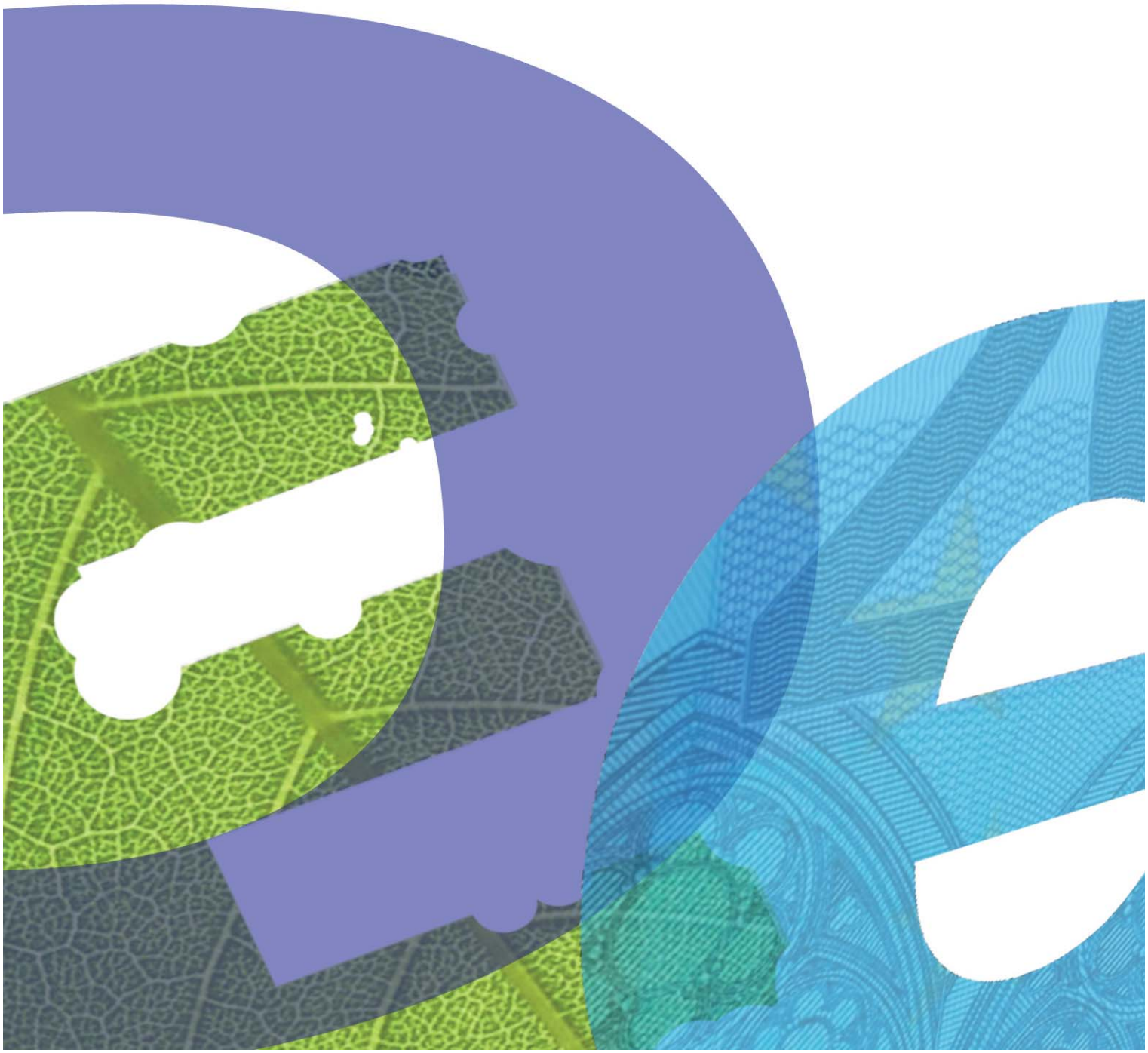
Ecoregional Economic Development

Cases



ECOREGIONAL ECONOMIC DEVELOPMENT CASES

This document is a background document to 'Ecoregional Economic Development - An integrated spatial planning approach'.

