAP elaboration activities will in particular focus on the following topics:

- ◆ Prepare an inventory on the state of biodiversity in Burkina Faso
- ◆ Formulation of the national objectives and defining the priorities of the Strategy
- ◆ Development of the Strategy and the Action Plan
- ◆ System for the implementation, monitoring, review and evaluation
- ◆ Support mechanism that needs to be put in place

Governance: who's involved in the NBSAP development?

The structures to carry out the process have been defined and put in place. The SP/CONEDD will co-ordinate the NBSAP revision activities via the DPCIE. A technical group for the follow up on issues relating to the Convention (Ministerial decision) and ensures that all relevant areas are duly integrated in the revised NBSAP (review with senior staff of the SP/CONEDD, scoping meetings, interim progress meetings, endorsement workshops).

The involvement of actors happens inter alia via:

- ◆ The composition of the process management structures
- ◆ Regular invitations for their representatives to participate in meetings and workshops scheduled in the course of the process

An intersectoral decision has been adopted to re-establish the National Biodiversity Committee. This committee, whose task it is to drive the NBSAP revision process (ministerial decision), includes representatives of key ministerial departments, the OSCs that are most relevant in the context of biodiversity, local authorities, researchers, civil society representatives (NGOs) will have. These have been chosen in light of the main themes of the 2011-2020 Strategic Plan and the Aichi Biodiversity targets.

These parties as well as other stakeholders will be regularly invited to participate in scoping meetings that will be organised in the context of the different consultations, and endorsement workshops. In the first phase, in which actions to correct or strengthen implementation need to be identified and concrete targets set specific staff will be identified in Ministries, local authorities and most active OSCs who will be in charge of formulating proposals. The output of this preliminary work, to be amended by the GTS, will have to be endorsed by the relevant and affected organisations/structures.

Future steps include the organisation of a national endorsement workshop (to whom a range of actors will be invited. The NBSAP will then be submitted to authorities for scrutiny and adoption.

The committee will be tasked with the technical follow up and ensuring that the quality of the contents that will be developed in the documents. The relevant sectors will develop different parts of the Strategy and Action Plans as well implementation and financial plans to be integrated into the National NBSAP, under the supervision of the inter-sectoral committee.

Focus on good practice

Specific elements in the process which will contribute to increase the identification and the promotion of the awareness of the values of biodiversity and ecosystems and their integration in other sectors will include:

- ◆ The development of tools for the integration of biodiversity in the local development plans has started in 2010 and will be strengthened as part of the process;
- ◆ The strengthening of existing processes and arrangements for the integration of the value of biodiversity and ecosystem services in the sectoral and inter-sectoral planning tools.

Aspects which are also foreseen in the system:

- ◆ An investigation of the level of awareness

of the value of biodiversity and ecosystem services of the main stakeholders together with proposals for awareness raising actions that will take place before local election that will be organised starting January 2013 for the development of the Strategy and the Action Plan strictly speaking;

- ◆ To increase awareness, translations of key words relating to ecosystem goods and services into easily understandable French as well as the main languages;
- ◆ Contacts with mobile phone agencies, television and the press will be established to organise the dissemination of awareness raising messages

It is also worth highlighting that a Directorate for Environmental Economics and Statistics was created within the Ministry of Environment and living, institutional innovation that will help integrate projects for which this Directorate would be responsible in the revised NBSAP and to implement the measures that will be announced, in particular the follow-up of the questions relating to environmental accounting as well as future work in the area of valuation of ecosystems and their services.

2. ECOSYSTEM SERVICE IDENTIFICATION & ASSESSMENTS: ESS INDICATORS AND MAPPING & NBSAPS

What ESS indicators and mapping exercises do the NBSAPs build on, make reference to, suggest are needed, commit to?

The identification and evaluation of the state of ecosystem services is currently only used occasionally in Burkina Faso. The future NBSAP will however acknowledge the services from ecosystems (the four types of services will be acknowledged: provisioning, regulating, cultural and productive) and will include a commitment to do ecosystem evaluations, including mapping.

Focus on good practice

Research has shown that in Burkina Faso, 30% of farmland (81,808 km²) is in a state of advanced degradation. Other 4 per cent (10,537 km²) are

completely degraded. The situation is getting worth and accelerating.

Burkina Faso has set up a Pilot Programme of Partnerships for Sustainable Land Use (CPP). Its main objective is to fight against land degradation and contribute to efforts to reduce poverty through a sustainable and equitable management of the land which preserved the integrity of ecosystem functions.

Its more specific objective are: (a) the development and implementation of long-lasting partnerships for a better co-ordination and equitable and integrated approach to the management of land; (b) the promotion of an institutional and policy frameworks to better approach and implement sustainable land use in

Burkina Faso; (c) the promotion of an equitable and integrated management of the land, including traditional and innovative practices.

The expected impacts include that “actors have the capacity and necessary competences for a participatory, decentralised management of the land at different levels of the country’s administration” as well as that “land use and restoration techniques based on the local knowledge as well as innovative practices are promoted and spread”.

The limited knowledge on sustainable management of land has indeed been identified as one of the most important obstacles to a better management. It therefore appears essential to train actors working on the ground for them to acquire some basic knowledge.

Some of the results achieved that contribute to objective one of the CBD Strategic Plan 2011-2020 or that provide opportunities to implement this target include:

- ◆ A study on the identification of good practices on the sustainable management of soil. The document has been published in 500 copies and translated into four languages
- ◆ Development of a training plan on sustainable soil management and launch of modules for this training plan in a second phase
- ◆ A study on a communication strategy for the sustainable management of soils has been produced. An adoption plan that had to be implemented is being developed
- ◆ A study on the development of a guide on environmental education at primary school level (the approach should be tested in 2013).

Insights into approaches, methods and techniques used

Another impact is that a system of follow up and evaluation is developed and used by actors active in the sustainable management of soils in Burkina Faso. The lack of such a monitoring system has indeed been identified as one of the

obstacles to the sustainable management of the land/soils. The information collected via this monitoring system would need to be updated regularly. This monitoring system should in particular allow seeing whether the initiatives taken as part of the programme prove effective in ultimately achieving real world effects.

Within the framework of the programme for the sustainable use of land/soil, an analysis of soils in Burkina Faso was carried out to assess their state. Indicators have been introduced to identify whether the measures promoted through the programme are successful. The technical recommendations that are about to be shared with users of the land/soil (who benefit from their services, but also those responsible of the practices that have led to their degradation) are based on the studies on the role of ecosystem and soil regeneration. These studies have revealed important soil degradation (34% of the productive land is degraded due to anthropomorphic causes, including grazing activities, with a progression of the degradation of the land/soils that was estimated to be 105,000 – 25,000 ha each year) has allowed to increase awareness of the risks faced in case no concrete changes are introduced soon. Work on the development of land use accounts was indeed carried out as part of a project on the development on environmental accounts (see section 4.1.3. for more detail). More specifically, the land use accounts (for example urbanisation accounts, accounts on the burnt areas as well as degraded land accounts (for experimental use) have proved useful in this context.¹

The programme for the sustainable management of the soils has already contributed to increasing awareness on the major importance of the sustainable management of the soil for the socio-economic development of the country given that the livelihoods of about 85% of the population depends on agriculture, cattle breeding and forestry.

¹ <http://www.cbd.int/doc/nbsap/nbsapcbw-wafr-01/nbsapcbw-wafr-01-bf-02-fr.pdf>

3. ESTIMATION/DEMONSTRATION OF (MONETARY) VALUES & NBSAPS

Economic valuation as carried out in Burkina Faso is primarily meant to support decision-making, and convince decision-makers of the importance of conservation and a sustainable use of biodiversity and ecosystems. All too often, decision-makers understand messages much better if the information is presented from an economic angle. Economic valuation does hence appear as one of the best approaches to demonstrating to decision-makers and society at large the comparative advantages of the values of biodiversity and the services provided by ecosystems.

What monetary valuation exercises have been done/are being done in the countries?

Monetary valuation has been used on a range of occasion in Burkina Faso, whether in the context of macro-economic analysis or in the case of more site specific studies (such as in the Sourou Valley).

How are these integrated into the NBSAPs?

Burkina Faso's NBSAP will acknowledge the value of biodiversity and the services provided by ecosystem and will include commitment to taking into account the values in decision-making. This recognition of the value of biodiversity and the services provided by ecosystems will cover:

- ◆ The direct value to the economy with a focus on 'provisioning services' such as timber, food, material
- ◆ Other values to the economy from 'regulating services' such as water regulation/purification, erosion pollination, disease regulation, climate mitigation
- ◆ 'Cultural and social values' with potential economic benefits such as landscape and amenity values, ecotourism and recreation

- ◆ Wider 'cultural and social values' with no direct impact on the economy such as values related to identity, cultural, aesthetic and spiritual values

Do they influence the NBSAPs?

On the one hand, the integration will be reflected in references that will be made to the studies and existing processes that have allowed, throughout the last few years, to highlight the values provided by ecosystems in Burkina Faso. The results that will be referred to in the revised NBSAP will provide the background allowing placing the measures announced in the NBSAP in a wider context and therefore allowing underlining the benefits that can be expected from their implementation. This will create a more favourable environment to the implementation of these measures, in particular in the cases where actors and their respective responsibilities will have been clearly identified in the revised NBSAP.

Focus on good practice

An economic valuation of the Sourou Valley² (a valley which has relatively high agricultural potential) has contributed to increasing the awareness of decision-makers with regard to the values of ecosystem services, contributed to a change in the perception of the valley's potential use. Historically, Burkina Faso's development policies in the Sourou Valley pursued the objective to develop the agricultural potential of the wetlands in the valley. The assumption was that an improvement of agricultural productivity would lead to a reduction of food insecurity of the population living on the valley and in Burkina Faso more generally. On the grounds that increases in agricultural productivity may fuel economic development, little attention was given to the other potentials of the valley's ecosystem.

² Somda, J., Zonon, A., Ouadba, J.M., et Huberman, D. : Valeur économique de la vallée du Sourou : Une évaluation préliminaire. Ouagadougou, Burkina Faso, Bureau Régional. 72 pp., URL: cmsdata.iucn.org/downloads/brochure_sourou_corrige_09_08_2010.pdf

This can in part be attributed to the lack of information on their total economic value.

In an effort to demonstrate the various types of benefits delivered by ecosystem in wetlands, IUCN conducted an economic valuation of the natural resources of the Sourou Valley. The aim of this study was to increase the awareness of the economic values of the Sourou valley of decision-makers and stakeholders working in biodiversity conservation to influence decisions on land use conversion and decisions to conserve the natural ecosystems. The specific objectives were: (i) to determine the ecological and economic importance of the ecosystems in the Sourou Valley; (ii) evaluation the economic value of the goods and environmental services associated with the Sourou River.

The study on the economic value of the Sourou valley provides key economic information for strategic orientations and planification of the use of public resources. It shows, amongst other things, that there is not necessarily a contradiction between the conservation of natural resources and their (sustainable) use.

While this study did not allow evaluating the total economic value of the natural ecosystem in the Sourou valley, a value of approximately EUR 15 million in 2009 was estimated for the goods and services that were taken into account in the study. This value should be considered a minimum considering that it does not include indirect uses and non-use values such as heritage value of biodiversity. Timber forest products for energy and construction accounted for 37% of the total value estimated, non timber forest products to 21%, pastoral resources to 18%, fishing resources and river transport 10% each and safari tourism for about 1%. This economic valuation of the valley's environmental goods and services of the Sourou valley has revealed that agricultural production was not the main economic good. The preliminary results of the monetary valuation have indeed demonstrated that agriculture is only the source of 3% of the total economic value of the ecosystem services provided by those wetlands; and this despite the important investments made since 1970.

These results don't suggest that agricultural developments in the region should be halted altogether, nor that the policy of agricultural production development in the valley should be phased out. They rather attract the attention to the existence of other goods and services which have high economic potential. They suggest that that an agricultural development that does not sufficiently take into account the interrelations with other ecosystem functions runs the risk of being counter-productive.

These results have led to the formulation of the following recommendations: (a) to initiate multi-sector consultations to adopt a integrated economic and conservation of ecosystem approach in the Sourou Valley; (b) to revise the framework plan for it to better highlight the interrelations between development and conservation of natural resources. These results have also stimulated the discussion between decision-makers on the way in which ecosystem services could be better integrated in economic development both at the local and the national levels and have prepared the ground for recognition, in the revised NBSAP, of the necessity to integrate the values of ecosystems in sectoral decisions and poverty reduction strategies.

Other research has highlighted the importance of non-timber forestry products for households in Burkina Faso have led to the recognition of these values and led to the creation of an Agency for the promotion of non-timber forestry products (APNL).

These products are both an important source of food, of substitute for food during lean periods, of food supplements and income. Hence, through the provision of non timber forestry products, forests and areas covered with plants contribute to three functions:

The contribution to food security and nutritional balance: in rural areas, the food is in part provided by a range of non timber forestry products which are stored in some localities as safety reserves.

The contribution to the population's health: In Burkina Faso the importance of non-timber forestry products in the improvement of the health of population is reflected in the very big diversity of medicinal plants used.

The improvement of income and the creation of jobs: After agriculture (37%) and the products from cattle breeding (24%), the non-timber forestry products are the third source of income for households in rural areas with 23% (APFNL, 2009).

Given the recognised socio-economic importance of NTFPs, their promotion is taken into account in the national policy documents and orientations in the development (e.g. National

Programme for the Rural Sector, Strategy for the enhanced growth for Sustainable Development, Sectoral development plans at the level of the Ministry responsible for Forest resources). The creation of an Agency specifically tasked with the promotion and development of NTFP reflects the political will to grant the NTFP sector more importance. The Agency, which is a national structure linked to the Ministry of Environment and Sustainable Development, is a national institution of support, co-ordination and follow up on activities for effective exploitation and marketing of NTFP, whether they come from wild, domesticated or re-forestation plants.

4. COMMITMENTS TO RESPONDING TO THE VALUES OF ECOSYSTEMS AND BIODIVERSITY IN THE NBSAPS

NBSAPs & integration of BD and ESS stocks and benefits into the national accounting framework

The commitment to take measures to integrate natural capital or environmental accounts in national accounting has been taken outside the (previous) NBSAP. This commitment is reflected in the creation of a Directorate for Environmental Economics and Statistics within the Ministry of Environment and Sustainable Development. The responsibilities assigned to this Directorate assign to it the responsibility for the development of this type of accounting. It is also specifically responsible for the regular updating of the environmental accounts and the monitoring of environmental indicators.

Good practice example identified

Burkina Faso has in the past done a pilot project for the development of four accounts: water accounts, forest accounts, land use and soil accounts and environmental expenditures accounts.³ Apart from the policy relevance (the soil, forests and water are the main natural assets in Burkina) this choice has first and foremost been guided by the constraints linked to the availability and regularity of environmental statistics.

This environmental accounting project has been led by the SP/CONEDD, in partnership with UNDP and the Society for the Promotion of education and training abroad (APEFE) of Wallonia-Brussels (Belgium). The global aim of the project was to contribute to a better taking into account of the environment and the implementation of the national strategy to reduce poverty. More specifically, the pursued objectives were the following:

- ◆ Introduce a national operational environmental accounting system
- ◆ Develop pilot environmental accounts for forestry resources, the land, water, etc.
- ◆ The development of inter-institutional cooperation around the question of environmental accounting

The approach adopted for the development of the pilot accounts was largely inspired by the System of Environmental-Economic accounts (SEEA) whose development was led by the United Nations Statistics Commission. The development of natural resource accounts has required the steps:

- ◆ Adapting the SCEE chapter on the development of natural asset accounts (i.e. that have not been produced) to the specific context of Burkina Faso
- ◆ Identifying and collecting the data on the natural resources with the participation of the technical partners on the project
- ◆ The analysis and the choice of collected data in terms of quantity, quality, regularity, reliability, coherence, etc.
- ◆ The collection and the processing of the collected data;
- ◆ The development of the pilot accounts

The results were, amongst others, published in December 2008 in a document entitled *The national environmental accounts – Methods and results. A Synthesis of the findings on the environmental protection expenditure* was also published in October 2008.

The main lessons learnt from this experience are the following:

- ◆ The environmental statistics system on which the project needs to rest needs to be taken into account; it is important that the statistical data in the areas as important as forests, the land, water etc. be available for such a project in the area of environmental accounting to be a success. If this is not the case it is absolutely necessary to reinforce the national information system on the environment to get the necessary data for the development of accounts in different areas identified as priority areas
- ◆ Results in terms of capacity building and in terms of pilot accounts have been obtained despite the modest means available to the project;
- ◆ The institutional set-up on which the project must rest is crucial: the main information providers for the project need to be clearly identified

- ◆ This type of project requires the participation of an organisation which is experienced enough to provide the necessary methodological guarantees and credibility
- ◆ The project's activities have attracted a much attention, in particular from different technical and institutional partners – suggesting that the initiative should be pursued
- ◆ Far from being a luxury, such a project not only serves the management of sustainable development but has also and more importantly a better consideration of the environment in the National Poverty Reduction Strategy

Constraints and needs

The difficulties that were encountered were both of a technical and institutional nature.

As regards the technical difficulties, there were primarily:

- ◆ The new nature of the discipline – the methodologies proposed in the SEEA were then (in 2007/2008) only at the stage of theoretical development
- ◆ The weakness of the national statistical system in general and the national system of information on the environment in particular
- ◆ The lack of successful experiences in the area sub-Saharan Africa which could have served as references

The difficulties from an institutional perspective were:

- ◆ The limited human resources
- ◆ The limited logistical means for the collection of data
- ◆ The lack of financial resources for carrying out national surveys
- ◆ The complexity of the procedures to access funds which have resulted in considerable delays in carrying out the activities foreseen
- ◆ The difficulty to create partnership with institutions specialised in this area as most of them are based in Western countries

Mainstreaming of biodiversity and ESS values into other sectors and links to other strategies and plans – what are they, how have they come about?

How is this integrated into the NBSAPs?

The Poverty and Environment Initiative (PEI)⁴ – a joint initiative of UNEP and UNDP – was officially launched in Burkina Faso in August 2010 for duration of two years (2010-2012). In the context of this initiative a range of activities have contributed to the development of a better understanding of the importance of the services provided by ecosystems and a better consideration of associated values in sectoral policies, such as poverty reduction. The degraded state of natural resources and the environment in Burkina were one of the main reasons for including the country in the initiative.

The global aim of the PEI/Burkina initiative is to institutionalise the links between poverty and environment in sectoral development policies, both at the central and the decentralised levels to ensure the sustainable development and pro-poor growth to meet the Millennium Development goals (MDGs), including those potentially affected by climate change. Some of the results expected include:

- ◆ The institutionalisation of the systematic consideration of poverty-environment links in national and local policies
- ◆ The channelling of lasting investments in the environmental sector and the management of natural resources for pro-poor growth
- ◆ The integration of poverty-environment indicators which are integrated in the monitoring framework – assessment of the 2011-2015 Strategy for accelerated growth and sustainable development (SCADD)⁵ and sectoral policies
- ◆ The use of tools for the integration of poverty-environment links is institutionalised and applied in planning and budgeting processes at national, sectoral and decentralised levels

- ◆ The main actors are trained for the integration of poverty-environment links
- ◆ The environmental units in ministerial, regional and private sectors are in a position to inform, create awareness and lead advocacy campaigns for the integration of poverty-environment links in the regions and at the level of the private sector

In the preparatory phase of the PEI/Burkina project (2008-2010), the framework documents such as the Strategic framework to fight poverty (CSLP) which in 2010 became the Strategy for accelerated growth and sustainable development (SCADD), the National Programme for the rural sector (PNSR), the sectoral policies and local development plans have been identified as “entry points” for ensure the integration of poverty environment questions in national processes.

Also the SCADD aims to “create synergies between economic efficiency, environmental sustainability and social equity to result in a qualitative and long-term change of the country’s productive system”. Among the eight objectives is that to “ensure environmental sustainability”, which is split in two targets:

1. Reduce by half, by 2015, the percentage of the population which doesn’t have access in a sustainable way to the provision of drinking water nor to basic water treatment services (indicator/ target for 2015: the percentage of activities that need to undergo an environmental assessment that have undergone an impact assessment reaches 80%)
2. Integrate sustainable development principles in national policies and invert the current trends in loss of environmental resources (indicator/ target for 2015: the percentage of recovered land reaches 10%)

⁴ The Poverty and Environment Initiative, www.unpei.org/

⁵ Stratégie de croissance accélérée et de développement durable (SCADD), URL : http://www.pnud.bf/DOCS/scadd_vfinal.pdf

In light of the importance of the state of the environment for meeting the targets set in the SCADD a study entitled “economic evaluation of the environment and natural resources in Burkina Faso” was carried out in the context of the initiative. The study’s aim was to demonstrate the interlinkages between environmental sustainability and pro-poor growth by providing the “economic evidence” of the importance of the environment in view of having a tool to convince and incentivise decision-makers to recognise the contribution of the environment to pro-poor growth to ensure that policies adopted encourage the sustainable use of resources and to ensure that the adequate financial means are invested to pursue environmental objectives. The aim of the analysis of the environment and natural resources in Burkina Faso was to determine the contribution of natural resources to electric production as well as the welfare and production losses resulting from environmental degradation. It has in particular allowed identifying priority sectors in which political measures need to be taken to produce environmentally significant results.

The study has emphasised the contribution of natural resources (fauna, flora, fisheries, non-timber forestry products, construction aggregates, etc.) and the environment to the national economy, to GDP and the costs of the degradation of natural resources and the environment as well as remediation costs. It demonstrated that about half of the added value produced in Burkina depends on activities which have strong links and direct links with the natural resource base. The annual cost of environmental degradation in the country has been estimated between 18 and 22% of GDP, which corresponds to approximately 89% of total public expenses in the country. These numbers reveal that about one fifth of the national wealth created over a year is lost due to the negative consequences on well-being of the population (revenues, health, housing, etc) and the degradation of natural

resources. The annual amounts necessary to the avoidance of the damages represent about 10% of GDP. In terms of environmental protection, the benefits of a better management of natural resources are two times as high as their costs – from an economic perspective, environmental protection is a source of growth and improved quality of life.

The report comes to the conclusion that priority actions, such as those established through the environmental and economic analysis (reduction of inefficiencies, soil, waste, water, air) have to be integrated in the strategic orientation of the SCADD. This calls for responses through programmes to green the economy and the creation of green jobs with links to measures to adapt to climate change. Farming, breeding and fishing activities need to be regulated in view of creating wealth in the long term. The forestry sector’s management needs to be strengthened in light of potential of a sustainable use of forests could contribute to poverty reduction.

The analysis of the contribution of natural resources to the well-being of the poor shows that their revenue and the quality of life depend very much on the environment. The poor are therefore the most affected by a degradation of environmental conditions. These results are amongst others reflected in the Guide for the integration of the environment and the poverty-environment links in the development of sectoral strategies in Burkina Faso (2011), which could be improved with data and indicators more directly related to services provided by biodiversity and ecosystems.⁶ Local elections will take place on December 2, 2012. Local and regional bodies will need to adopt regional and local development plans. This process, which will start in January 2013, will be an opportunity to promote this guide to promote the integration of issues relating to biodiversity in these planning documents.

Still in the context of the project PEI/Burkina economic evaluations at the level of the sector have been carried out. Hence, the study on the cotton sector shows that the exploitation of cotton as practices in Burkina Faso generated importance revenues but also significant environmental costs: in total, the costs of the damages and inefficiencies in the cotton sector reach amount to 13.7 % of the added value of the sector, equivalent to 0.24% of GDP. The study reaches the conclusion that the cultivation of organic cotton is the best choice for Burkina from the perspective of political economy.

The study on the mining sector shows that mining still importantly contributes the state's budget but that the gold mining in particular has also negative impacts on the environment and natural resources: the costs of environmental damages and inefficiencies are estimated to be about 12.6% of the added value of the sector – these impacts relate mostly to water, soil and the inefficiencies). These would however be avoidable at a moderate cost. These estimates are however based on conservative assumptions – taking into account that non declared gold mining activities and using less favourable assumptions as regards the inputs used, the damages could be as high as twice the amount.

Good practice example identified

The development of the mining sector and particularly the gold mining sector is a threat for biodiversity and some ecosystems in Burkina Faso. The country's revised NBSAP will include an explicit reference to this sector, and more specifically to the planning and legislative tools that relate to the sector.

Some of the links will refer to the value of biodiversity and the services provided by ecosystems. For each one of these element, the emphasis will be put on the advantages in conserving and sustainably using biodiversity and ecosystems and will set targets to be met.

At which stage/s of NBSAP planning and development are these integrated?

The national office of environmental assessment is involved in the NSAP revision process. A revision of the rules governing environmental impacts assessment might be considered to allow for a better consideration of the values of biodiversity and ecosystem services in planning and the implementation of projects and programmes.

Constraints, needs and future developments

The lack of political will in Burkina Faso could prove to be the main barrier to the incorporation of the valuation of biodiversity and ecosystem services in the NBSAP and relevant sectoral strategies. This barrier could be overcome if important resources could be invested into carrying out a range of important valuation studies. The financial barriers are indeed the second most important. Other barriers include the lack of collaboration between ministries and agencies to incorporate the valuation in the NBSAPS and sectoral strategies, the lack of technical and institutional capacity both to do the evaluations themselves and incorporate the results of valuation and the lack of capacity building material on the incorporation of values in NBSAPS and sectoral strategies.

International assistance could facilitate these processes through in-country capacity building workshops and the provision of guiding materials on the incorporation of values and lessons learnt and examples of good practice in incorporating values in NBSAPS and sectoral strategies.

2. Case Study: Federated States of Micronesia

1. NBSAPS DEVELOPMENT, STATUS AND LINKS TO OTHER STRATEGIES AND PLANS

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Status of update, from history to today to plans for the future

History – The Federated State of Micronesia (FSM) set out to take an all-inclusive participatory approach when developing its NBSAP. Inputs from governments, NGOs, and local community representatives helped to secure ownership. Additionally, because FSM is a federation of five governments, one National and four States, careful integration and nesting of strategies was required. Once the NBSAP was completed in 2002 as the national guiding framework, each of the four FSM States was required to develop their own State BSAPs (SBSAPs) as a sub-national implementation road map of specific actions on the ground, within the specific terrestrial and marine jurisdiction of the states. The SBSAPs were completed in 2004.

Current Status - The FSM NBSAP and State BSAPs evolved into the long-term (2004-2023) FSM Strategic Development Plan (SDP) where specific, measurable, action-oriented, relevant and time-bound (SMART) objectives and activities were incorporated into the Environment Sector Strategic Goal Matrix. A five-year (2009-2014) strategic action plan was then developed, which was endorsed and launched at the biennial FSM Environment Conference in 2009.

NBSAP Updating and Future Plans – The next FSM Environment Conference is scheduled for 2013 and the next cycle of plan formulation will be discussed at this forum. It is recognised that there is a need to revisit and update the NBSAP based on new information and emerging issues. In particular this will be in parallel with finalisation

of Protected Areas Network (PAN) framework legislation, and the establishment of a local stream of revenue which leverages more funding from donor communities. The FSM plans to develop models such as the Protected Areas Network Fund in Palau, also known as the Green Fee, which charges visitors a departure fee to go towards PAN sites and activities. However, since the FSM does not currently bring in the same number of tourists as Palau, a combination of mechanisms including tourism fees, resource utilisation/management fees and penalty fees (e.g. ship grounding, sand mining licenses) will be necessary. Updating will also be in line with national and sub-national priorities; include biodiversity-enabling outcomes and commitments; and engage additional stakeholders.

A similar process to that used in the previous NBSAP will be followed, building on the success of the existing institutional and governance arrangements. More specifically, the next NBSAP will:

- ◆ Build on the Sub-National BSAPs and targets and align them to committed goals and targets (e.g. the Micronesia Challenge);
- ◆ Take an iterative, participatory approach for comprehensive stakeholder engagement, creating ownership and validation;
- ◆ Extend participation to incorporate new stakeholders, allowing for broader input. It is hoped this will leverage greater support and ownership from all key players; and
- ◆ Take into account previous strategic planning issues and capitalize on upcoming development planning opportunities, which will run in parallel to NBSAP updating.

Governance: Who's involved in the NBSAP development?

History: During the first NBSAP development phase, the FSM established a co-chair which included both a governmental and non-governmental representative. Led by the co-chair, an 'NBSAP Task Force' was established, comprised of National, State and civil society organizational representatives. Different members of the 'Task Force' were assigned responsibility for developing different components of the NBSAP.

Two national workshops, followed by subsequent sub-national consultations, were held to engage key stakeholders from local, state and national levels to develop the bulk of the NBSAP through a participatory approach. This cross-sectoral method ensured that government and non-government organisations, across all states, were fully engaged and local support was secured.

A local consultant was hired as a project manager to guide the NBSAP development process, and an independent technical consultant compiled proceedings of the National and States consultations into a single document for review by the 'Task Force'.

In addition, an eco-regional planning process, ran by The Nature Conservancy, was integrated with FSM's NBSAP development. This project served as an assessment of the status and trends of biodiversity and provided spatially explicit data, priority areas and tangible objectives – e.g. Areas of Biological Significance for each state (see accompanying Blue Print and associated maps). It also provided the means for the 'NBSAP Task Force' to hold additional consultations and workshops in FSM's four states.

Once the NBSAP was completed, each of the four FSM states was required to develop their own state BSAPS. For almost a year following the completion of the NBSAP and SBSAPs,

the NBSAP Task Force was maintained to coordinate implementation and promote the NBSAP, to improve visibility and credibility. This responsibility was then handed over to the FSM President's National Sustainable Development Committee (NSDC), and has now been taken up by the Department of Resources and Development (DR&D) in its capacity as CBD national focal point (NFP), with guidance from the National Implementation Support Partner (NISP).

Current status: Responsibility for the NBSAP remains with DR&D and with the assistance of NISP organizations, in collaboration with four focal state agencies are responsible for SBSAPs implementation and monitoring: Yap Department of Resources and Development, Chuuk Environmental Protection Agency, Pohnpei Department of Lands and Natural Resources and Kosrae Island Resources Management Authority. This has ensured NBSAP and SBSAP implementation has continued, and allowed the Micronesia Conservation Trust (MCT) to be established. The MCT provides at least \$500,000 annually to the development of protected areas and associated activities, as well as with capacity building for local implementing organizations and communities across the FSM. The MCT has been a major and lasting achievement of the FSM NBSAP development and SBSAP implementation.

Development, implementation and monitoring of the NBSAP and SBSAPs also involves relevant national, state and local government agencies (e.g. development, social and environmental sectors), representatives of civil society and local communities, and support from national, regional and international technical and donor organizations working in Micronesia. The NBSAP and SBSAPs are specifically aligned with local, state and national priorities and only support activities endorsed and lead by the relevant communities and stakeholders.

Future plans: As the CBD National Focal Point and National Implementation Support Partnership (NISP) counterpart, the DR&D will build on the past NBSAP and take on responsibility for guiding the process of revising and updating the next NBSAP and SBSAPs.

Through the Global Environment Facility (GEF) Biodiversity Enabling Project, the NISP members and key stakeholders will serve advisory roles as the Project Management Unit's Steering Committee. The NBSAP Taskforce will be responsible for overseeing the convening of State and National consultations and workshops, as well as the overall development of the SBSAP and NBSAP documents. After state consultations and national workshops have been held, the draft NBSAP will be shared at a national workshop to receive input from all relevant stakeholders. The Task Force will be responsible for ensuring a final copy of the NBSAP is endorsed by the President.

The revision process will involve all those who were part of the development of the current NBSAP, SBSAP and A Blue Print for Biodiversity Conservation in the FSM, as well as a number of new technical and donor partners.

Focus on good practice

The key attributes to achieving results for the NBSAP and SBSAPs implementation included the following:

- ◆ Assignment of a full time member of staff, at National Government level, to lead the entire NBSAP process and attain buy-in at the highest government levels;
- ◆ Assignment of specific and relevant state agencies to oversee the delivery of NBSAP and SBSAP activities at the state level;
- ◆ Comprehensive participation of NGOs, CBOs, traditional leaders and other support groups, as well as engaging national government officials, state governors and legislatures helped to mainstream the plan;
- ◆ The establishment of a sustainable financial plan and mechanism (MCT) provided funding and capacity support for implementation of the NBSAP and SBSAPs;

- ◆ Government commitment to the Micronesia Challenge elevated the profile of the NBSAP and leveraged funding and technical support;
- ◆ Seeking partnerships with sectors beyond the environment brought in new and innovative partnerships; and,
- ◆ SMART/quantifiable target setting allows plans to be assessed and re-visited.

Constraints and needs

Although all states continue to implement the NBSAP and SBSAPs to achieve NBSAP goals, there are different levels of engagement, participation and success in each state. It has been found the key influential factors are leadership, funding and technical support.

The State of Yap excelled during the early stages, creating the inter-agency Yap Environmental Stewardship Committee (YESC) as the implementing body for the Yap State BSAP. Yap did experience some challenges due to disagreements amongst key leaders, but with new leadership in place, Yap came back on track and SBSAP and NBSAP implementation continues to achieve results.

In Pohnpei the SBSAP was facilitated by the Pohnpei Resource Management Committee (PRMC), and this responsibility continues to date. The primary challenge in Pohnpei came in convincing state leadership of the importance of environmental concerns and securing environmental objectives as key state priorities. PRMC restricted itself to place the current Lt. Governor as Chairman to champion the implementation of NBSAP and SBSAP activities.

Even distribution of resources throughout all stages of the NBSAP updating process was also a challenge for the FSM. Significant funding supported the planning phase, but limited funds were available to support the actual implementation of NBSAP and SBSAP activities. In particular, coordination and communication between different agencies and funding bodies created a challenge - the FSM NBSAP and SBSAP groups had anticipated use of Environment Sector Compact Funds to implement the

NBSAP; however most funds were allocated to state Environment Protection Agencies (EPAs), which were not extensively involved in NBSAP and SBSAP implementation. As a result, this anticipated funding source was not realised. This challenge was partly solved through the Micronesia Conservation Trust (MCT), which awarded funding to local governments and communities to implement NBSAPs on the ground. MCT support largely focused on protected areas, capacity building, and

sustainable financing, leaving some gaps in the NBSAP. Despite this, more effective results could have been secured over a shorter time-period had more implementation funding followed the planning process.

Similar challenges and constraints exist in the states of Chuuk and Kosrae. Overall, with stronger leadership and the appropriate funding support at all levels of implementation, the NBSAP and SBSAPs could achieve much better results.

2. ECOSYSTEM SERVICE IDENTIFICATION & ASSESSMENTS: ESS INDICATORS AND MAPPING & NBSAPS

What ESS indicators and mapping exercises do the NBSAPs build on, make reference to, suggest are needed, commit to?

Mapping exercises carried out by The Nature Conservancy (the 2003 FSM Blueprint for Biodiversity Conservation and the Protected Area Gap assessment 2009-2010) provided spatially explicit data which were built into the NBSAP process. Areas of high biodiversity significance were identified in each State, with maps highlighting priority areas. Similar ESS projects (e.g. water resource payment for ESS, socio-economic analysis of agroforestry and livelihoods, etc) will be included in the updating process.)

How are these integrated into the NBSAPs?

When developing the original NBSAP/SBASP ESS was still a new concept, and therefore not factored in. Since then however, several donors and technical support agencies have been working with local partners to assess the feasibility of mainstreaming ESS into local efforts and implementing ESS programs/projects to support certain components of the NBSAP and SBSAPs. While these efforts are beneficial and could eventually enhance the implementation of the NBSAP and SBSAPs, efforts are largely isolated and ad hoc. In order to mainstream results, the national government and its state partners, along with donor and technical groups, need to ensure that ESS initiatives are coordinated and implemented in an integrated manner. Subsequent to 2006, new biodiversity-related (e.g. forestry, marine benthic, etc.) spatial analysis were carried out and will be incorporated into the updating process.

3. ESTIMATION/DEMONSTRATION OF (MONETARY) VALUES & NBSAPS

Federated State of Micronesia's NBSAP will recognise the values of biodiversity and ecosystem services and make commitments to carry out valuation/assess values. This recognition covers:

- ◆ The direct value to the economy with a focus on 'provisioning services' such as timber, food, materials
- ◆ 'Cultural and social values' with potential economic benefits such as timber, food, materials
- ◆ Other values to the economy from 'regulating services' such as water regulation/purification, erosion control, pollination, disease regulation, climate mitigation
- ◆ Wider 'cultural and social values' with no direct impact on the economy such as values related to wellbeing, identity, cultural, aesthetic and spiritual values

What monetary valuation exercises have been done/are being done in the countries?

Completed studies:

Economic valuations were not included as part of the original NBSAPs and SBSAPs. Nevertheless, the FSM has begun to undertake various economic valuation projects in its states over the last few years. It is envisaged that the results and approaches will be included and mainstreamed in this round of NBSAP updating as a baseline toward wider economic valuation studies.

Efforts undertaken so far include the **Economic valuation of Pohnpei's coral reef fisheries**. Pohnpei's coral reef fisheries were examined over the course of 5 years (2006-2012) from several separately funded NOAA and NFWF projects. The aim of these combined projects was to assess the volumes of coral reef fish catch (demand)

and measure it against production (sustainable yield) using a marine ecological footprint (MEF) analysis, which measures the amount of resources/habitat needed by Pohnpeians to supply their demand. Once finalized, the MEF will have the potential to examine the overall value of the fishery and the potential economic loss from overfishing to both non-extractive (i.e. ecotourism) and extractive (i.e. fisheries and fisheries-based) industries.

The projects included:

- ◆ A 2006 'storefront' market survey that included all of Pohnpei's main coral reef fish markets. Involvement with Conservation Society of Pohnpei (CSP), Office of Fisheries and Agriculture (OFA), and College of Micronesia - FSM. This study obtained volumes of marketed coral reef fish, the types of methods and fish being taken, and the **value of 'storefront' market sales** (e.g. Rhodes et al. 2008);
- ◆ A 2008-2009 household survey that examined fisher perceptions to reef quality, management needs and reef resources, and identified non-'storefront' market sales and volumes, i.e. subsistence fishing volumes and contributions to **fishers' incomes from direct non-market sales** (See Rhodes Opinion Survey Report 2008);
- ◆ Regional studies that examined market forces affecting coral reef fisheries and the biological/ecological observed impacts of overfishing (e.g. Rhodes et al. 2011; Houk et al. 2011). An historical regional reconstruction of Micronesia (and other) regional fisheries catch data (Zeller et al. in prep).

Main findings:

- ◆ Pohnpei's commercial fishery brings in approximately \$5 million per year to fishing communities and local businesses (i.e. direct fish sales), excluding materials and supplies (e.g. fuel, boat parts, gear, etc). Fishermen receive directly about 1/5th of this as income annually,
- ◆ Pohnpei's commercial fishery represents 32% of the fishery (as percent of total fishing population), but 68% of the catch;
- ◆ Economic potential and food security from future fisheries and dive tourism is being rapidly eroded by overfishing;
- ◆ Preliminary estimates suggest that Pohnpei is 5-7 times over sustainable coral reef fisheries bio capacity;
- ◆ The socio-economic impacts of overfishing on local communities will soon lead to the necessity of additional aid to support communities in meeting their economic needs; and,
- ◆ The total net return to fishing communities in Pohnpei (i.e. not business) is around \$760,000 per year (i.e. a buyout targeting just fishing communities would be \$760K at a minimum). (N.B. These are back-of-the-envelope numbers, based on market survey results.)

These results will be integrated into the revised NBSAP by providing guidance at sub-national levels on carrying capacities to assist with management and policy interventions.