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Cases Ecoregional Economic Development:

TOP-DOWN, BOTTOM-UP, OR BOTH? LESSONS FROM THE UPPER BREEDE RIVER AREA, WESTERN CAPE, SOUTH AFRICA

Case summary

In 2003 the agriculture and biodiversity conservation authorities working with landowners in the Upper Breede area came together in the realization that better collaboration and co-ordination between them, and the preparation of a shared basis for evaluating development, would be beneficial and could provide a platform to influence planning (Spatial Development Frameworks and Integrated Development Planning) and State funding from 'the bottom up'. In 2006 the Upper Breede Collaborative Extension Group (UBCEG) was formed, focusing on areas of high biodiversity value and of high economic value, where there was community buy-in and where the potential existed to deliver social benefits through job creation and skills development. This bottom up initiative resulted in a planning approach enabling the identification of 'critical biodiversity areas' to meet biodiversity conservation targets, and 'critical ecological support areas' underpinning delivery of ecosystem services of societal value. Area-Wide plans were prepared highlighting the priority areas for agricultural production from a local perspective that incorporated biodiversity priorities. These plans are used as the basis for informing decision making on new development in the valley, to direct resources and efforts, and prioritise activities.

The Upper Breede River multistakeholder initiative resulted in an integrated spatial planning approach allowing for a multifunctional use of the land combining economic, social and ecological interests. The case illustrates that local buy in and a bottom up approach may be key factors to the success of ecoregional economic development. As a result of the Upper Breede River initiative, viticulture and tourism have a better future due to on the ground collaboration between key stakeholders, enabling potential synergies between these land uses to be strengthened and a regional identity to be captured and marketed. The rural community has seen significant improvements in service delivery, e.g. jobs have been created, youth are involved, alien plants have been cleared resulting in improved water quality and quantity as well as decreased threat of uncontrolled wildfires. Biodiversity is safeguarded due to the identification and prioritisation of conservation efforts, education and awareness-raising of its value and significance amongst a wide spectrum of different stakeholder groups in the region.

1 CONTEXT

1.1 The setting

The Upper Breede area covers an area of approximately 1000 km2 and is located within a prime wine-producing region in the Western Cape Province of South Africa (the wine industry contributes about R26 billion - 2.2% - to the country's GDP[1]). Levels of unemployment in the Upper Breede area are growing (in places approaching 20%), and employment is largely seasonal. The area has a dire need to uplift the quality of life of the community, create job opportunities, and provide education and skills training. It has strong tourism potential, given the rugged and spectacular scenery, wine farms and heritage assets.

Existing policy and plans for the Upper Breede area emphasize environmentally and financially sustainable development and the need to protect agricultural resources, conserve key biodiversity and water resources, promote development to increase job opportunities, and alleviate poverty.

The legal, planning and environmental situation of the case study is described in the next section, to provide the broader context in which the case study operates.

1.2 The national context for the case study and 'top down' instruments

South Africa is home to three globally recognised biodiversity hotspots. The country has suffered a legacy of apartheid, with its often inappropriate spatial planning and forced settlement patterns entrenching race and class divisions, and a growing gap between the 'haves' and 'have nots'. Water and soil resources are under severe pressure in this arid country, and pollution and invasive alien organisms are a growing problem. Climate change is likely to aggravate these problems.

Constitution, environmental and planning law

The Constitution of South Africa's Bill of Rights enshrines the objective of 'ecologically sustainable development' while promoting justifiable economic and social development'. 'Integrated environmental management' is defined in the National Environmental Management Act 107 of 1998 (NEMA); its objectives are, simply stated, to consider impacts and risks before taking action, and to find the 'best practicable option'.

The national environmental management principles contained in NEMA cover, amongst others, the need to safeguard biodiversity, use renewable resources in

1 Press release: 17 February 2010. VinPro Chairman, Abrie Botha.

a way that maintains ecological integrity, avoid and minimize pollution, protect cultural heritage, and work towards social justice and equity[2]. 'Ecoregional economic development'is a concept which aims to integrate conservation of biodiversity and ecosystem services with social and economic development within a defined geographic area. The objectives of integrated environmental management closely reflect those of ecoregional economic development, hereinafter referred to as 'EED'.

The institutional and governance frameworks in South Africa are, as in most other countries, complex; separate laws govern spatial planning, environmental and biodiversity matters, water and agricultural resources, and mining, for example.

Sustainability in spatial development is formally pursued in two main ways in South Africa, namely:

- Spatial Development Frameworks (SDFs) as the spatial component of Integrated Development Plans (IDPs) provided for in planning law, to inform decision making at municipal level. IDPs are the instrument through which priority projects in the municipal area are identified and funded. The boundaries of IDPs and SDFs thus coincide with municipal areas. Municipalities have a vested interest in promoting development in order to raise revenue, often at the expense of the environment.

- Environmental Management Frameworks (EMFs) provided for environmental legislation since 2006, primarily to inform decision making by environmental authorities at provincial or national level on development proposals that require Environmental Impact Assessment (EIA). Although applicable to any defined geographical areas, the spatial boundaries of EMFs also tend to coincide with municipal boundaries.

The objectives of IDPs (and underlying SDFs) and EMFs are broadly aligned in striving to conserve valued natural and cultural resources (heritage, agricultural, water and biodiversity), improve social equity and economic vitality. In practice however, the interdependencies between natural resources and socioeconomic development are not addressed, resulting in 'silo' treatment of biodiversity, social, economic, water and land use (e.g. agriculture) issues. In many cases, consultants are appointed to prepare SDFs and EMFs. As a result, there may be little sense of 'ownership' of these products or commitment to their implementation by the municipalities. Although stakeholder engagement (including public participation) is required during the preparation of both SDFs and EMFs, the extent of engagement in preparing these plans is variable. Environmental Management Frameworks are relatively new tools in South Africa, having been introduced in 2006. There are major differences in scope of, and approach to the preparation of EMFs, and little information is available on their implementation or effect on decision making to date. In spite of clearly articulated socioeconomic and biophysical objectives and

2 Section 2 of the NEMA refers.

intentions, IDPs and SDFs to date have failed to recognize the interdependence between socioeconomic and ecological systems. Neither SDFs nor EMFs are seen as particularly powerful instruments with regard to influencing decision making: law requires that they must simply be 'considered' by the relevant authorities. Capacity within authorities to address the ecosystem services implications, and ensure implementation, monitoring and/ or enforcement of decisions on land use, is extremely poor.

Systematic conservation planning and valuation of biodiversity in South Africa

South Africa is known internationally for its excellent work on systematic conservation or 'biodiversity' planning (Box 1). The development of these increasingly sophisticated Biodiversity Plans over the past decade has enabled more accurate mapping and preparation of explicit guidance on biodiversity and a range of ecosystem services (particularly related to water) critical for achieving sustainable development. The most recent plans provide scientifically defensible information, packaged simply, and communicated in the language of planners and decision makers.

Available analyses on the economic value of biodiversity or ecosystem services are largely confined to national or provincial scales.

Box 1: Short history of systematic conservation planning

In the late 1990s and early 2000s, a number of innovative programmes were initiated in global biodiversity hotspots in the country to promote the integration of the natural environment into land use decisions, e.g. Cape Action for People and the Environment in the Cape Floral Region. These programmes drew on systematic conservation planning to identify the most efficient spatial configuration in the landscape to achieve scientifically defensible conservation targets for different ecosystems, based on species-area relationships, and avoid conflict areas with other sectors or the sterilisation of important economic resources. Following on from these programmes, a National Spatial Biodiversity Assessment (NSBA) was completed in 2005, covering the terrestrial, freshwater, estuarine and marine environments. Its focus was on 'mainstreaming biodiversity priorities throughout the economy and making links between biodiversity and socioeconomic development'. Conserving biodiversity is thus seen as strengthening the economy, contributing to social development and becoming a 'cornerstone of our sustainable development path'(Driver et al, 2005)