Future studies:

The following valuation studies are anticipated to take place in FSM in the near future:

- ◆ A regional assessment of overfishing using a combination of market and household income economic surveys (HIES) that focuses on demand and productivity;
- ◆ Economic valuation of current fisheries under two scenarios: (1) a continuation of current and ongoing demand in lieu of conservation/ mgmt or (2) under a conservation scenario (i.e. effectively implemented conservation goals);

- ◆ Valuation of the loss and potential of ecotourism from overfishing and reef habitat destruction;
- ◆ Ongoing studies of the biological effects of overfishing and its effects on food security and socio-economic wellbeing;
- ◆ Repeat of the Pohnpei market survey to examine changes in catch, return and costs since 2006; and an expansion of this survey to all FSM states (baseline data);
- ◆ Economic analysis of fisher income and price/ cost/market consequences of a fisher buyout program, and a targeted program to increase equitable pricing for fisheries products; and
- ◆ Analyses of the predicted losses in coral reef bio capacity with climate change.

These combined studies could be carried out more quickly and effectively, and over a wider scale with additional funding, i.e. a several \$100,000 project vs. several small-scale \$50,000 projects. In the 6-year timeframe it's taken to properly estimate get the MEF for Pohnpei, overfishing has increased significantly, with potentially and may be irreversible effects. Currently, a return to sustainable levels will likely entail without severe restrictions on commercial fishing, and stringent enforcement of existing fisheries regulations (including protected areas) and additional development and improvements to Marine Protected Areas to ensure future food security. These studies/projects will provide the baseline data/information to feed directly into the biological research and valuations.

Capacity building

In March 2012, the Conservation Strategy Fund (CSF), in partnership with the Micronesia Conservation Trust (MCT) and OneReef, and with financial support from the Margaret A. Cargill Foundation and the New Zealand Pacific Island Countries (PIC) Fund, delivered a two-week training course entitled *Economic Tools for Conservation in Micronesia*.

The aim of this capacity building was to equip Micronesian conservation practitioners, natural resource managers, and local community organizations with the principles and tools of conservation economics. It gave key conservation professionals from all four states of the FSM, plus Palau, the Republic of the Marshall Islands, and American Samoa, the necessary knowledge and skills to economically evaluate key issues affecting the environment on their islands. The program provided instruction on key topics by leading environmental economists from the US and the Pacific region, and consisted of modules on Microeconomics, Natural Resource Economics, Environmental Policy, Environmental Valuation, Cost-Benefit Analysis, and Marine Conservation Agreements. The overall ranking of the course in evaluations was a 4.9 on a 5-point scale. 100% of participants said that they would recommend the course to others and hoped the training could be expanded to other parts of Micronesia.

In addition, the course connected Micronesian environmentalists and led to the launch of follow-up policy analysis projects designed to influence conservation in the region.

Participants left the capacity building course inspired and better equipped to apply environmental economics principals to the challenges and contexts on their own islands. During the course, participants identified several potential projects to apply their newly acquired skills:

- ◆ Economic feasibility of the Walung Road on Kosrae;
- ◆ Economic feasibility of proposed casino and floating hotels on Pohnpei;
- ◆ Economic benefits of improved natural resource management, such as inshore fisheries;
- ◆ Analyzing the free trade zone and super port proposal in Palau;
- ◆ Analysis of economic and ecological sustainability of sea cucumber trade on Chuuk;
- ◆ Fisheries management options for inshore fisheries on Pohnpei;

- ◆ Valuation of diving tourism in Rock Islands on Palau;
- ◆ Feasibility and sustainability of the existing tuna fishing license fees and fishing days which are granted on an annual basis;
- ◆ Economic feasibility of Chinese mega-project development on Yap;
- ◆ Economic benefits of Marine Protected Areas in the Marshall Islands;
- ◆ Options for Protected Areas Financing;
- ◆ Financial planning for protected areas that is connected with conservation goals; and,
- ◆ Investments for climate change adaptation.

Following the course, participants prepared proposals for economic analysis projects that address critical conservation needs in the region. Two proposals from the FSM were selected to receive technical support:

- ◆ Developing a framework for sustainable economic development in Yap
- ◆ Estimating the value of restoring coastal environments in the Marshall Islands

In Yap, key stakeholders are exploring scenarios of possible development pathways and developing consensus on a preferred plan of future development for Yap. Stakeholders will assess key economic, social and environmental issues and trends likely to affect Yap in the short to medium future, and identify threats to achieving the preferred development trajectory. In addition, they will learn how to measure economic impacts of development projects, and evaluate the potential of proposed projects to achieve sustainable development.

In the Marshall Islands, researchers are estimating the value of northern Majuro marine areas for fishing and recreation. The project will also consider the role of marine and terrestrial protected areas in maintaining or enhancing these benefits. Data and time permitting, the value of an important ecosystem service, shoreline protection, will also be analysed.

Project teams have been assembled, work plans created, and analysis is underway. CSF and its partners expect these projects to have short-term impact on key conservation issues and policies, as well as lay the foundation for longer-term conservation economics capacity-building in Micronesia.

These results will be integrated into the revised NBSAP by providing guidance on data and techniques that can be used to estimate values of biodiversity and ecosystem services and an example of such a study in the Marshall Islands. In addition, it builds local capacity for carrying out additional studies, as encouraged by the NBSAP. The analysis of development scenarios for Yap can be used to inform revision of Yap's state BSAP

Future plans:

CSF and its partners aim to raise additional funds to conduct follow-up workshops to these projects with government policy-makers and community leaders in each FSM state, as well as conduct in-depth analyses of several other high priority projects of conservation significance. These might include:

- ◆ Assessing the economic benefits associated with the Micronesia Challenge and the Locally Managed Marine Area Network
- ◆ Identifying and developing economic incentive mechanisms and institutions for sustainable inshore fisheries management in Pohnpei
- ◆ Evaluating the economic impacts of sea cucumber harvest in Chuuk
- ◆ Cost-benefit analysis of the proposed Walung road in Kosrae.
- ◆ Designing a data collection protocol to estimate values of MPAs

4. COMMITMENTS TO RESPONDING TO THE VALUES OF ECOSYSTEMS AND BIODIVERSITY IN THE NBSAPS

NBSAPs & integration of BD and ESS stocks and benefits into the national accounting framework

The FSM and its member states did not integrate biodiversity and ecosystem service stocks and benefits into the original NBSAP, SBAPs, and national accounting framework however commitments have been made to initiate activities under the “Micronesia challenge” initiative. Targets and timeline measure for the Micronesia Challenge can be viewed in the Measures Committee reports at www.micronesiachallenge.org.

How are these integrated into the NBSAPs?

The revised NBSAP and SBSAPs will integrate commitments, targets and actions from the Micronesia Challenge, along with estimated costs of implementing these actions.

As part of a project funded by the German International Climate Initiative, capacity will be strengthened in the FSM regarding economics, ecosystem services and decision-making. Specifically, economic perspectives – especially on the role of ecosystems – will be incorporated in climate change adaptation strategies across sites, sectors and administrative levels. Activities in the project include:

- ◆ Engaging a regional network of resource economists, with a special focus on supporting/advising climate change adaptation, providing advice and networking for economic components of the project
- ◆ Incorporating tools and approaches that enhance the use of economics in adaptation planning frameworks at the local level, and tailoring assessment methodology to the context of ecosystem based adaptation in atoll systems and island watersheds. Methodology comprises ecological and economic analysis of ecosystem services, beneficiaries of these services, trade-offs between services and economic valuation of services, explicitly integrating more detailed ecosystem-based approaches and ecosystem service assessments, with economic perspectives into climate change vulnerability, and adaptive capacity assessments. Additionally, for the pilot sites such as the one planned for Pakin Atoll, in Pohnpei, the project will include an ecosystem services assessment and an economic assessment of climate change impacts and Cost-benefit analysis of adaptation options.

Mainstreaming of biodiversity and ESS values into other sectors and links to other strategies and plans

How is this integrated into the NBSAPs?

The NBSAP and SBSAPS are linked to the Sustainable Development Plan, Agriculture policy, Forestry resource assessment and strategy plan to a certain extent to the Energy, Trade and Climate Change Policy Plans and Strategies. This will continue will further links to Poverty Reduction Strategies/Plans, Forestry Strategies/Plans, Fisheries Strategies/Plans, Budgets and Legislation.

Further work is required during NBSAP and SBSAP revision to clearly delineate of roles and identify partnerships to enhance mainstreaming of relevant policies. Concrete partnerships and strategies are required to secure resources for mainstreaming of biodiversity and ESS values into other sectors. Those responsible for the revision of the NBSAP and SBSAP will seek ways to engage other sectors as identified above and develop a comprehensive engagement plan so all relevant stakeholders are involved.



3. Case Study: Georgia

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1. NBSAPS DEVELOPMENT, STATUS AND LINKS TO OTHER STRATEGIES AND PLANS

Status of update, from history to today to plans for the future

The previous and first NBSAP of Georgia was finalized in February 2005 following a comparatively long development process (work on the NBSAP was initiated in 1998). The development of this first NBSAP involved a wide range of experts and stakeholders, including representatives from scientific institutions, governmental and non-governmental organizations. Experiences from this process were considered in the design of the current NBSAP updating process.

In 2011, the process of updating the NBSAP started and is led by the Georgian Ministry of Environment Protection (the Biodiversity Protection Service) with support from the German Development Cooperation (GIZ). The updated NBSAP will be one single document that covers the time period 2013-2020. Its completion is envisaged for spring 2013 and the implementation of the strategy will be guided by one action plan.

When starting the revision of the NBSAP the Ministry of Environment Protection formed a Coordinating Committee and invited experts to decide on the overall framework, procedures and content. First, a situation analysis in eleven thematic components was carried out by various NGOs and scientific organizations as a basis for the development of the future strategy and action plan. In the first quarter of 2012 thematic workshops were held to discuss the results of the consultation process. Until the end of 2012 the final structure of the NBSAP is decided and the development of strategy and action plan

starts. Regular workshops are held to share latest developments and discuss the upcoming steps.

Parallel to the NBSAP updating process, a TEEB scoping study for Georgia was started in May 2012, identifying existing data and analysing the role of ecosystems and biodiversity in the national economy. Among others the study aims at giving specific recommendations for how to integrate biodiversity and ecosystem valuation into relevant national and local policies, programmes and planning processes.

The process was initiated by the Georgian government (the Georgian President Mikheil Saakashvili) expressing interest for Georgia to become one of the pilot countries in phase 3 of TEEB. UNEP supports the scoping phase and results of the study are expected in the beginning of 2013. An official launch is planned during the Biodiversity in Europe Conference from 15-19 April, 2013 in Batumi, Georgia. The scoping study is carried out by the WWF Caucasus Programme Office in close collaboration with international and national experts as well as with a project advisory board.

It is expected that the NBSAP updating processes and the TEEB process will not only influence each other, but also create synergies for the increased recognition of biodiversity and ecosystem service values in decision-making. The NBSAP will reflect the results of the current TEEB scoping process and among the actions may be commitments to carry out additional economic valuation studies and consider the results in future decision-making.

Governance: who's involved in the NBSAP development?

The NBSAP updating process is led by the Georgian Ministry of Environment Protection, the Biodiversity Protection Service with support from the German Development Cooperation (GIZ). Throughout the process consultations are undertaken with other sectoral Ministries and agencies (e.g. Ministry of Economy and Sustainable Development, Ministry of Energy and Natural Resources, Ministry of Finance). The situation analysis in eleven thematic components was carried out by various NGOs and scientific organizations and the development of the strategy and action plan is equally done with wide stakeholder involvement.

The final document will be circulated among Ministries, non-governmental and scientific organizations for review, before its submission for official approval to the Ministry of Environment Protection.

Focus on good practice

- ◆ Incorporation of lessons learned from previous NBSAP development process
- ◆ Focus on transparent, open process with wide stakeholder involvement

Constraints and needs

- ◆ Overall political stability in the country and region and related constraints for implementing long-term strategies
- ◆ Stronger integration of the biodiversity theme into other sectors, policies and strategies, closely related to the role of the Ministry of Environment Protection within the government

Following Parliamentary Elections in October 2012, it is planned to return the Natural Resources section back to the Ministry of Environment Protection and to rename it into “Ministry of Environment Protection and Natural Resources” – the previous re-organization took place in the beginning of 2011. The institutional framework is still developed and changing competencies may impact negatively on the implementation of long-term strategies, such as the NBSAP.

2. ECOSYSTEM SERVICE IDENTIFICATION & ASSESSMENTS: ESS INDICATORS AND MAPPING & NBSAPS

What ESS indicators and mapping exercises do the NBSAPs build on, make reference to, suggest are needed, commit to?

Until now ESS indicator and mapping exercises in Georgia have focused on the recognition of ecosystem functions (biophysical aspects) rather than ecosystem services. First evidence is created, as several of the existing studies listed in Chapter 3 have identified and assessed ecosystem services relevant for selected sectors in specific sites (e.g. forest sector, economic sectors in the surroundings or protected areas).

However, a more systematic analysis of the dependence and distribution of ecosystem services across sectors will be done for the first time for Georgia as part of the TEEB scoping study. The analysis will contain an overview of central ecosystem services (impact/dependence) as well country-wide trends where they can be observed.

The results of the TEEB analysis will then be the reference for the NBSAP to suggest/commit to actions.

How are these integrated into the NBSAPs?

Several of the currently existing situation analyses of various subfields make the link between ecosystem functions and services provided (e.g. climate change) or go a step further and connect ecosystem service provision with changes in socio-economic development (e.g. protected areas). Those linkages will be reflected in the strategy; however, in order to design appropriate actions, more evidence will be needed.

Following the re-organization of the Ministries of Environment Protection and Energy and Natural Resources, it is planned to conduct a nation-wide forest inventory updating the existing one from Soviet times. The data collected for this purpose (the methodology is not decided yet) will be the basis for future assessments and valuation studies in the forest sector and support policy decisions.

At which stage/s of NBSAP planning and development are these integrated

The existing mapping results were considered since an early stage of the process, thus reflecting the potential for the mutual influence of the NBSAP updating and the TEEB scoping study processes.

Do they influence the NBSAPs?

The more systematic overview of central ecosystem services for Georgia, as one result of the TEEB scoping study, will contribute insights for the formulation of appropriate actions in the NBSAP. Here one chapter is planned to focus on the governance and management of biodiversity and existing as well as planned regulatory mechanisms, e.g. Environmental Impact Assessment, fees for licenses and permits as well as new TEEB-related tools.

Focus on good practice

Interest in and willingness to consider existing data and information and pragmatism in identifying gaps for future action

Insights into approaches, methods and techniques used

In the Sector Scenario Analysis approach used by the UNDP/GEF and WWF studies a list of sample indicators as compiled by the consultant was used:

Table 3.1 List of sample indicators

Sector Indicators (5-10 year trends)
Employment increase (# of jobs) by sub-sector (direct, indirect and induced)
Income, average annual increase by sub-sector
Fiscal impacts (annual tax revenues to governments)
Annual revenue from green taxes
Foreign exchange earnings (annual, from exports)
Opinion polls
Sector investment (government)
Sector investment (private sector)
Damage costs (as a result from BAU practices)
Avoided damages costs (as a result from SEM practices)
Production trend (volume and value)
Sector production trend (as percentage of GDP)
Changes in natural capital (e.g. # Ha under protection or SEM practices)

Source: UNEP/GEF project Catalyzing the Financial Sustainability of Georgian Protected Areas system (2010): Economic Valuation of the Tusheti Protected Areas Complex and of the Network of Georgian Protected Areas

Constraints and needs

Scattered unsystematic information, lack of a long-term data basis and experience in identifying/mapping ESS.

Table 3.2: Ecosystem Services per Georgian Protected Area

PROTECTED AREAS	PA Category (IUCN)	Ecosystem Services**												
		Freshwater (water shed services)	Food (Wild meats, fruits, greens, fresh water fish and seafood)	Timber, fuel (fire wood), and fiber	Snow coverage	Novel products	Biodiversity regulation / conservation (habitat for plant/animal species)	Nutrient cycling	Air quality and carbon sequestration	Human health	Detoxification	Natural hazard regulation	Cultural	Nature based sports: fishing, hunting, skiing, kayaking, hiking, nature & wildlife viewing
Ajemeti Managed Reserve	IV	•	•	•			•	•	•	•		•	•	•
Artsivis Kheoba Nature Monument	III													
Alazani Floodplain Forest Nature Monum.	III													
Algeti National Park	II	•	•	•			•	•	•	•	•	•	•	•
Batsara-Babaneuri Nature Reserve	I	•	•	•			•	•	•	•		•	•	•
Borjomi Nature Reserve	I													
Babaneuri Nature Reserve	I													
Bichvinta-Miusera Protected Areas		•	•	•			•	•	•	•		•	•	•
Borjomi-Kharagauli National Park	II	•	•	•			•	•	•	•	•	•	•	•
Chachuna Managed Reserve	IV	•	•				•	•	•			•		•
Gardabani Managed Reserve	IV	•	•	•			•	•	•	•		•		•
Ilto Managed Reserve	IV													
Iori managed Reserve	IV													
Imereti Caves Natural Monument	III	•	•	•		•	•	•	•	•		•	•	•
Katsoburi Managed Reserve	IV	•	•				•	•	•			•		•
Kazbegi National Park	II	•	•				•	•	•	•		•	•	•
Kintrishi Nature Protected Landscape	V													
Kintrishi Nature Reserve	I	•	•	•			•	•	•	•		•	•	•
Kintrishi Managed Reserve	IV													
Kobuleti Nature Reserve	I	•	•				•	•			•	•		•
Korighi Managed Reserve	IV													
Kolkheti National Park	II	•	•	•			•	•	•		•	•	•	•
Ktsia-Tabatskuri Managed Reserve	IV													
Lagodekhi Nature Reserve	I													
Lagodekhi Managed Reserve	IV	•	•	•			•	•	•	•		•	•	•
Liakhvi Nature Reserve	I	•	•	•			•	•	•	•	•	•	•	•
Mariamjvari Nature Reserve	I	•	•	•			•	•	•	•				•
Mtirala National Park	II	•	•	•			•	•	•	•	•	•	•	•
Nedzvi Managed Reserve	IV													
Pitsunda-Myussera Nature Reserve	I													
Pskhu-Gumista Nature Reserve	I	•	•	•			•	•	•	•	•	•	•	•
Ritsa Nature Reserve	I	•	•	•			•	•	•	•	•	•	•	•
Sataplia Nature Reserve	I													
Takhti-Tepha Nature Monument	III													
Tbilisi National Park	II	•	•	•			•	•	•	•	•	•	•	•
Tetrovi Managed Reserve	IV													
Tusheti National Park	II	•	•	•	•		•	•	•	•	•	•	•	•
Tusheti Nature Reserve	I	•	•	•	•		•	•	•	•	•	•	•	•
Tusheti Protective Landscape	V	•	•	•	•		•	•	•	•	•	•	•	•
Vashlovani National Park	II													
Vashlovani Nature Reserve	I	•	•				•	•				•		•
PLANNED PAs														
Algeti National Park (expansion)	P													
Central Caucasus Protected Areas	P	•	•	•			•	•	•	•	•	•	•	•
Javakheti Protected Areas	P	•	•				•	•			•	•	•	•
Kazbegi National Park (Expansion)	P													
Khevsureti PAs	P													
Machakhela PAs	P													
Racha-Lechkhumi PAs	P													
Svaneti PAs	P													

** Adapted from MEA (2005)

PA Categories: I-Strict Nature Reserve; II-National Park; III-Natural Monument; IV-Managed Nature reserve; V-Protected Landscape; P-Planned

Source: UNEP/GEF project Catalyzing the Financial Sustainability of Georgian Protected Areas system (2010): Economic Valuation of the Tusheti Protected Areas Complex and of the Network of Georgian Protected Areas

3. ESTIMATION/DEMONSTRATION OF (MONETARY) VALUES & NBSAPS

Georgian authorities consider that economic valuation of ecosystem services can help to understand how the ecosystems contribute to the development of various economic sectors, peoples' livelihoods, poverty alleviation and equity. It can also help to understand what will be the economic losses if the ecosystems are not managed sustainably.

Georgia's NBSAP will recognise the values of biodiversity and ecosystem services and make commitments to carry out valuation/assess values. This recognition covers:

- ◆ The direct value to the economy with a focus on 'provisioning services' such as timber, food, materials
- ◆ 'Cultural and social values' with potential economic benefits such as timber, food, materials

What monetary valuation exercises have been done/are being done in the countries?

A first rough draft of the TEEB scoping study indicates the following existing studies and documents. More details are expected when the first full draft will be available for discussion:

- ◆ World Bank Studies (2000) using Contingent Valuation Method – surveys in which respondents asked to indicate maximum willingness to pay (WTP) for access to a recreation site. Two surveys conducted:
 - ◆ Tourist preferences for the establishment of national parks in Georgia
 - ◆ Attitudes, preferences and willingness to pay for biodiversity conservation
- ◆ World Bank (2000-2001) conducted a study to assess the benefits and costs of establishing the Kolkheti National Park in the Kolkheti wetlands. The Total Economic Valuation (TEV) methodology used – accounted for all ecosystem services and biodiversity
- ◆ Georgian Forest Development Project. 2 outputs:
 - ◆ Legal, Institutional and economic background of Georgia's forest sector and principles of total economic valuation. Report 1. URS Corporation Ltd (2003)
 - ◆ Legal, institutional and economic analysis, forest resource evaluation methodology, resource pricing mechanisms and worked example of forest resources economic valuation for Oni Forest District for Forest Management Planning and Valuation Purposes in Georgia. Report 2. URS Corporation Ltd (2003)
- ◆ UNEP/GEF project Catalyzing the Financial Sustainability of Georgian Protected Areas system (2010): Economic Valuation of the Tusheti National Park and of the Network of Georgian Protected Areas
- ◆ WWF Caucasus Programme Office: Valuation of the Contribution of Borjomi-Kharagauli and Mtirala National Parks Ecosystem Services to Economic Growth and Human well-being
- ◆ Based on the UNDP/GEF and WWF valuation studies a draft report was developed in 2012: Economic valuation of the Contribution of Ecosystems to Economic Growth and Human Well-being in Georgia: Protected Area of Tusheti and the Georgian Network of Protected Areas (Expected June 2012)
- ◆ Regional Environmental Centre for the Caucasus (REC) project "Support Development of Biodiversity Conservation and Practices in Mountain Regions of the South Caucasus" (2011-2014): one component focuses on economic assessment of values of ecosystem services and biodiversity
- ◆ UNEP is funding a Georgia TEEB scoping study to identify existing valuation studies and opportunities to build on these (mentioned in Ch. 1.1)
- ◆ IUCN conducted a scoping study on the role of protected areas in regard to climate change compiling existing monetary values of ecosystem services provided by protected areas in Georgia

Biophysical Assessments

- ◆ Ecoregion Conservation Plan (2006; 2012)
- ◆ WB “Protected areas development project”
- ◆ WB “Forest development project documents”
- ◆ Javakheti NP project documents
- ◆ Cases: EIAs of large scaled projects (BTC pipeline, Black Sea Transmission line project, HPPs)

How are these integrated into the NBSAPs?

The existing information and the need to additional data and studies will be incorporated in different chapters, both thematic and general, e.g. in the chapter on forest ecosystems as well as in the chapter on the management and governance of biodiversity.

At which stage/s of NBSAP planning and development are these integrated

The existing studies were considered since an early stage of the process, thus reflecting the potential for the mutual influence of the NBSAP updating and the TEEB scoping study processes.

Do they influence the NBSAPs?

Existing data is taken into account when drafting the action plan, as it helps setting smart targets. The overall aim is to increase attention towards the need for more and more accurate monetary valuation exercises in order to recognize and demonstrate the values of Georgia’s natural capital.

It is expected that the results of the TEEB scoping study process (in the beginning of 2013) will provide clear guidance to setting targets and defining actions in the NBSAP.

Focus on good practice

- ◆ Interest in and willingness to consider existing data and information and pragmatism in identifying gaps for future action.

Insights into approaches, methods and techniques used

The UNDP/GEF and WWF studies used a Sector Scenario Analysis comparing a Business As Usual Scenario against a Sustainable Ecosystem Management Scenario. The studies thus indicated the values of selected protected areas critical to sustain productivity and economy in the surrounding areas.

Constraints and needs

- ◆ Overall lack of data and continuity of data collection due to system change and economic crisis in the 1990s
- ◆ Shortage of expertise and trained experts to carry out valuation studies

4. COMMITMENTS TO RESPONDING TO THE VALUES OF ECOSYSTEMS AND BIODIVERSITY IN THE NBSAP

The process of updating the NBSAP is ongoing and it is not possible yet to indicate future commitments reflecting values of ecosystems and biodiversity. None of the interviewees was willing to make statements in this regard. The upcoming TEEB scoping study will provide additional insights; however the first draft of the strategy and action plan will be the best indicator.

Mainstreaming of biodiversity and ESS values into other sectors and links to other strategies and plans

How is this integrated into the NBSAPs?

A recent example of mainstreaming biodiversity is the development of Georgia's agriculture strategy and the associated action plan. The strategy development was closely coordinated with the main donors in the field and thematic working groups were established to elaborate specific aspects. One of seven working groups is the subgroup on environment, led by one of the major environment NGOs in the country, which has raised the importance of environmental considerations within the action plan.

At which stage/s of NBSAP planning and development are these integrated

Existing sectoral strategies and plans were considered by the teams compiling the situation analyses in different thematic components (forest, protected areas, climate change). Where links to biodiversity and ESS values existed they were taken into account. Several strategies and plans are however currently being developed or planned (forest sector reform, climate strategy, Green Economy Strategy) and could therefore not fully be considered. In this case it is planned to reflect the need for strengthening the policy framework in the NBSAP action plan.

Constraints and needs

- ◆ The timing of this current study with the updating process of Georgia's NBSAP
- ◆ Awareness of the importance of natural capital for the economic development of the country and the related willingness to allocate budget

5. LESSONS LEARNT FROM PREVIOUS NBSAPS

Did previous NBSAPs incorporate values of biodiversity and ecosystem services?

For the previous and first NBSAP of Georgia an economic development component was developed in 2002, parts of which were included in the final version of the document (Chapters

3.8 and 5.8). During the process the team of experts understood that some kind of economic valuation of biodiversity was needed in order to have facts and evidence to influence decision-making processes. The action plan recommended the following relevant actions:

Table 3.3 Relevant recommended actions

Strategic Goal H: To ensure appropriate financial and economic programmes are in place in order to support effective conservation of biodiversity and ensure the delivery of the BSAP				
#	Activity	Year	CBC Article	Indicator
H1	Collect data necessary for the valuation of biodiversity (including opinion surveys with key stakeholders, identification of primary risk factors and use of internationally accepted methods)	2005-2006	1, 6	Reliable, relevant and accessible information available
H4	Identify and estimate the benefit to major sectors of products and services derived from biodiversity and analyse its use	2006	8, 9, 14, 16, 20, 21	Benefit derived from biodiversity conservation calculated
H5	Conduct economic assessment of the consequences of the loss of biodiversity	2006	7	Damage caused by loss of biodiversity calculated
H6	Estimate financial needs for biodiversity conservation based on valuation assessments	2007	8, 9, 20, 21	TEV calculation completed

Source: NBSAP Georgia, 2005, page 76

Actions recommended under the heading of Legislation and institutional development (Chapter 5.9) aimed at complementing the above:

I4: Develop a law on Ecological Insurance

I8: Create legal mechanism for economic incentives for sustainable use of biodiversity (Indicator: Normative act the national biodiversity fund developed)

However, the economic development component of the NBSAP was developed when the economic development model of Georgia was still following the path of regulation. It was assumed that the trend would continue and allow for the implementation of the recommendations, e.g. to conduct economic assessment of the consequences of the loss of biodiversity.

What lessons were learnt from previous NBSAPS in relation to incorporating/not incorporating values of biodiversity and ecosystem services?

By the time the first NBSAP was finalized (in 2005), the economic development component was hardly realizable, as the economic development of model of Georgia had changed towards deregulation. The recommendation of setting up an environmental fund and using income from natural resources for the restoration of ecosystems was not feasible due to only one central budget not allowing for specific allocations of funds.

If previous NBSAPs incorporated or lacked information on biodiversity and ecosystem service values how did this impact policy making?

Policy making was not impacted positively or negatively, as the information and recommendations included could not be implemented due to a changed situation.

How are these lessons being used in the revision of the NBSAP?

While it was an important first step to attempt to incorporate values of biodiversity and ecosystem services in the previous NBSAP, the lessons learnt were to integrate those aspects in relevant chapters (e.g. economic assessment of forest ecosystems) rather than including a separate chapter that would be regarded as a stand-alone activity. The recommended actions need to be adaptable to rapidly changing situations and there is an urgent need to increase national expertise on the economic approach to nature.



4. Case Study: Guatemala

1. NBSAPS DEVELOPMENT: GOVERNANCE AND STATUS

Status of update, from history to today to plans for the future

In 1999, the National Council of Protected Areas (CONAP) developed and adopted the National Strategy for the Conservation and Sustainable Use of Biodiversity (NSB-1999)⁷ (CONAP, 1999) as a national tool to comply with the guidelines of the Convention on Biological Diversity.

Ten years after the strategy was adopted, an assessment funded by FONACON⁸ was carried out by Maas (2008). In view of preparing the Strategy's revision, the assessment focused on aspects including the progress made, pending tasks, achievements and lessons learned in implementing the NSB-1999. This was followed by a highly participatory process in which all the interested sectors participated and were invited to think about the above mentioned items (CONAP, 2011).

This revision process revealed that the NSB-1999 had resulted in some significant achievements including: i) the strengthening of the Guatemala System of Protected Areas (SIGAP), ii) the collection and dissemination of knowledge on Guatemala's biological and cultural diversity iii) proposals for laws relating to access to genetic resources, equitable distribution of the benefits and the safe development and use of biotechnologies (related to genetically modified organisms).

Other findings and lessons learnt included: (i) the strategy and its actions were only implemented to a limited extent; although it proved to be a good planning tool, the low level of institutionalisation meant that it did not transcend changes in government. Its main weakness was therefore that it was only an institutional instrument of the National Council for Protected Areas (CONAP) rather than a law nor a policy which could have transcended the structure and functions of the government. One of the main reasons for the lack of institutionalization of the strategy was thought to be that it had been approved by a Secretariat of the Presidency of the Republic, an institution of inferior category in the government structure compared with a Ministry or the Cabinet of Ministers.

Based on these findings, CONAP decided through his Technical Office of Biodiversity OTECBIO/CONAP that the updating of the NSB-1999 (now referred to as the NBSAP⁹) should result in the adoption of a legal framework which would have the capacity to exert influence across all government institutions, civil society, private sector and citizens that are relevant in the context of the management, use and/or conservation of biodiversity and more specifically the implementation of a new Strategy (the NBSAP strictly speaking).

⁷ Estrategia Nacional para la Conservación y Uso Sostenible de la Biodiversidad y Plan de Acción. <http://www.cbd.int/doc/world/gt/gt-nbsap-01-es.pdf>

⁸ FONACON (National Fund for Conservation) is a National Trust belonging to CONAP.

⁹ The NBSAP even though has been adopted in July 2012 is awaiting the official release for final publication.

This new legal framework, a National Biodiversity Policy (NBP)¹⁰ approved in May 2011, is a policy instrument in Guatemala's legal system - a public policy approved by the President in Cabinet through a Governmental Agreement. It is structured around five axes, each one representing another priority area:

- ◆ Axis 1: Knowledge and responding to the values of biodiversity;
- ◆ Axis 2: Conservation and restoration of biodiversity;
- ◆ Axis 3: Sustainable use of biodiversity and ecosystem services;
- ◆ Axis 4: Biodiversity in the mitigation and adaptation to climate change; and
- ◆ Axis 5: Implementation.

The National Biodiversity Policy (NBP), which represents the overall legal framework organising the mainstreaming of biodiversity, is implemented via the National Biodiversity Strategy and Action Plan 2012-2022¹¹ adopted in July 2012. Both the NBP and the accompanying NBSAP reflect a much better understanding of the strategic value of biological diversity and its contributions to human wellbeing, sustainable development, economic development and the fight against poverty. The NBP also more specifically acknowledges and strengthens the state's role as the authority for ensuring the public good and reinforces its authority in a context of growing social and environmental vulnerability resulting from climate change.

Governance: who's involved in the NBSAP development?

The involvement, consultation and participation of stakeholders and the wider public has become a key element in policy development and its importance for mainstreaming biodiversity management across all levels and sectors of government and Guatemalan society at large is widely recognised. Funding from the Guatemalan

offices of United Nations Development Programme (UNDP) facilitated the development of a broad participatory process.

The consultation process for the development of the new National Biodiversity Policy adopted in 2011 was also used to develop the revised NBSAP. Indeed, the actors and sectors consulted in the NBP development process were also invited to help identify the strategic actions to be included in the revised NBSAP. The benefit of having involved all actors and sectors is that their interests could be considered and reflected in the National Biodiversity Policy (NBP) and would result in more support to the NBSAP implementation.

The sectors and institutions involved in the development of the first draft of the National Biodiversity Policy were:

- ◆ About fourteen institutions involved in the management and /or use of biodiversity and ecosystem services including: Committee of Agricultural, Commercial, Industrial and Financial Associations (CACIF) through the National Biodiversity Commission CONADIBIO; Association of Non-traditional Exporters (AGEXPRONT);
- ◆ National funds to finance research and development related to biodiversity: Guatemalan Fund for Environment FOGUAMA, Guatemalan Fund for Indigenous Development FODIGUA, National Council of Science and Technology (CONCYT), etc.;
- ◆ About 24 international NGOs including Rainforest Alliance, The Nature Conservancy and World Wildlife Fund (project MarFund);
- ◆ Indigenous and rural communities nongovernmental organizations, including the Association for the Advancement of the Social Sciences in Guatemala (AVANCSO), National Council of Indigenous Peoples; Ak- Tenamit; Sotzil, Centre for Legal and Social Actions for the Environment (CALAS), Forest Action Plan

¹⁰ Política Nacional de Diversidad Biológica (2011) http://www.segeplan.gob.gt/downloads/clearinghouse/politicas_publicas/Recursos%20Naturales/Politica%20Nacional%20de%20Diversidad%20Biologica.pdf

¹¹ Estrategia y Plan de Acción 2012-2022. Política Nacional de Diversidad Biológica. The NBSAP even though has been adopted in July 2012 is awaiting the official release for final publication.

PAF-MAYA, Rural Development Foundation Junej T'inam, Community Council of Forestry and Association of Forestry Communities of Petén;

- ◆ About 12 environmental non-governmental organisations including: The Defenders of Nature Foundation, Foundation for Ecological Development and Conservation (FUNDAECO), Foundation for the Conservation of the Environment and Natural Resources Mario Dary Rivera (FUNDARY); and
- ◆ About 9 Universities and Research Centres (9) including: The University of San Carlos of Guatemala USAC and its research centres: Centre for Conservation Studies (CECON), Centre for Marine Studies (CEMA); Rafael Landívar University/Institute for Agriculture, Natural Resources and Environment URL/IARNA, University del Valle de Guatemala UVG; Academy of Mayan Languages (ALMG) and the Environmental Training and Research Network (REDFIA), among others.¹²

After a first phase of development of the proposed National Biodiversity Policy (NBP); the process entered a negotiation phase (to increase knowledge of the policy and its requirements and increase ownership) with a more representative sample of institutions and organizations. The process involved about 67 institutions and over 167 actors from inside the country, including for example indigenous authorities and representatives of indigenous women. The process resulted in both the proposal for the new National Biodiversity Policy and the revised NBSAP and culminated in the adoption of the policy through a Governmental Agreement (Gov. Agr. 220-2011),¹³ approved by the President of the Republic in Council of Ministers, on July 7, 2011 and the approval of the National Biodiversity Strategy adopted by the Board of Directors of the National Council of Protected Areas on July 11, 2012 (Council Resolution 01-16-2012).

Focus on good practice

Among the good practices related to governance the following are worth highlighting:

- ◆ Process approach, instead of isolated events. As outlined above, this “process” begins with the development of the first strategy in 1999 (CONAP, 1999), then its assessment in 2008 as a way to start-up the revision process (Maas, 2008), and the creation of the National Biodiversity Policy to mainstream biodiversity (CONAP, 2011) followed by the adoption of a revised NBSAP (2012).
- ◆ A highly participatory process that has allowed the integration of knowledge from all sectors involved. This is of particular importance for Guatemala which until recently had a very centralised and elitist tradition in policy-making. Key positive elements in the process have included:
 - ◆ The sharing of information with all stakeholders and sectors prior to events;
 - ◆ The sharing of the information generated through the events; and
 - ◆ The establishment of a process entailing multiple learning opportunities.
- ◆ The creation of a multisectoral policy supported by a Government Agreement to ensure mainstreaming of biodiversity, and to oblige relevant State institutions to participate in NBSAP implementation. This ensures that the NBSAP implementation is not the sole responsibility of the leading governmental agency of biodiversity (CONAP) but calls on action from the whole State Cabinet;
- ◆ Specific efforts to collect inputs from indigenous people through the organization of the First National Congress on Traditional Knowledge and Biological Diversity; and
- ◆ Linking the NBSAP to the National Strategy for the Management and Conservation of Natural Resources in Communal Lands

¹² FONACON, 2010. Final Report on Updating National Biodiversity Strategy and mechanisms for making known and implementation. Fo8/2008/A Project. (Final Project Report). This project looked only updating the strategy and to establish a policy framework that would permeate the state and multisectoral approach to biodiversity

¹³ Acuerdo Gubernativo No. 220-2011; http://www.chmguatemala.gob.gt/convenios/convenios-y-politicas/politica-nacional-de-biodiversidad/Acuerdo%20Gub.%20220-2011.pdf/at_download/file

(adopted in 2009 by CONAP). Through the latter Strategy CONAP recognizes the existence of communal lands and their relevance to biodiversity conservation and management. This strategy reflects the recognition that there is land outside protected areas whose careful management is key for biodiversity conservation. Due to the above, the revised NBSAP (2011) also responds to this reality through the creation of a National System of Conservation, which in addition to Guatemalan System of Protected Areas includes all land under a protection regime different from protected area, such as communal lands.

Constraints, needs and future developments

The total environmental public spending in Guatemala represents 0.6% of GDP and U.S. \$ 12 per person per year, which is low compared with U.S. \$ 47 for Mexico or U.S. \$ 34 for Costa Rica. (Castañeda y Gálvez, 2010). The policy coordination at the level of country has been assigned to the National Council of Protected

Areas (CONAP) as the leading agency in coordination with the Ministry of Environment and Natural Resources. Together, these two institutions received between 0.22 and 0.39% of the General Budget of the Nation and less than 2% of national GDP over the period 2001 - 2006.

Due to the above, one main challenge for the implementation of the NBSAP by the Government, will be to increase the budgets for NBSAP implementation to enable achieving the objectives outlined in the NBP and the NBSAP. Similarly, multilateral international cooperation (CBD-GEF) and bilateral cooperation must together help fill the funding gap to allow that the measures foreseen in the NBSAP be taken.

Finally, now that the institutional and legal structures are in place, it will prove important to further promote awareness of the various values (economic, social, spiritual, cultural identity) of biodiversity in the social and economic (productive sectors) spheres across the country in order to prepare the ground for a swift and effective implementation of multisectoral dialogues and agreements.

2. ECOSYSTEM SERVICE IDENTIFICATION & ASSESSMENTS: ESS INDICATORS AND MAPPING & NBSAP

What ESS indicators and mapping exercises do the NBSAPs build on, make reference to, suggest are needed, commit to?