2 THE UPPER BREEDE RIVER INITIATIVE

2.1 Case description

Local municipality Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) are in place. One of the two SDFs relevant to the Upper Breede contains good biodiversity information, but neither SDF achieves meaningful integration of biodiversity or ecosystem services into spatial plans or the inclusion of natural resource-related projects for funding through the IDP; they were not making any real difference at ground level.

The Upper Breede area lies within the Cape Floral Region (CFR), one of the world's biodiversity hotspots and smallest of six global floral kingdoms, confined almost entirely to the Western Cape province of South Africa. Its low-lying areas - in private ownership - comprise some of the most threatened and significant ecosystems in the CFR. The overall trend in the health of ecosystem services in the district is a gradual deterioration which threatens their ability to support development in that area. With repeated raises in taxation on wine (excise duty) and increasing production costs, the financial viability of wine producers is at breaking point. This situation has led to conflict between the pressure by local farmers to expand cultivated areas to ensure their financial viability, and the need to conserve biodiversity of global significance, and riparian, wetland and catchment areas that protect water resources for downstream users. The conversion of remaining indigenous vegetation on farms is seen by farmers as the most cost-effective solution to financial hardship.

Invasive alien plants are a common concern to stakeholders; they hamper agricultural production, cause degradation of water resources, change flooding patterns, increase fire hazard, and lead to a loss of biodiversity. While government has an incentive to clear its catchment areas (the costs of clearing are negligible compared to the costs of developing new water supply schemes), private land-owners do not; the private costs of clearing currently far outweigh perceived benefits

In 2003 the agriculture and biodiversity conservation authorities working with landowners in the Upper Breede area came together in the realization that better collaboration and co-ordination between them, and the preparation of a shared basis for evaluating development, would be beneficial and could provide a platform to influence planning, the IDP and State funding from 'the bottom up'.
In 2006 the Upper Breede Collaborative Extension Group (UBCEG) was formed[3]. This Group now has thirteen members from government and civil society. The

3 Funding for the pilot study came in part from the Critical Ecosystem Partnership Fund, and the Table Mountain Fund (WWF), and in part from the two key departments (CapeNature, the provincial conservation agency, and Land Care, under the auspices of the provincial agriculture dept.). Subsequent funds came from GEF-funded Cape Action for People and the Environment (CAPE), the Cape Winelands District Municipality, LandCare, CapeNature, Working for Water (Dept. of Water Affairs), Pioneer Foods, Table Mountain Fund (WWF).. Collaboration between different institutions and organizations has improved the effectiveness and efficiency of activities in the valley aimed at con serving or restoring degraded ecosystems, with benefits to farmers, water users and unemployed people in the local community.

group agreed to focus on areas of high biodiversity value and of high economic value, where there was community buy-in and where the potential existed to deliver social benefits through job creation and skills development.

Fine-scale Biodiversity Plans enabled the identification of 'critical biodiversity areas' to meet biodiversity conservation targets, and 'critical ecological support areas' underpinning delivery of ecosystem services of societal value. Likewise, Area-Wide plans were prepared highlighting the priority areas for agricultural production from a local perspective that incorporated biodiversity priorities. These different areas effectively delineate 'limits of acceptable change' for land and resource use in the landscape. These plans are used as the basis for informing decision making on new development in the valley, to direct resources and efforts, and prioritise activities. Clearing of invasive alien plants from catchments, and the restoration of wetlands and river systems, are a shared priority of conservation, agricultural and water agencies. The UBCEG has identified priority areas for clearing, and undertaken clearing and rehabilitation, with associated job creation and skills training.