Ecosystem Services Indicators:

Although they have not been yet identified as ecosystem service indicators, a number of socio-environmental indicators developed and used in Guatemala may be considered indicators relating to provisioning services. About 90 indicators are used to monitor the environmental dimension of the Millennium Development Goals; these indicators are presented in the Report of the Environmental Profile of Guatemala 2006 and in The Guatemala GEO Report 2009. These indicators allowed to establish a baseline related to forests, land use, water, coastal and marine

ecosystems, biodiversity and protected areas, climate and air quality, non-renewable natural resources, solid waste, agricultural production systems, population and environment, economy and environment and social environmental vulnerability. At the moment, they constitute basic information tools when carrying out environmental assessment.

The revised (2012) NBSAP foresees that the criteria and indicators already used by different institutions (IARNA-URL, MARN and INE) must be identified and assessed in order to establish a new matrix of indicator related to the sustainable use of biodiversity.

Mapping Ecosystems services

The General Secretariat of Planning (SEGEPLAN) has generated maps showing population density, poverty rates by municipality, as well as indicators to follow economic and social trends, such as the evolution of poverty and inequality. The Ministry of Agriculture, Livestock and Food (MAGA), has generated several maps that have been tools that give insights into the current environmental status of land, including: forest cover, potential land-uses, deteriorating land due to overuse, deterioration of headwaters, flood risk, water retention capacity, slope, watershed boundaries, buffer zones between agriculture and forest on slopes, vulnerability to food insecurity, drought risk, and areas at high risk of being hit by cyclonic events.

Mapping exercises focused on ecosystem services to date are limited to water resources (provisioning and regulatory services) and fuel wood provision. Some of these indicators have allowed socio-economic analysis relating to those ecosystem services, such as the work from Nelson & Chomitz (2004), who have used maps a combination of maps generated by SEGEPLAN (population density per km² and poverty rates per municipality), MAGA (slope percent, watershed boundaries, buffer zones between agriculture and forest on slopes, and buffer as percentage of watershed) and the World Bank (land cover classification) to characterize existing watersheds in Guatemala, finding that most watersheds are affected by a combination of high poverty rate and a significant hydrological sensitivity.

Another mapping exercise related to ecosystem services was done by Pagiola, Colom & Zhang (2007), who also mapped ecosystem services in Guatemala, again with a focus on water resources and more specifically the water supply (hydroelectric power producers, domestic water supply systems, irrigation and other water users as industry). The study area mostly occupied the highlands of Guatemala, and omitted the northern part of the country.

INAB IARNA & FAO/GFP (2012) produced a Report on Supply and Demand for fuel wood in the Republic of Guatemala (“Woodfuel Integrated Supply / Demand Overview Mapping”). This mapping exercise used Land Use Maps generated by the MAGA and the Forest Dynamics Map generated by INAB. The mapping exercises allowed the identification of the destination of the fuel wood (urban residential, rural residential, industry) and a mapping of the different types of forests providing the fuel wood.

How are these integrated into the NBSAPs?

As the 2011 National Biodiversity Policy as well as preparation of the new NBSAP involved the integration of the knowledge from all sectors, the importance of the ecosystem services identified and assessed was integrated in the revised (2012) NBSAP. To this end, all the contributions made for the stakeholder consulted during the participative process were taken into account and these will continue to be considered as the NBSAP is being implemented and its implementation reviewed.

Do they influence the NBSAPs?

The National Biodiversity Policy (NBP) foresees the developing of a biodiversity baseline considering the different components of biodiversity (ecosystems, species and genes) as well as ecosystem services (dynamics, trends and relationship to society).

As regards the NBSAP, under its Strategic Axis No.2, relating to awareness of the values of biodiversity, the strategic objective No.4 calls for the development of mechanisms for strategic assessment of biodiversity and ecosystem services and their contribution to the national economy and human development. It acknowledges the need for the establishment of criteria and indicators to ensure the sustainable use of biodiversity and ecosystem services. The most relevant activities foreseen under this objective include:

- ◆ Agreeing on a national level definition of the “sustainable use of biodiversity and ecosystem services”. This appears necessary because the NBP, which it provides for a legal framework to ensure the “sustainable use of biodiversity and ecosystem services” doesn’t define it as such;
- ◆ Identification and evaluation of criteria and indicators already used by institutions and reports; and
- ◆ Development and agreement on a national proposal of criteria and indicators on biodiversity and ecosystem services.

Focus on good practice

The collaboration that took place in the context of the preparation of the Guatemala GEO Report 2009, between relevant Governmental Institutions and academia, in view of generating the necessary information on environmental indicators and pooling existing information should be considered a good practice.

Insights into approaches, methods and techniques used

As mentioned above, the proposed indicators have not been defined as indicators of ecosystem services. The indicators proposed in the Environmental Profile of Guatemala 2006 and the GEO Report of MARN 2009 have been used as tools to establish the environmental condition; however, only some of them may qualify as indicators of provisioning ecosystem services. Existing indicators will however undergo an evaluation that is meant to lead to a proposed matrix of indicators for provisioning, regulating, supporting and cultural services.

The mapping of water resources by Nelson and Chomitz (2004) mentioned under 2.1. did only use a limited number of the MAGA generated maps, thus not exploiting existing maps illustrating the basin headwaters and its deterioration, uptake and water regulation, deterioration of land due to overuse, floods, drought and cyclone trajectory of events in Guatemala, that could potentially have provided even more accurate information as regards this regulating service.

As regards the other study mentioned in section 2.1., by Pagiola, Colom & Zhang (2007), although they mapped areas that provide water services, the study’s focus was on surface water sources. To provide an accurate picture of the future water supply (and risk of water shortages) of several cities in Guatemala, the large supply of underground water should have been taken into account as well.

In the study “mapping the supply and the demand of fuel wood”, conducted by INAB, IARNA-URL, FAO/GFP (2012), the methodology (WISDOM) allowed the construction of a georeferenced database that systematizes existing information related to biomass based energy systems. This database is not static and can be iteratively improved when new data is obtained or existing data is updated. Considering that both the demand module and supply module were information sources that could not be incorporated at all into the WISDOM methodology the demand data, which did not include data on georeferenced consumption of industry, is likely to be an underestimate.

Constraints, needs and future developments

While some studies on biodiversity and ecosystem services have been conducted in Guatemala; these have mostly focused on provisioning services (i.e. goods) and to a lesser extent regulatory services (i.e. water provision), which at the time were not necessarily framed as ecosystem services. Therefore, the extent to which the broad range of ecosystem services has been characterized and different services as well as their beneficiaries identified is limited. This also explains why to date there are no tailored indicators to measure the status of these services.

As only a very limited amount of information about ecosystem services exists in Guatemala, more research to address this issue will be needed and the information gained from further work, highlighting the importance of the services provided by ecosystems, will need to be communicated in appropriate ways to the benefitting populations as well as decision-makers.

In addition, while it will be important to demonstrate the value of the services provided by ecosystems and biodiversity, it will be equally important to highlight the costs of degradation (i.e. what has been lost) in terms of reduced ecosystem service output. This in turn will generate information useful for the activities called for under the 2011 National Biodiversity Policy's axis on Conservation and Restoration of biodiversity as well as the NBSAP's Strategic Axis No.5: Restoration of Biodiversity and Ecosystem Services, which foresee activities such as:

- ◆ Identify and prioritise restoration needs based on the assessment of the conservation status of biodiversity and ecosystem services;
- ◆ Systematize restoration of populations and terrestrial and aquatic ecosystems at national, regional and Mesoamerica;
- ◆ Evaluate experiences identifying and prioritizing ecosystems and populations;

- ◆ Design and validate protocols of restoration for priorities identified;
- ◆ Identify international experience related to ecosystems and priority populations; and
- ◆ Collect management experiences related to restoration managed by MARN, INAB, MAGA and CONAP.

Preparatory work has included a first Workshop on Ecological Restoration in 2011 organized by the Centre for Conservation Studies (CECON) of the University Of San Carlos De Guatemala to propose a National Network of Ecological Restoration to be elaborated by CONAP, CECON, IARNA, INAB, MARN, and Conservation NGOs. This is seen as a first step in the construction of a strategic alliance in order to promote the restoration of degraded ecosystems that provide important goods and services.

3. ESTIMATION/DEMONSTRATION OF (MONETARY) VALUES & NBSAPS

What monetary valuation exercises have been done/are being done in the countries?

Several economic valuations of biodiversity and ecosystem services exercises have been undertaken in Guatemala (see Table 4.1 overleaf). As can be seen in that Table, most of them however relate to the economic valuation of water resources in view of establishing payment for ecosystem service schemes. Other valuations exercises are: reduction of the risk of natural disasters, economic value of protected areas, environmental damages and costs from extracting activities (mining), among others.

The economic valuation exercises that have possibly attracted most attention of decision-makers and the wider public, are those associated with the role of ecosystems in reducing the risk of environmental disasters or mitigating impacts, especially water flow regulation. It is

worth highlighting that in these particular cases, the value could be determined by looking at the benefits of avoided degradation due to water flow regulation by ecosystems as an approximation of the value of this particular service.

Currently, the most extensive experience in the country related to economic valuation is being carried out as part of the development of Guatemala's System of Integrated Environmental and Economic Accounts (SEEA), jointly led by the Bank of Guatemala and the Institute for Agriculture, Natural Resources and Environment of the University Rafael Landívar. The aim of the project is to make the inter-relationship between economy and the environment visible and to integrate the different experiences of economic valuation in the country.

Table 4.1. Economic valuations exercises carried out in Guatemala

	Use Values		Non-use Values		Methods/ approach
	Direct Use Value	Indirect Use Value	Option Value	Existence Value	
Economic valuation of Water Resources:					
Petén Itzá lake. (Pape, 2002)	xx				CV
Amatitlán lake. (Pape, y otros, 1998)	xx				CV
Atitlán lake (Romero, 2009)	xx	xx	xx	xx	MA
Petéxibatún wetlands. (Senci3n, 2002)	xx	xx	xx	xx	MA
Monterrico-Las Lisas costal-marine wetlands. (García, y otros, 2008)	xx	xx	xx	xx	CV
Guatemala City Valuation (Martínez, 2002)	xx	xx	xx	xx	CV; ESP
Jones river watershed. (Vela, 2001)	xx	xx	xx	xx	MA; ESP
Economic Valuation of Hydrological Services: Huité River Watershed. (Manzo, y otros)	xx	xx			MP; ESP
Teculután river watershed. (CARE, 2009) (Martínez, y otros, 2007)	xx	xx			CV; ESP
Sierra de las Minas Biosphere Reserve. (FIPA, 2002)	xx	xx			MP; ESP
Economic Valuation of Hydrological Services for human consumption: San Jerónimo Municipality. (GFA, 2005)	xx	xx			CV; ESP
Economic valuations of environmental disasters					
Tropical storm Agatha and Pacaya Volcano. (CONRED, 2010)	xx				PDNA
Tropical storm Stan. (CEPAL and SEGEPLAN, 2005)	xx				PDNA
Hurricane Mitch (CEPAL, 2004)	xx				PDNA
Economic valuation of environmental damages					
Mining. (IARNA, 2010)	xx	xx			MP
Other economic valuations					
Economic valuation report of the implementation process of the CITES convention (Barzev, 2010)	xx				MP
Goods, functions and attributes generated by rainforest. (Senci3n, 1996)	xx	xx	xx	xx	MA
Economic valuation of Protected Areas					
Guatemalan System of Protected Areas. (Godoy, 2011) (CONAP, 1999)	xx	xx	xx	xx	MA
Laguna del Tigre National Park. (IARNA, 2010)	xx	xx	xx	xx	MA
System of Integrated Environmental-Economic Accounts (SEEA) (BANGUAT y IARNA-URL, 2011)	xx	xx			MA

Source: Own elaboration. MA: Multiple approach; MP: Market prices; CV: contingent valuation; ESP: ecosystem services payment; PDNA: Post-Disaster Needs Assessment.

How are these integrated into the NBSAPs?

The emphasis on the values of biodiversity and ecosystem services in the participatory process for developing the National Biodiversity Policy and updating the NBSAP was triggered by both the improved understanding of the links between biodiversity and economic growth, human development, culture, socio-environmental conflicts and the results of the assessment of the implementation of the first (1999) National Biodiversity Strategy.

In the context of the above described participatory processes, stakeholders were confronted with much of the literature analysing the trends of biodiversity loss and its causes in Guatemala as well as technical documents prepared by the Secretariat of the Convention on Biological Diversity. The documents consulted included the following:

- ◆ Insights into the first results of the research conducted in view of developing the environmental-economic accounts, more specifically findings about the contributions of biodiversity in productive processes;
- ◆ Pilot experiences relating to the valuation and instruments for the provision of ecosystem services (e.g. PES); generally related to water provision; and
- ◆ Diagnoses related to socio-environmental vulnerability and evaluations in retrospect from events like Hurricane Mitch, Hurricane Stan and the eruption of Pacaya volcano.

The awareness of the values from these different sources of literature has played an important role in the shaping of the new National Biodiversity Policy as well as the revised NBSAP.

The issue of economic valuation of biodiversity has generated a strong debate in Guatemala and the country's ultimate position is still not clearly defined, mostly due to the existence of two rather opposite perspectives:

- ◆ The one that has dominated until recently, that promotes the "use" of resources to generate economic development; and
- ◆ Visions of sustainable development taking into account the rights and livelihoods of indigenous people and equity.

Do they influence the NBSAPs?

The issue of economic valuation is addressed in Objective 4 of the 2012-NBSAP, which sets the objective: *"To develop mechanisms of strategic valuation of biodiversity and ecosystem services and their contribution to the national economy and human development."*

This objective includes the following strategic activities and associated actions:

- ◆ Strategic activity 4.1: Establishment of a strategic economic valuation framework integrating aspects including the social and human as well as biodiversity and ecosystem services supported by the Academy and other relevant actors:
 - ◆ Design and validate instruments for valuation of biodiversity and ecosystem services.
- ◆ Strategic activity 4.2 Conduct a systematic organization of locally, regionally and nationally strategic valuation experiences:
 - ◆ Design protocol for the systematization of experiences; and
 - ◆ Organize, analyse and disseminate valuation experiences.
- ◆ Strategic activity 4.3 Valuation of strategic biodiversity, especially linked to local economies, rural livelihoods and those of high impact on GDP:
 - ◆ Identify and prioritise biodiversity and ecosystem services in light of their strategic value;
 - ◆ Adapt participatory at local and regional level the assessment instruments for the identification of benefits from biodiversity and ecosystem services; and
 - ◆ Design and implement pilot valuation of biodiversity and ecosystem services.
- ◆ Strategic activity 4.4: Incorporate the valuation of biodiversity and ecosystem services into existing planning systems at local, regional and national levels:
 - ◆ Diagnose or review mechanisms to enter the local planning, regional and national levels; and
 - ◆ Enter the valuation of biodiversity and ecosystem services in institutional plans local, regional and national.

Focus on good practice

A good practice has been to prioritise, as a starting point, ecosystem services that are most visible / tangible for the public and decision makers. In the case of Guatemala, because of its climate vulnerability, emphasis was put on the economic value of water provision and water flow regulation by ecosystems. This focus was particular sensible in light of the need for a convincing demonstration of the role of ecosystem in providing these specific services to ensure adequate investments in ecological restoration.

It has indeed been estimated that investments in ecological restoration could provide a wider range of economic benefits including reduced damage caused by natural phenomena, increased hydropower potential, fuel wood provision (47% of energy consumption in the country (INAB, IARNA-URL, FAO / GFP, 2012)), and other option and existence values.

Insights into approaches, methods and techniques used

As seen in Table 1 above, some of the most commonly used methods for the economic valuation of biodiversity and ecosystem services in Guatemala have included contingent valuation, the use of market prices and the combination of several methods (multiple approaches). In the case of natural disasters the economic valuation method used has been Post Disaster Needs Assessment (PDNA) of the United Nations. Regarding the values measured, most of the studies have focused on direct and indirect use values, and slightly less than half have focused on use values and non-use values (option and existence).

Constraints, needs and future developments

In the case of Guatemala, the economic valuation exercises have focused mainly on provisioning services and less on other types of ecosystem services. Over the last few years the country has gained most of its experience with the valuation of provisioning services rather than the valuation of regulating and cultural services. It appears necessary for the country to broaden the scope in the future; keeping some scope for prioritizing essential ecosystem services and includes values that go beyond the economic (market) value to also integrate the social and cultural values of ecosystems and biodiversity.

This would for example include more in depth valuation exercises relating to the value in terms of water flow regulation (there is only one case of valuation of this particular service (FIPA, 2002) as this ecosystem service category can be expected to be rather important in economic terms. It must however be acknowledged that, although not framed as “loss that could have been avoided had ecosystems not been in a degraded state”, some of the value of regulatory services may have been captured and reflected in the valuations that have been made of the economic damage from natural disasters (e.g. economic impact of Hurricane Mitch in 1998 and Hurricane Stan in 2005 generated losses of approximately USD 3.810 million and that the country takes about 8,5 years in recover economically of this climatic events (CEPALCEPAL, 2004) (CEPAL and SEGEPLAN, 2005). Also, is reported that due to climatic effects during 12 years, the country has lost 40 years of public and private investment in the economy (Vargas, 2010). At least some of the impacts and associated costs can be attributed to the degradation/loss of ecosystem service of water flow regulation due to the degradation of ecosystems within watersheds, so the values of this service could be inferred indirectly through the estimation of these damages, but until now this has not been carried out.

Although the case needs to be made stronger through specific valuation exercises, recent studies suggest it is likely to be more cost effective for the country to restore the ecosystem service of water flow regulation than regularly rebuild the physical infrastructure lost through extreme climatic events, especially once the other benefits (firewood and maintenance of the potential hydropower production) are factored into the equation.

Building up the evidence base on the magnitude of tangible economic benefits from this ecosystem service would build a thorough basis for a large outreach campaign to promote the restoration of ecosystem as a contribution to increasing human safety and the long-term viability and resilience of the country's economy.

4. COMMITMENTS TO RESPONDING TO THE VALUES OF ECOSYSTEMS AND BIODIVERSITY IN THE NBAPS

NBSAPs & integration of BD and ESS stocks and benefits into the national accounting framework

The development of the Guatemala's System of Integrated Environmental and Economic Accounting (SEEA) began in 2006 as a result of a joint initiative between academic and government sectors. The institutions that are part of this joint initiative include the Institute for Agriculture, Natural Resources and Environment (IARNA) of the University Rafael Landívar; the Bank of Guatemala¹⁴ (BANGUAT); the Ministry of Environment and Natural Resources (MARN); the National Institute of Statistics (INE) and the General Secretariat of Planning (SEGEPLAN) (BANGUAT y IARNA-URL, 2011).

The SEEA is defined as a system of satellite accounts that links environmental information with the System of National Accounts (SNA). The objective pursued in establishing such a system is to provide the data necessary to understanding and analysing the interrelationships between environment and the economy, in particular the impacts of economic processes on the environment (BANGUAT y IARNA-URL, 2011).

The implementation of the SEEA in Guatemala focuses on eight accounts (BANGUAT y IARNA-URL, 2011):

- ◆ Integrated Account for forest;
- ◆ Integrated Account for water resources;
- ◆ Integrated Account for fisheries and aquaculture resources;
- ◆ Integrated Account for expenses and environmental transactions;
- ◆ Integrated Account for energy and emissions;
- ◆ Integrated Account for waste;
- ◆ Integrated Account for land and ecosystems; and
- ◆ Integrated Account for subsoil resources.

Also, to provide a detailed description of the economy-environment relationship, the Guatemala's SEEA is integrated into four sub accounts (BANGUAT y IARNA-URL, 2011):

- ◆ **Sub account for assets:** measures the natural capital stocks and their monetary value, reflecting its rate of utilisation;
- ◆ **Sub account for flows:** gives information on the use of environmental goods and services entering the production process as well as the generation of wastes and pollutants the economy discharges into the environment;

¹⁴ Bank of Guatemala (Banco de Guatemala) is the central bank of the country whose function is to contribute to the creation and maintenance of favourable conditions to the orderly development of the national economy.

- ◆ **Sub account for expenses and environmental transactions:** records the expenditures made by the public and private sector to prevent, mitigate or restore damage to the environment, and the costs for the management of natural resources. In addition, records environmental transactions or cash flows arising from economic and environmental activities; and
- ◆ **Sub account for economic aggregates:** It focuses on expanding SNA aggregates (such as the Gross Domestic Product-GDP), to account reductions or increases in stocks and environmental degradation.

How are these integrated into the NBSAPs?

The mandate for the integration of the values of the benefits of biodiversity and ecosystem services is given by Strategic Axis No.2 of the revised (2012) NBSAP: Increasing awareness and recognizing the values of nature. Under the Strategic Objective 4, and more specifically under 4.3: Strategic valuation of biodiversity especially linked to local economies, rural livelihoods and those of high impact on GDP the following two actions were included:

- ◆ Incorporation of the national results of the valuation of biodiversity, particularly economic ones into the System of National Accounts, so that all the sectors that make up the State can become aware and appreciate the value of biodiversity and ecosystems for their specific sector; and
- ◆ Development of mechanisms for strategic valuation of biodiversity and ecosystem services and their contribution to the national economy and human development.

Good practice example identified

The good practices identified are the following:

- ◆ The implementation of the Guatemala 's SEEA is a very important step to reveal more clearly the relationships between the environment and the economy, and allows a more informed decision-making;

- ◆ The acknowledgement that the development of the SEEA will be a permanent development process, the accounts will be continuously refined over time – while there might be some limitations initially even partially completed accounts may provide important information as inputs into decision-making;
- ◆ An important factor for the implementation of the SEEA has been the cooperation between central government institutions and academia. In fact, it is considered that the long-term viability of the SEEA will depend largely on this inter-institutional cooperation;
- ◆ The standardization of criteria and methods to generate information between the Institutions participating in the Guatemalan SEEA, is key to ensuring the reliability of the analysis,
- ◆ The information generated should be transformed into a language understandable by decision makers and the general population.

Constraints, needs and future developments

The conclusions of the first phase of implementation of the SEEA in Guatemala suggest that (BANGUAT y IARNA-URL, 2011):

- ◆ Some of the biggest challenges in the development of the SEEA are associated with the processes of generation, management and dissemination of reliable information;
- ◆ It will therefore prove essential to assist institutions to improve these processes and guide actions to generate information, to ensure they also respond to the needs in Guatemala's specific national context; and
- ◆ It is also necessary to strengthen the administrative arrangements within the main entities related to the SEEA, to ensure continuity over time.

It must however be stressed that a more thorough analysis of the SEEA as it is currently being developed suggests that:

- ◆ It does virtually not include the value of ecosystem services, except for some related to provisioning services;

- ◆ The integrated account for forest is actually an account for timber resources, hiding the rest of the forest biodiversity and associated ecosystem services; and
 - ◆ Given its strong links with the System of National Accounts, it is affected by its deficiencies. For example, the reconstruction of physical infrastructure lost during hydro climatic events is considered as an investment and not as an expense. This generates an overestimate of the GDP. The fact that the degradation / loss of ecosystem service of water flow regulation might hamper future economic growth would not be reflected adequately through the satellite accounts that are currently under development.
- Mainstreaming of biodiversity and ESS values into other sectors and links to other strategies and plans*
- The policies and strategies, which resonate with some of the ambitions of and activities foreseen in the NBSAP, are:
- ◆ The National Climate Change Policy¹⁵ (adopted in 2009), which proposes the development of national capacities and technology transfer for territorial planning for mitigation and adaptation to climate change in Guatemala, and taking into account the environmental management of land with emphasis on adaptation climate change and considers the integrated management of watersheds, the productive landscape and bio-cultural and biological corridors;
 - ◆ The National Rural Development Policy¹⁶ (adopted in 2009) which includes amongst its objectives the strengthening of socio-environmental management and the wise use of natural resources and goods, especially land, water and forests, according to the principles of bioethics, to increase the resilience to climate change;
 - ◆ The National Strategy for the Conservation and Management of Natural Resources in Communal Lands¹⁷ (adopted in 2009), which proposes other ways of conservation besides the System of Protected Areas SIGAP. It highlights the role of communal land for biodiversity conservation and points to the need to take into account the role of traditional knowledge of conservation and governance systems in indigenous territories, resonating with what is proposed in the revised (2012) NBSAP through the concept of a National Conservation System; and
 - ◆ The National Policy of Food Security¹⁸ (adopted in 2005), which is articulated with the NBSAP through its environmental transversal axis, which states that the Strategy's objectives call for activities which include the preservation and restoration of environmental conditions, enhancing the ancestral knowledge of indigenous peoples and citizens about their environment, ensuring their sustainability through development patterns that maintain the productive capacity of natural ecosystems for future generations.

15 Política Nacional de Cambio Climático http://www.segeplan.gob.gt/downloads/clearinghouse/politicas_publicas/Recursos%20Naturales/Politica%20Nacional%20de%20Cambio%20Clim%3%A20Guatemala.pdf

16 Política Nacional de Desarrollo Rural Integral http://www.segeplan.gob.gt/downloads/clearinghouse/politicas_publicas/Desarrollo%20Rural/Pol%3A20tica%20Desarrollo%20Rural%20Integral.pdf

17 Estrategia Nacional para el Manejo y Conservación de Recursos Naturales en Tierras Comunales. http://www.conap.gob.gt/Members/admin/documentos/pueb_indig/portada%20CONAP%20ESTRATEGIA.pdf

18 Política Nacional de Seguridad Alimentaria y Nutricional http://www.fao.org/righttofood/inaction/countrylist/Guatemala/PoliticaNacionaldeSeguridadAlimentariayNutricional_2005.pdf

How is this integrated into the NBSAPs?

The final NBSAP foresees the development of tailor-made sectoral “Plans” indicating specific roadmaps of action that should be taken to implement the five strategic axis of the NBSAP for each type of key stakeholder within each one of the sectors (CACIF, Governmental Organizations, NGO’s, and Indigenous People). This specific aspect is a key part of the strategic actions under the NBSAP that are in the process of being developed. These sectoral plans will be developed over the next 4 years. Separate “stand alone” document will be developed for Resource Mobilization Communication and Capacity-building Strategies.

In order to design tailor-made plans for each sector, the following actions have been foreseen in the NBSAP:

- ◆ Identify and assign specific activities for each sector in order to develop work agendas and to facilitate the incorporation of the objectives of the policy to private institutions that manage biodiversity and ecosystem services;
- ◆ Develop agreements with NGOs to incorporate the objectives of the policy to their strategic plans;
- ◆ Develop joint proposals with nonprofits organizations that use biological diversity for the common benefit;
- ◆ Develop Joint proposals with about access to biological resources used in semi-processed natural medicine;
- ◆ Develop joint proposals with MAGA and mechanisms for access to seeds and other genetic resources important for national food security;
- ◆ Develop agreements with CACIF about companies processing and using biodiversity and its derivatives, as well as ecosystem services;
- ◆ Develop a National Biotrade Proposal with AGEXPRONT, which would set out responsibilities and equitable distribution of benefits;
- ◆ A technical guidance on the implementation of the Nagoya Protocol;
- ◆ A technical guidance for national water use in hydroelectric generation, and equitable distribution of responsibilities and benefits; with the Ministry of Energy and Mining (MEM); and
- ◆ The strengthening of coordination processes of the Network of Indigenous Authorities with the National Council of Protected Areas, in order to incorporate the objectives of the NBP in the Network.

Good practice example identified

As mentioned in the governance chapter, the creation of a multisectoral policy supported by a Government Agreement, as a manner to mainstreaming biodiversity, and to oblige State institutions to participate in the implementation of the NBSAP, is expected to lead to a better implementation of the 2011 National Biodiversity Policy and the 2012 NBSAP. This ensures that the implementation of the Strategy is not the sole responsibility of the leading governmental agency of biodiversity (CONAP) and that the entire State Cabinet is required to take actions to ensure its proper implementation.

Constraints, needs and future developments

Perhaps the main limitation for mainstreaming biodiversity and ecosystem services in the country is the fact that the general population, and as a result politicians and decision makers, consider environmental issues a low priority.

Increasing awareness and generating knowledge that visualizes the direct strong links between human welfare in Guatemala and the state of the country’s biodiversity and ecosystems will therefore be a key factor in ensuring the success of the 2011 National Biodiversity Policy and the revised (2012) NBSAP. The generation of the information itself will be as important as its communication, which will need to be understandable both by decision-makers and the population at large.

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ACRONYMS

AGEXPRONT	Association of Non-traditional Exporters
ALMG	Academy of Mayan Languages
AVANCSO	Association for the Advancement of the Social Sciences in Guatemala
BANGUAT	Bank of Guatemala
CACIF	Committee of Agricultural, Commercial, Industrial and Financial Associations
CALAS	Centre for Legal and Social Actions for the Environment
CECON	Centre for Conservation Studies
CEMA	Centre for Marine Studies
CONADIBIO	National Commission of Biodiversity
CONAP	National Council of Protected Areas
CONCYT	National Council of Science and Technology
FAO	Food and Agriculture Organization
FODICGUA	Guatemalan Fund for Indigenous Development
FOGUAMA	Guatemalan Fund for Environment
FONACON	National Fund for Conservation
FUNDAECO	Foundation for Ecological Development and Conservation
FUNDARY	Foundation for the Conservation of the Environment and Natural Resources Mario Dary Rivera
GDP	Growth Domestic Product
GEF	Global Environmental Fund
IARNA	Institute for Agriculture, Natural Resources and Environment
INAB	National Institute of Forestry
INE	National Institute of Statistics
MAGA	Ministry of Agriculture, Livestock and Food
MARN	Ministry of Environment and Natural Resources
MEM	Ministry of Energy and Mining
PAF-MAYA	Mayan Forest Action Plan
NBP	National Biodiversity Policy
NBSAP	National Biodiversity Strategy and Action Plan (2012)
NBS	National Biodiversity Strategy (1999)
OTECBIO	Technical Office of Biodiversity of CONAP
REDFIA	Environmental Training and Research Network
SEEA	System of Environmental-Economic Accounts
SEGEPLAN	General Secretariat of Planning
SIGAP	Guatemalan System of Protected Areas
URL	Rafael Landívar University
USAC	University of San Carlos of Guatemala
UVG	University of Valle de Guatemala

5. Case Study: Norway

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1. NBSAPS DEVELOPMENT: GOVERNANCE AND STATUS

Status of update, from history to today to plans for the future

Norway's Biodiversity Strategy and Action Plan (NBSAP) has been adopted in a form of a White Paper,¹⁹ Parliamentary report 42 (2000-2001) Norwegian biodiversity policy and action plan – cross-sectoral responsibilities and coordination²⁰ - forming an integrated part of the broader national environmental policy. Based on the previous requirements for updating NBSAPs, the Norwegian Biodiversity and Action Plan have been further amended through two more recent White Papers (i.e. White Paper on the Government's Environmental Policy and the Environmental State of the Nation - Parliamentary Reports 21 (2004-2005) and 26 (2006-2007)²¹). In general, these three White Papers set the framework for Norwegian biodiversity policy and define national goals for sustainable use and conservation of biological diversity, and for genetic resources (CBD 2009).

A major legislative tool for the implementation of the NBSAP is the Nature Management Act, adopted by Parliament in 2009. The Act supplements existing legislation with general rules for invertebrates and plants; common management objectives and sustainable use principles, common rules for harvesting

biological resources, common rules for invasive species as well as a new set of regulations on access and benefit-sharing in relation to genetic resources. The Act implies that all sectors affecting or exploiting natural resources must emphasize common objectives and principles as well as minimize impacts on biodiversity.

As for the status of post-Nagoya update, Norway will develop a new national action plan on biodiversity, which will be finalized within the deadline in 2015. Participation of relevant ministries will be ensured (e.g. Ministry of Agriculture and Food, Ministry of Fisheries and Coastal Affairs and Ministry of Foreign Affairs) through a cross-sectoral working group, led by the Norwegian Ministry of the Environment. It is foreseen that the post-Nagoya updates and revisions will be implemented through an Interministerial Strategy (i.e. not White Paper) to limit the time required to carry out the update process (Representatives of Norwegian MoE, pers. com.). In addition, the opinion of the Saami Parliament (Sámediggi) will be taken into consideration, given the important role biodiversity and ecosystem services play for their livelihood. At the start-up of the process a consultation meeting for stakeholders took place and stakeholders were also invited to submit written input to the process.

¹⁹ White Papers are drawn up when the Government wishes to present matters to the Parliament that do not require a formal decision. White papers tend to be in the form of a report to the Parliament on the work carried out in a particular field and future policy. These documents, and the subsequent discussion of them in the Parliament, can form the basis of a draft resolution or bill at a later stage.

²⁰ http://www.regjeringen.no/Rpub/STM/20002001/042EN/PDFS/STM200020010042000EN_PDFS.pdf

²¹ http://www.regjeringen.no/Rpub/STM/20042005/021EN/PDFS/STM200420050021000EN_PDFS.pdf and http://www.regjeringen.no/pages/2094393/PDFS/STM200620070026000EN_PDFS.pdf

Regulations on the introduction of foreign species in forestry came into force in July 2012, and new regulations on the import and introduction of alien species are under preparation. Norway signed the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization on May 11th 2011 and plans to ratify the protocol during spring 2013. Some of the provisions of the Nagoya Protocol are already implemented in the Nature Management Act, the Marine Resource Act and the Patent Act.

Constraints, needs and future developments

The Norwegian TEEB initiative (see section 3 below), initiated at the end of 2011, is the key national process for developing information on the status and value of ESS in Norway. The TEEB initiative, however, is not directly politically linked with the ongoing process of updating NBSAP. While it is foreseen that the independent recommendations provided by the expert commission investigating the values of

ecosystem services in Norway will be taken up and integrated into the policy process in 2013 (in a form of White Paper) it is not yet guaranteed that they will receive political support and be integrated into NBSAP.

While Norway has a comprehensive framework of indicators for monitoring the status of biodiversity and ecosystems (the Nature Index, see Chapter 2 below), there is a need to develop dedicated indicators for ESS and integrate these into the existing framework. No clear national process or initiative could yet be identified as leading this process [TBC].

Finally, in order to ensure effective implementation of policies safeguarding ESS, ESS need to be integrated into the relevant sectoral policies such as policies on agriculture and fisheries, e.g. via updating the Norwegian Strategy for Sustainable Development.²² As elsewhere in the world, finding the political will for this is foreseen to be challenging, e.g. to require sectorally applicable evidence and concrete examples.

2. ECOSYSTEM SERVICE IDENTIFICATION & ASSESSMENTS: ESS INDICATORS AND MAPPING & NBSAPS

What ESS indicators and mapping exercises do the NBSAPs build on, make reference to, suggest are needed, commit to?

In terms of indicators and assessments, the update of Norwegian NBSAP is generally based on the Norwegian national Nature Index developed in 2010. The Nature Index is a framework of aggregated indicators for the status of biodiversity in Norway, reflecting the state of terrestrial and marine ecosystems (altogether nine major ecosystems). It consists of a set of 310 biodiversity indicators that encompass important aspects of natural biodiversity (Certain and

Skarpaas 2010). These indicators are then used to produce indices that reflect the overall status of biodiversity across different ecosystems (Figure 1).

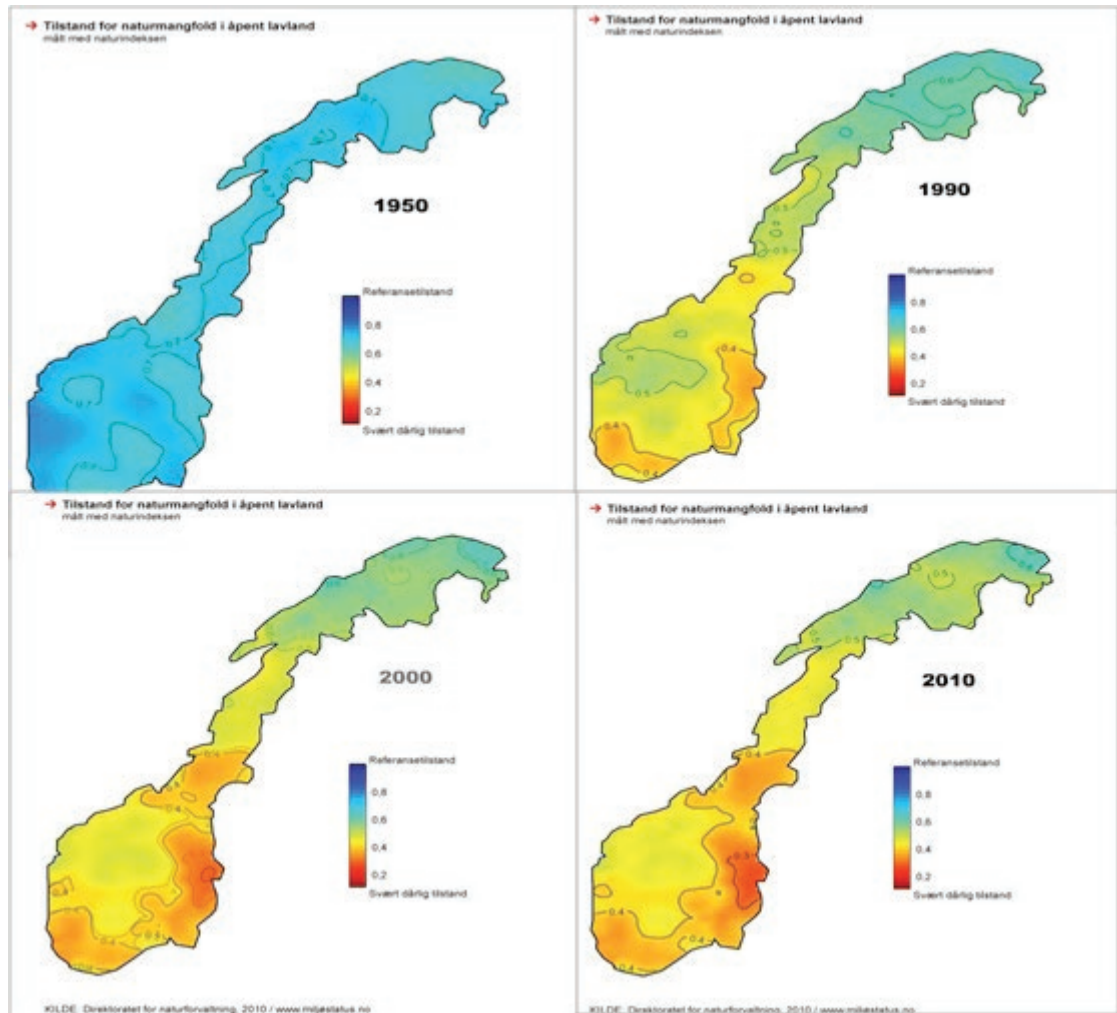
However, the Nature Index does not yet include indicators for ESS. While a range of research organisations are exploring the possibilities for developing ESS indicators there is yet no clear process or initiative at national level / in the context of NBSAP aimed at integrating ESS into the Index.

For further information on the Nature Index, please see Certain and Skarpaas 2010 and the Environment Norway –portal.²³

²² <http://www.regjeringen.no/upload/FIN/rapporter/R-0617E.pdf>

²³ <http://www.environment.no/Topics/Biological-diversity/The-Norwegian-Nature-Index/>

Figure 5.1. Example of Norway's Nature Index: the deterioration in open lowland landscapes between 1950 – 2010.



Source: <http://www.environment.no/Topics/Biological-diversity/The-Norwegian-Nature-Index/>

In addition to the above, Norway pioneered the ecosystem services framework by participating in the Millennium Ecosystem Assessment published in 2005 by carrying out a pilot study in 2001 investigating the possibility of an assessment of ecosystem services at a regional scale (Glomma river basin). This further led to a suggestion to establish a Norwegian millennium ecosystem assessment -pilot study in 2002 including a proposal for and an initial assessment

of Norway's natural environment and ESS (Figure 2) (Directorate for Nature Management 2002). The full-scale study was initially planned to be started in 2003, however it took until the end of 2011 before such plans were initiated in practice, in the wake of the TEEB initiative (see Chapter 3 below). However, the results of the 2002 assessment might provide some useful inputs for the future development of ESS indicators.

Figure 5.2. Preliminary summary of the (qualitative) analysis of the status of ecosystem services in Norway carried out in 2002. Source: Directorate for Nature Management 2002.

Finally, on a regional level a synthesis supported by the Nordic Council of Ministers on the

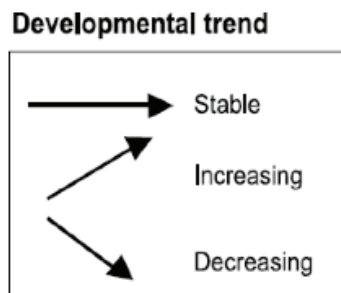
socio-economic importance of biodiversity and ecosystem services in the Nordic Countries

possible indicators and/or proxies for status and value of these services. This Nordic level

Commodity/service	Type of natural environment						
	Ocean	Coast	Freshwater	Mires and wetlands	Cultural landscape	Forest	Mountain
Food production	↘	↗	↘	↘	→	→	→
Fibre	→	→	■	↘	↗	↗	↗
Hydrology/erosion protection/ pollution	→	→	↗	↘	→	↘	↘
Biological diversity	↘	↘	↘	↘	↘	↘	↘
Recreation	→	↘	→	→	↘	→	↗

Condition

■	Excellent
■	Good
■	Fair
■	Poor
■	Bad
■	Not assessed



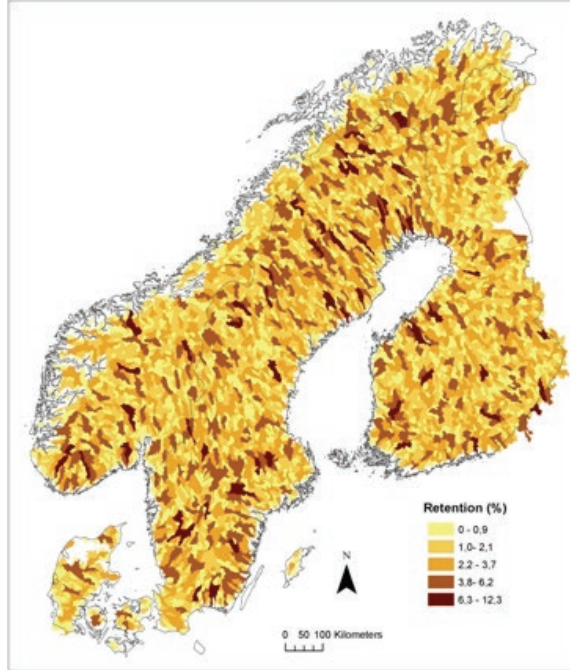
- TEEB Nordic - was carried out in 2011-2012 (Kettunen et al 2012, to be published in October 2012). In addition to synthesising and analysing the existing information on the value of ESS in the Nordic countries (Figure 3) it also systematically identifies a range of ESS provided by the Nordic ecosystems, identifying sets of

synthesis can be a useful resource for creating further policy action on the socio-economic importance of biodiversity and ecosystem services in individual Nordic countries, including Norway. However, there is no commitment to integrate TEEB Nordic's findings into the update of NBSAP.

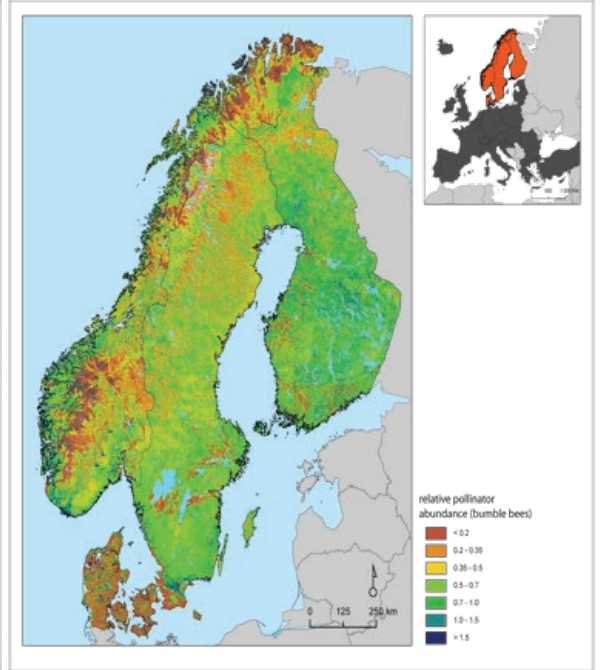
Figures 5.3 and 5.4. Examples of information on ESS provided by TEEB Nordic. Preliminary estimation of nitrogen retention capacity and relative pollinator abundance of bumblebees in the

Nordic countries, based on the models of the JRC. (Maes et al. 2011a, 2011b, 2012 in Kettunen et al. 2012). Data source: European Commission, Joint Research Centre, Institute for Environment and Sustainability. © SYKE, © European Communities, 1995-2012.

Constraints, needs and future developments



satisfactory information about vertebrates (fish, birds and mammals) but significant gaps about



The next edition of the Nature Index is foreseen to be published in 2015. The previous work on the Index has demonstrated that there are still information needs for biodiversity, with fairly

fungi, lichens, mosses, flowering plants and invertebrates. In addition, the development of ESS indicators and their integration into the Index is lacking.

3. ESTIMATION/DEMONSTRATION OF (MONETARY) VALUES & NBSAPS

What monetary valuation exercises have been done/are being done in the countries?

In October 2011 the Norway Ministry of Environment launched a national TEEB study for Norway by appointing a commission to review the values related to ecosystem services in the country.²⁴

The commission will be assigned the following tasks:

- ◆ Review the TEEB study reports and assess which elements are particularly relevant to Norway.
- ◆ On the basis of the terms and definitions used in the TEEB study, clarify and elaborate when and how key concepts related to the importance of ecosystem services for human well-being and for value creation can be applied in Norwegian policy.
- ◆ Draw up an overview of, assess and present

²⁴ <http://www.teebweb.org/Portals/25/Documents/TEEB%20for%20National%20Policy%20Makers/appointment%20of%20a%20committee%20in%20Norway.pdf>

what is known about the values of biodiversity and ecosystem services for Norwegian society today and for future generations, with a particular focus on methods of evaluating the consequences of depletion of ecosystem services and of valuing the depletion of important ecosystem services that are declining or under severe pressure, the main reasons for such decline, and the costs associated with depletion of or damage to ecosystems.

- ◆ Review different ways of valuing and of demonstrating and raising awareness of ecosystem services, and to assess the advantages and disadvantages of and the potential for a stronger focus on economic values and valuation in monetary terms.
- ◆ Look at whether current decision-making mechanisms in different sectors of society act as barriers to the maintenance of important values associated with ecosystems. In this context, barriers are primarily methodological problems, gaps in our knowledge, the economic invisibility of ecosystem services, and a lack of incentives to take the costs of using ecosystem services into account.
- ◆ Evaluate how knowledge of biodiversity and ecosystem services can be enhanced in order to improve the basis for decision making, for example using descriptions, statistics, indicators and measurements of the value of biodiversity and ecosystem services, and make proposals for how these values can be estimated as part of Norway's national wealth.

The commission includes twelve members with ranging expertise and contacts and it is guided by a "reference group" consisting of the representatives of different ministries. The Ministry of the Environment provides the secretariat. There has also been a public consultation meeting to establish contact with interested parties in relevant sectors and organisations.

TEEB Norway is an ongoing process with a deadline for completion 31 August 2013. Consequently, no insights and results are yet available. The final report is foreseen to consist of

a scoping study of ecosystem services in Norway, analysing and synthesising existing information on the status of and trends in ecosystem services and their socio-economic importance and value. In addition, a number of ecosystem services will be selected for a more detailed analysis, possibly including some novel economic assessments and valuations. The topics of these in-depth analyses are yet to be selected, however one of such studies could be focused on assessing the socio-economic benefits of salmon farming vs. its impacts on marine ecosystems.

The regional TEEB Nordic synthesis by Kettunen et al. also outlines a range of information on the socio-economic role and value of different ecosystem services in Norway. When published in October 2012, these results are hoped to make a useful contribution to TEEB Norway.

How are these integrated into the NBSAPs?

TEEB Norway is seen as a key element of Norway's follow-up of the Strategic Plan for Biodiversity 2011–2020 under CBD. However, TEEB Norway is an independent assessment and therefore separate from the process of updating NBSAP. However, it is hoped that the outcomes of TEEB Norway - when published in August 2013 - will lead to the uptake of results at political level, e.g. the development of a White Paper and integration of results into NBSAP.

4. COMMITMENTS TO RESPONDING TO THE VALUES OF ECOSYSTEMS AND BIODIVERSITY IN THE NBSAPS

NBSAPs & integration of BD and ESS stocks and benefits into the national accounting framework

Norway is a part of the Wealth Accounting and Valuation of Ecosystem Services (WAVES). No specific initiative to develop national accounting framework(s) for ecosystem services is currently ongoing. TEEB Norway is seen as the key 'vehicle' to advance / implement WAVES. Possible concrete outcomes are still pending, waiting for further advanced under TEEB Nordic.

Norway is also an active promoter of more sustainable national accounting at the Nordic level and it has initiated a number of studies exploring the possibilities for greening the accounting frameworks.

A scoping study on Nordic environmental indicators, statistics and accounts for managing the environment and the pressures from economic activities was recently published (Hass and Palm 2012). The report has been compiled by the NCM Working Group on Environment and Economics (MEG) in cooperation with national statistical offices in the Nordic countries. It gives an overview on how different types of environmental indicators and accounting systems can best be applied in decision-making and recommends how the Nordic countries could contribute to developing such indicators and accounts further.

Key conclusions of the report suggest that there is currently a great deal of interest in ecosystems, ecosystem services and the valuation of ecosystem services. Although it is not at the moment possible to incorporate monetary valuation of ecosystem services into the national accounts, it may be fruitful to pursue a separate physical accounting system to keep track of the physical characteristics and functioning of different ecosystems (tonnes, hectares, number of subjects etc.). The future work on ecosystems will benefit by the participation of statisticians that have worked with environmental

accounts. The well-established statistical systems in the Nordic countries can be a resource, especially when it comes to data availability, establishing new data from existing information systems and in using the data for analysis purpose. The Nordic countries are particularly good at experimenting and trying to figure out how different types of accounts could be developed. Especially the work on environmental accounts has been successful.

Related to the Beyond GDP thematic, the NCM Working Group on Environment and Economics (MEG) is also about to launch a new project on natural capital.²⁵ The goal of the project will be to review, evaluate and make recommendations to the Nordic countries on systems and methods (existing and under development) which enable measuring and valuing ecosystem services and biodiversity and linking such values into national accounting.

While all the above studies and initiatives processes supporting the 'greening' of accounting frameworks are foreseen to be a part of Norway's / Nordic contributions to the Target 2 of the CBD Strategic Plan it is yet unclear how they will - in concrete terms - be taken up by and integrated into the NBSAP update process.

Mainstreaming of biodiversity and ESS values into other sectors and links to other strategies and plans

Based on the acquired information, further efforts are still needed to ensure integration of ESS values into sectoral policies in Norway (See Chapter 1) and it is hoped that the insights from TEEB Norway will help to support this process.

Currently, ESS are specifically integrated into the policy documents (White Paper) guiding national external assistance. This allows Norway to take action on supporting the uptake of ESS at global level, this way supporting the implementation of CBD's 2020 biodiversity targets (Aichi Target 2).

²⁵ <http://www.norden.org/sv/nordiska-ministerraadet/ministerraad/nordiska-ministerraadet-foer-miljoe-mr-m/institutioner-samarbetsorgan-och-arbetsgrupper/arbetsgrupper/miljoe-och-ekonomigruppen-meg/projekt-1/natural-capital-in-a-nordic-context-status-and-challenges-in-the-decade-of-biodiversity>

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6. Case Study: South Africa

1. NBSAPS DEVELOPMENT, STATUS AND LINKS TO OTHER STRATEGIES AND PLANS

Status of update, from history to today to plans for the future

In 2004, the first comprehensive national spatial assessment of the status of biodiversity at the ecosystem level was carried out. The National Spatial Biodiversity Assessment (NSBA)²⁶ was funded jointly by the Department of Environmental Affairs and Tourism (DEAT) and the South African National Biodiversity Institute (SANBI). The objective was to systematically identify geographical priority areas for the development of short- to medium-term strategies and actions. The NSBA used systematic biodiversity planning techniques to determine the conservation status of ecosystems and to identify national priority areas for conservation action and more detailed planning. The NSBA has four components, dealing with terrestrial, river, estuarine and marine environments. The spatial products developed in the NSBA have been widely used ever since, and served as a base for the development of South

Africa's first National Biodiversity Strategy and Action Plan (NBSAP),²⁷ lead by DEAT and finalized in 2005 after a two-year consultative process.

The NBSAP was supported by a Country Study, based on a rapid assessment of South Africa's biodiversity, socioeconomic and political context. This initial stocktaking and assessment phase noted the underlying causes of biodiversity decline – particularly social, economic and institutional causes. Together with insights gained from various consultations and inputs received from interested stakeholders, ways of ensuring sustainable and equitable use of our rich biological heritage were identified and informed the development of five strategic objectives (Table 1.1). For each objective, outcomes, activities, targets and indicators were identified. The strategy was further refined in a series of task team workshops, and an implementation plan developed to highlight priority activities, lead agents and partners.

Table 6.1. Strategic objectives of the South Africa NBSAP 2005

Strategic Objective 1	An enabling policy and legislative framework integrates biodiversity management objectives into the economy
Strategic Objective 2	Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector
Strategic Objective 3	Integrated terrestrial and aquatic management minimizes the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security
Strategic Objective 4	Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits
Strategic Objective 5	A network of conservation areas ¹ conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape

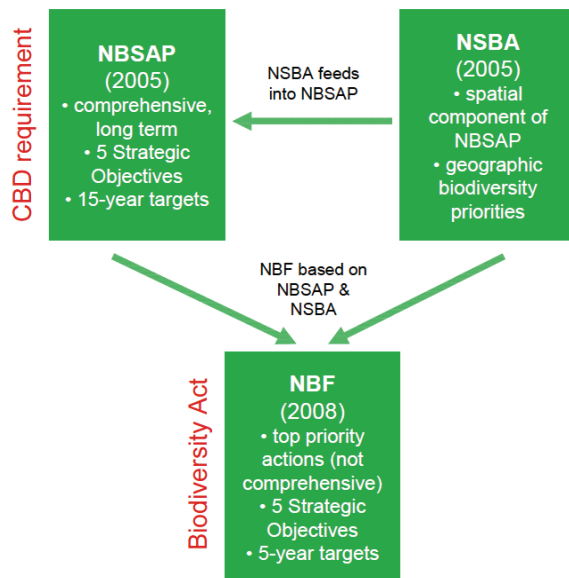
Source: adapted from DEAT (2005). South Africa NBSAP

²⁶ http://bgis.sanbi.org/nsba/NSBA_Report.pdf

²⁷ <http://www.cbd.int/doc/world/za/za-nbsap-01-en.pdf>

The NSBA 2004 and the NBSAP 2005 provided the basis for the development of a National Biodiversity Framework (NBF), which was published by the Minister of Environmental Affairs in 2008. The purpose of the NBF is to coordinate and align the efforts of the many organizations and individuals involved in conserving and managing South Africa's biodiversity. While the NBSAP is a comprehensive and long-term (15-year) strategy, the NBF focuses attention on urgent strategies and actions. It identified 33 priority actions for the period 2008-2013, organized according to the five strategic objectives of the NBSAP 2005.

Figure 6.1 Relationships between NSBA, NBSAP and NBF



Source: DEAT (2008). South Africa NBF

In 2011 South Africa published its National Biodiversity Assessment (NBA),²⁸ building on and expanding the NSBA 2004. The NBA 2011 was developed over a three-year period led by SANBI in partnership with a range of organisations, involving wide participation from stakeholders, scientists and biodiversity management experts throughout the country. It assesses the state of South Africa's biodiversity, across terrestrial,

freshwater, estuarine and marine environments, emphasising spatial (mapped) information for both ecosystems and species. It will inform the revision and updating of key national biodiversity policies and strategies, including the new NBSAP and the NBF.

Work on the revised NBSAP has been initiated by the Department of Environmental Affairs (DEA) during 2012, with involvement from SANBI. It will follow broadly the same approach used for the NBSAP 2005. Priority actions suggested by the results of the NBA 2011 will feed into the NBSAP review process. They can be grouped into three major categories, applying across terrestrial and aquatic environments:

1. Reduce loss and degradation of natural habitat priority areas. Actions will focus on preventing loss and degradation of natural habitat in those biodiversity priority areas that are still in good ecological condition.
2. Protect critical ecosystems. Actions will focus on consolidating and expanding the protected area network as well as strengthening the effectiveness of existing protected areas under formal protection by law (i.e. recognized in terms of South Africa's Protected Areas Act), including both state-owned protected areas and contract protected areas on private and communal land.
3. Restore and enhance ecological infrastructure. Actions will focus on active interventions required to restore biodiversity priority areas that are currently not in good ecological condition, in order to support delivery of ESS.

The intention is for the revised NBSAP to inform the upcoming five-yearly review of the NBF. This provides an important opportunity to strengthen the focus on ecosystem services in the NBSAP, which will in turn influence the NBF.

²⁸ <http://bgis.sanbi.org/nba/project.asp>

Governance: who's involved in the NBSAP development?

The process to develop the NBSAP 2005 was guided under the strategic guidance of a Project Steering Committee, with representation by national departments and agencies such as SANBI and the South African National Parks, and by provincial departments and agencies such as provincial Parks Boards, responsible for biodiversity conservation. A National Project Manager was appointed to manage the process, assisted by a Project Management Team and several voluntary Task Teams. In addition, there was also representation by civil society, through a network of NGOs.

During the stocktaking and assessment phase, a number of consultants were contracted to provide a strategic assessment of the key thematic areas of conservation (including spatial and social components and key threats such as invasive alien species), sustainable use, access and benefit sharing, economic integration and poverty alleviation, policy, legislation and institutional capacity.

The draft Strategy was debated in a series of consultative workshops. A first national workshop was convened in March 2004 to discuss the stocktaking and assessment and debate the draft Strategy, followed by a second national workshop in July 2004. Additional discussions and consultations took place in all nine SA provinces during 2004, with various national departments and NGOs representatives. In addition, a national workshop on sustainable use and benefit sharing was held in June 2004. In addition, two workshops that focused on municipalities were held in partnership with the South African Local Government Association (SALGA) in October and November 2004. These were attended by representatives of all three types of municipality (metropolitan, district and local) from all nine provinces. Civil society representatives attended all the national and provincial workshops.

Focus on good practice

During the development of the NBSAP 2005, a full-time dedicated Project Manager at national governmental level was contracted to lead the process. It helped to achieve a clear governance structure and to attain buy-in at high governmental level. In addition, the process was distinguished by a comprehensive participation of government officials at different levels (i.e. national, regional and local) as well as NGOs and civil society through the participation on various workshops. Coherency and consistency were maximized by appointing the same person to facilitate all workshops during the two-year process, working closely with the Project Manager.

As explained above, the NBSAP 2005 included a spatial component, the NSBA 2004, which used systematic biodiversity planning techniques to determine the threat status of terrestrial and aquatic ecosystems countrywide, and to identify broad national priority areas for conservation action. As far as can be established, South Africa was the first country to include a comprehensive spatial assessment as part of its NBSAP.

In addition, the NBSAP 2005 and the NSBA 2004 together informed the development of the NBF 2008, which is a requirement of the South Africa Biodiversity Act. Although many countries that are signatories to the CBD have developed a National Biodiversity Strategy and Action Plan, South Africa is one of few that give its NBSAP legal status and impact through a NBF which is supported by national legislation.

The revised NBSAP may maintain the five Strategic Objectives used in the NBSAP 2005, which would help to provide coherency and continuity. It will draw on the geographic priorities identified in the NBA 2011, which provide greater detail and are at a finer spatial scale than those identified in the NSBA 2004.

Constraints and needs

For the NBSAP 2005 two different set of targets were established: a 15-year long-term targets set for the five Strategic Objectives; and, five-year objectives set at the outcome level. However, the target setting was weak, with some targets too ambitious for the available time framework. The targeting setting process will be revisited during the NBSAP revision, in order to produce stronger, more accurate and better defined targets.

A lack of sufficient skilled and experience people have been identified a key constraint in the

South African biodiversity sector. It has affected the implementation and ultimately impact of the previous NBSAP. In order to implement the priorities and actions under the revised NBSAP, a concerted investment in human capital will be essential. In this regard, progress is being made already; a Human Capital Development Strategy for the biodiversity sector has been initiated in the country,²⁹ with great potential to contribute to national job creation and development objectives, helping to mainstream biodiversity into other key sectors of the country.

2. ECOSYSTEM SERVICE IDENTIFICATION & ASSESSMENTS: ESS INDICATORS AND MAPPING & NBSAPS

What ESS indicators and mapping exercises do the NBSAPs build on, make reference to, suggest are needed, committed to?

South Africa has some of the best ecosystem mapping and classification in the world, especially in the terrestrial environment, with a long history of vegetation mapping. Since 2004 there has been significant progress, especially in the aquatic environment, laying the foundation for more meaningful assessment, planning and monitoring of ecosystems. This emerging national ecosystem classification system is essential for ecosystem-level monitoring, assessment and planning, including the establishment of ecosystem services indicators.

The NSBA 2004 provided the first comprehensive spatial assessment of South Africa biodiversity, presenting robust spatial products on which the NBSAP 2005 built on. For the NBA 2011 marine and coastal habitat types and wetland ecosystem types were identified and mapped for the first time, and the estuarine functional zone was mapped for the first time for all estuaries.

In contrast, the NBSAP 2005 did not include ESS indicators, and the new NBSAP may not include such indicators either. South Africa has done relatively little work on ESS indicators to date. The priority focus is on the establishment of a

robust national ecosystem classification system, gathering of baseline knowledge on ecosystem services assets, and the development of indicators dealing with benefits of biodiversity rather than ecosystem services per se (for example, numbers of jobs related to biodiversity).

How are these integrated into the NBSAPs?

South Africa has well-established capacity for producing spatial biodiversity maps that are based on best available science and relate directly to policy and legislative tools. The NBA 2011 synthesised these into a combined national map of biodiversity priority areas, and identified a series of related key priorities actions. The revision of the NBSAP will build on the results of the NBA 2011, integrating the spatial priority areas into the process.

In addition, the ecosystem mapping, classification and identification of spatial biodiversity priority areas is expected to have further policy impact, as the NBA 2011 is central to fulfilling SANBI's mandate to monitor and report regularly on the state of biodiversity. It has also fed directly into the Department of Environmental Affairs' South African Environment Outlook 2012 report and will provide the basis for SA's Fifth Country Report to the Convention on Biological Diversity (CBD) due in 2014.

²⁹ www.greenmatter.co.za

At which stage/s of NBSAP planning and development are these integrated

The existing information and the need for additional data (as contained in the NSBA 2004 and NBA 2011) will be considered at an early stage of the revision process of the NBSAP. This will help setting stronger targets and defining priority areas for action.

Do they influence the NBSAPs? E.g. target setting, actions?

The spatial ecosystem analysis undertaken for the NSBA 2004 identified a series of broad priority areas for the development of short- to medium-term national strategies and actions, providing a baseline on which the NBSAP 2005 largely built on. They included: fine-scale planning; expansion of the protected area network (subsequently built on in the National Protected Area Expansion Strategy 2008); and integration of biodiversity-compatible development and resource management across the landscape and seascape, including on private and communal land. These priorities influenced the action and target setting process. For example, a 5-year target was set to expand the Protected Area network to make progress towards meeting national targets following areas identified in the NSBA 2004. Detailed ecosystem-specific protected area targets were then developed in the National protected Area Expansion Strategy 2008.

In the same way the NSBA 2004 influenced the NBSAP 2005, it is planned that the revised NBSAP will build on existing information and identified needs for additional data contained in the NBA 2011.

Focus on good practice

The NSBA 2004 introduced two new headline indicators for assessing the state of ecosystems in South Africa: ecosystem threat status and ecosystem protection level. Both indicators can be calculated only if ecosystems have been mapped and classified. These indicators were carried through to the NBA 2011, and will feature in future NBAs, which ultimately influences the NBSAP. They enable two powerful types of analysis: time series analysis of the state of ecosystems; and meaningful comparison between marine, river, wetland, estuarine and terrestrial ecosystems. This application of the same headline ecosystem indicators across terrestrial and aquatic environments is unusual and has not been done in most other countries.

Insights into approaches, methods and techniques used

South Africa's approach to biodiversity assessment and planning is based on the so-called systematic approach. It emphasises the need to conserve a representative sample of ecosystems and species (the principle of representation) as well as the ecological processes that allow them to persist over time (the principle of persistence), and to set quantitative biodiversity targets that tell us how much of each biodiversity feature should be maintained in a natural or near-natural state. These principles of systematic biodiversity planning are reflected in the NBA headline indicators, ecosystem threat status and ecosystem protection level, through the use of biodiversity targets and thresholds. They also underpin spatial biodiversity planning at the national and sub-national level in South Africa.

2.6 Constraints and needs

There are still the missing elements in the set of South Africa's biodiversity priority areas. Coastal and marine ecosystem priority areas have yet to be identified across the country, and the development of a national coastal biodiversity plan, based on systematic biodiversity planning principles, is an urgent priority.

In addition, the emerging national ecosystem classification system should be formalised and strengthened. Linked to this work is the development of biodiversity targets for aquatic ecosystem types based on their ecological characteristics, which has been achieved for

vegetation types in the terrestrial environment, and needs to be expanded.

Following closely in importance to strengthening the emerging national ecosystem classification system is the need for regularly updated, countrywide data on the condition of ecosystems. Without good data on ecological condition, it is not possible to assess ecosystem threat status. In addition, programmes for long-term in situ monitoring of ecosystems based on quantitative indices, such as the River Health Programme, need to be strengthened or established in all environments, and opportunities to further involve civil society in such programmes should be explored.

3. ESTIMATION/DEMONSTRATION OF (MONETARY) VALUES & NBSAPS

What monetary valuation exercises have been done/are being done in the countries?

To date, considerable valuation work has been undertaken in South Africa. However, it has been conducted in an uncoordinated and piecemeal way. In 2011, the South African Council for Scientific and Industrial Research (CSIR) undertook a review of existing ecosystem service valuation in South Africa with the aim to provide a launch pad for future studies directing future valuation work into those areas most needed. In total 40 studies were identified, of which a large proportion focus on the valuation of provisioning service values. Selected results from the more robust studies were included in the NBA 2011.

Whilst these studies are valuable and provide important information, it is clearly time to develop an agreed and consistent framework for valuing services at national level. A project to develop a South Africa TEEB has just been initiated, led by DEA. A gap analysis workshop to identify areas for which there are no ecosystem service values or areas that need further work was conducted in May 2012, which focused both on the supply and the demand of information.

Focus on good practice

The term ecosystem service can be somehow abstract and difficult to understand depending on the audience and circumstances. In South Africa a different term, ecological infrastructure, has been developed, adopted at the national governmental level, to refer to functioning ecosystems that deliver valuable services to people, such as fresh water, climate regulation, soil formation and disaster risk reduction. It is the country's equivalent to ecosystem services, but because it draws attention to parallels with grey or built infrastructure, it has proved to help decision-makers as well as the general public in the country to better understand the links between healthy ecosystems and the provision of services and contribution to socio-economic development, as well as the need to actively maintain and invest in ecological infrastructure. The concept of ecological infrastructure refers only to existing natural ecosystem features, be they degraded or intact, and therefore uses a narrower definition than the also existing term Green Infrastructure, widely used in Europe. Adapting the international jargon to national circumstances is an example of good practice than can significantly increase the level of buy in.

Constraints and needs

Valuation of ecosystem services is still in its infancy and discrepancies occur in ES type classification, methods, and scale. At present, a variety of proxies are used in quantifying the same ecosystem service and different valuation methods have been adopted both for similar and different service assessments. The lack of congruency between the different approaches is potentially a considerable problem which could impair the implementation of a nation-wide ESS valuation analysis.

The Project for Ecosystem Services (ProEcoServ) is a GEF-funded umbrella project which overall goal is to better integrate ecosystem assessment, scenario development and economic valuation of ecosystem services into sustainable national development planning. One of the expected project's outputs is to carry out GIS-based valuation of ecosystem services at sub-national levels. As part of the output-related activities, a review of existing valuation methods and existing studies on valuing regulating services has already been done. It will assist to identify most appropriate methods and it can help to establish a congruent framework for valuation in South Africa.

In addition, existing data is unevenly distributed among ecosystem types and ESS. Terrestrial habitats have received the most attention, while estuaries, rivers and coastal areas have received very little attention. Deserts stand out for the complete lack of any valuation study. On ESS types, the major emphasis has been on capturing provisioning service values, followed by regulating services and cultural services, with very little attention given to cultural and habitat services.

Given the time taken and costs involved in the valuation of ESS and the early stage at which South Africa currently is, it would be advisable to undertake a prioritisation exercise, where stakeholders and interested parties would come to a negotiated agreement on which ecosystem services should be valued according to which broad habitat unit or defined geographic scale. This prioritisation exercise could also provide a platform for discussion on which, if any of the services should not be subject to valuation. Launching a study of this nature will require time and money, and it would be unlikely to be ready to inform the already initiated process to revise the NBSAP.

4. COMMITMENTS TO RESPONDING TO THE VALUES OF ECOSYSTEMS AND BIODIVERSITY IN THE NBAPS

NBSAPs & integration of BD and ESS stocks and benefits into the national accounting framework

South Africa has just started to develop a national ecosystem accounting system. SANBI is currently working together with its National Statistical Office (Statistics SA) to establish and maintain relevant definitions of concepts and classifications of ecosystem services and ecosystem assets for ecosystem accounting, a first step to develop a robust accounting framework. The next step will be to undertake a pilot assessment of rivers ecosystems assets, to later expand the analysis to others terrestrial and aquatic habitats. Methodology will draw from the United Nations developed System for Environmental-Economic

Accounts (SEEA) framework, focusing initially on physical ecosystem accounting rather than monetary accounting. It is expected that this process will take place over several years.

Mainstreaming of biodiversity and ESS values into other sectors and links to other strategies and plans

Mainstreaming biodiversity and ESS into economic and development sectors is a key pillar of South Africa systematic approach to biodiversity planning and is a key theme that runs across South Africa's NBSAP and other related strategies and plans (e.g. NSBA, NBF, NBA,). Extensive work has been done at different scales and levels.

A critical area for mainstreaming biodiversity is land-use planning at the provincial and municipal levels. It is especially important that spatial biodiversity priority areas are taken into account in land-use planning and environmental authorisations. South Africa has

developed a strategy based in three key elements: clear information (with a focus on maps and guidelines); raised awareness and capacity (with a focus on people); and embedding biodiversity priorities into institutions (where the focus falls on processes) (Figure 4.1)

Figure 6.2 Key elements of the mainstreaming strategy being applied in South Africa.

Clear information	Raised awareness and capacity	Embedding in institutions
<ul style="list-style-type: none"> • Biodiversity sector plans (maps of CBAs and ESAs, and accompanying guidelines) • Ecosystem guidelines for environmental assessment • Tools for serving biodiversity information 	<ul style="list-style-type: none"> • Building individual and institutional capacity • Formal training • Workplace-based mentorship and support • Lesson-sharing and building a community of practice 	<ul style="list-style-type: none"> • Influencing provincial and municipal policy • Incorporating biodiversity priority areas in statutory and multi-sectoral planning instruments (such as Spatial Development Frameworks) • Ensuring that biodiversity priority areas are taken into account in regulation of land-use

Source: Cadman et al. 2010. South Africa's landscape approach to conserving biodiversity and promoting ecosystem resilience.

The primary tools for mainstreaming biodiversity at the local and district level are biodiversity sector plans. They provide a map of areas that are important for conserving biodiversity pattern and ecological processes (called critical biodiversity areas (CBAs) and ecological support areas (ESA)), together with contextual information on biodiversity and land-use guidelines. The land-use guidelines indicate which kinds of activities are permissible in the CBAs and ESAs, and give land management recommendations in order to achieve the desired objective for biodiversity.

In addition, data can be easily accessed through SANBI's Biodiversity GIS website (BGIS),³⁰ an open portal hosting a central database of spatial biodiversity information. A standardised system enables people to interact with this information, making possible for practitioners in any field to

access biodiversity plans, land-use guidelines and other supporting reports and information. Making this information freely available, rather than treating it as a commodity to be sold, has dramatically increased the number of users and the potential for biodiversity plans to impact on decision-making processes in the country.

South Africa has also successfully implemented a range of projects that mainstream biodiversity management objectives into economic sector activities, to ensure that production processes maintain essential ecosystem functions that sustain human welfare. Over the last five years, these mainstreaming projects have influenced 18 distinct production sectors, notably several agricultural sectors, fisheries, forestry, travel/ecotourism, water resources and livestock/animal husbandry.

³⁰ <http://bsig.sanbi.org>

How is this integrated into the NBSAPs (commitments, targets set, actions outlined?)

The NBSAP 2005 has a strong focus on mainstreaming and integration, being a key issue back-boning all outcomes in the Strategy. In particular, the first Strategic Goal focuses on mainstreaming biodiversity into the economy, and the third Strategic Objective includes mainstreaming biodiversity priorities in land-use planning and environmental authorisations, and in production sectors, especially those that transform land or are heavily water-dependent (i.e. agriculture, urban development, mining, industry and transport).

Good practice example identified

Although the use of systematic biodiversity plans is not unique to South Africa, the country's biodiversity planners have placed considerable emphasis on interpreting the scientific results of biodiversity planning for a wide range of end-users. The provision of practical land-use guidelines that accompany the maps of biodiversity priority areas makes them meaningful and useful to practitioners in other fields, and the move towards standardising terminology, while the "look and feel" of the maps increases their usefulness.

The outputs of biodiversity planning processes have been geared for ease of use in a range of operating environments, including the biodiversity sector and many other sectors. Stakeholders from sectors other than biodiversity have been included as partners in the planning process. Considerable time and effort have been invested in setting up and maintaining innovative cross-sectoral partnerships that enable ongoing follow-up with practitioners who are using the planning tools on a day-to-day basis.

The time that has been dedicated to setting up effective working relationships has made a difference to the effectiveness with which biodiversity is integrated into land-use planning and decision-making in South Africa. Maps and guidelines alone have little impact. Successful outcomes on the ground require ongoing involvement and commitment from a range of scientists, NGOs and implementers working in multiple sectors. Cross-sectoral partnerships, locally-based champions, ongoing capacity building and workplace-based support are needed to ensure successful transition from planning to implementation.

Constraints and needs

A combination of government and donor resources is currently being used to generate systematic biodiversity plans in South Africa. Most provinces now have a provincial spatial biodiversity plan, which forms the basis for municipal biodiversity sector plans. In some cases the development and revision of these plans is led by an in-house biodiversity planner in the provincial conservation authority. In other cases it requires support from external consultants. It is not clear in all cases, where resources will come from to ensure that these plans are updated regularly and to support their effective use in development planning and decision-making in a range of sectors.

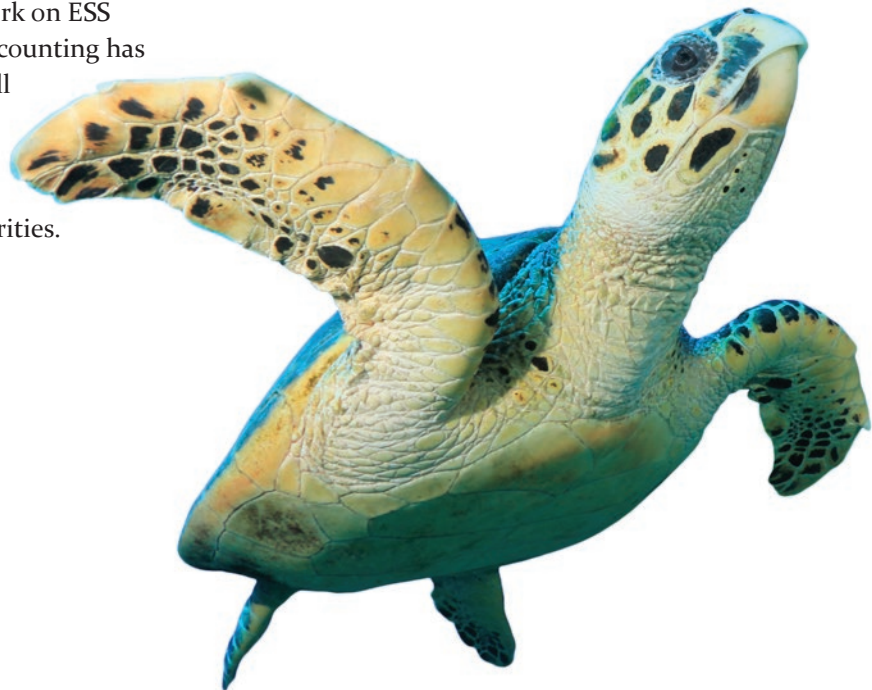
In addition, there is an uneven spread of technical capacity across the country, meaning that some provinces and districts have only just begun to produce biodiversity sector plans.

5. LESSONS LEARNT FROM PREVIOUS NBSAPS

The NBSAP 2005 included a 5-year target to quantify and monitor the value of biodiversity to the economy and to people's lives. It included, inter alia, a periodic country-wide economic valuation of biodiversity, with an emphasis on goods and services, that draws linkages between biodiversity, the economy and poverty alleviation; and a periodic analysis to determine, at the local and regional scale, the use values of biological resources and ecosystems to people at a household level, and identify opportunities to encourage the sustainable management of biological resources and ecosystems.

Despite not achieving the target, its inclusion in the NBSAP assisted in mainstreaming biodiversity across other sectors. It also helped to raise awareness on the need to value South Africa's biodiversity and ESS, which ultimately placed the issue in the policy agenda (i.e. Outcome 10³¹). As a consequence, work on ESS valuation and national ecosystem accounting has started in the country and results will be incorporated into the undergoing revision and future editions of the NBSAP, as they become available, influencing targets, actions and priorities.

In the previous NBSAP 2005 a series of monitoring options were discussed, although no monitoring framework was implemented. South Africa's 4th National Report to the CBD³² provided the only formal source that tracked progress made towards goals and outcomes. This placed constraints on the evaluation of the effectiveness and impact of the NBSAP. In the revised NBSAP, greater attention will be given to monitoring requirements and how these relate to the NBF. It could build on the NBF, which requires an annual report on progress with implementation of the NBF priority actions to be produced.



³¹ The South Africa government has agreed on 12 outcomes as a key focus of work between 2009 and 2014. Each outcome has a limited number of measurable outputs with targets, and is linked to a set of activities that will help achieve the targets and contribute to the outcome. Outcome 10 deals with ensuring that environmental assets and natural resources are well protected and continually enhanced. It includes an explicit output related to valuing ecosystems. More information: <http://www.info.gov.za/view/DownloadFileAction?id=134066>

³² <http://www.cbd.int/doc/world/za/za-nr-04-en.pdf>