The participation of local stakeholders in UBCEG reflects growing realization amongst landowners that further conversion of currently natural areas is not in the broader public interest and is unlikely to be permitted by authorities. Together with this realization is the understanding that economic activities in the area need to be diversified to create additional income streams in order to achieve the objectives for much needed socioeconomic development. Through Breedekloof Wine and Tourism, a not-for-profit company formed by private landowners in the area (also involved in forming UBCEG), there has been investment in tourism development, skills training and job creation. The rural community has witnessed increases in job creation, involvement of youth, invasive alien plant clearing, restoration of riparian and wetland areas with improved water delivery, and a decreased threat of uncontrolled wildfires or flooding. The spectacular scenery is increasingly being recognized as an important draw-card for tourism, injecting revenue to the area. People are beginning to see the economic benefits of conserving nature, although the monetary values of these benefits have not yet been determined.

Importantly, the benefits of the 'bottom up' initiative flow not only to local people, but to downstream water users through efforts to conserve and restore valuable water resources (wetlands, riparian areas and the catchment), and biodiversity, with its associated use and non-use values (Box 2). These efforts stand to benefit future users too, and promote sustainable development in the Upper Breede area and beyond.

Box 2: Achievements of the UBCEG (Mortimer and Rˆscher, 2009)

2006-2009: secured approximately R7 million in funding

- Almost 15 000ha of land for conservation
- 20% in formal protected areas: 2790 ha of Endangered habitats have been conserved through CapeNature's Stewardship programme, and an additional 11686 ha conserved under the Biodiversity and Wine Initiative
-
- Awareness-raising and education initiatives for adults and children
- Skills training and jobs: 578 children from 15 schools and 17 volunteers attended LandCare camps; 60 landowners attended 'farmer field awareness days'; 12 farm workers trained as nature guardians
- R5.95 million was channelled to unemployed Historically Disadvantaged Individuals (HDIs);
- 10486 person days HDI employment created
- Clearing of 3 042ha of invasive alien plants on private land, and 85 farms received herbicide to this end
- 15000 indigenous trees distributed to landowners for rehabilitation work

2010: An additional amount of almost R6 million has been allocated through the UBCEG for further projects (Garth Mortimer, CapeNature, pers comm.)

2.2 Main driver (catalyst) behind the case

A worsening financial viability of wine producers led to conflict between the pressure by local farmers to expand cultivated areas to ensure their financial viability, and the need to conserve biodiversity of global significance, and riparian, wetland and catchment areas that protect water resources for downstream users.

Although 'top down' plans were in place, shared frustrations around ineffective and un co-ordinated governance in a priority area for agricultural production, biodiversity conservation and social development catalysed local action by key stakeholders to pursue sustainable land use practices.

2.3 Involvement of stakeholders

Although stakeholder engagement (including public participation) is required during the preparation of both SDFs and EMFs, the extent of engagement in preparing these plans nation-wide varies. In 2003 the agriculture and

biodiversity conservation authorities working with landowners in the Upper Breede area came together in the realization that better collaboration and co-ordination between them, and the preparation of a shared basis for evaluating development, would be beneficial and could provide a platform to influence planning and State funding from 'the bottom up'. In 2006 the Upper Breede Collaborative Extension Group (UBCEG) was formed, having thirteen members from government and civil society. The UBCEG provides a forum where different departments, responsible for reviewing development applications, can discuss them within the context of biodiversity conservation priorities and socioeconomic and agricultural issues. Through quarterly meetings and interaction outside these meetings, each member becomes aware of others' responsibilities and jurisdiction, and knows 'what each is supposed to do'. The group focuses on areas of high biodiversity value and of high economic value, where there is community buy-in and where the potential existed to deliver social benefits through job creation and skills development. The participation of local stakeholders in UBCEG reflects growing realization amongst landowners that further conversion of currently natural areas is not in the broader public interest and is unlikely to be permitted by authorities. Together with this realization is the understanding that economic activities in the area depend on ecosystem services and need to be diversified to create additional income streams in order to achieve the objectives for much needed socio-economic development.

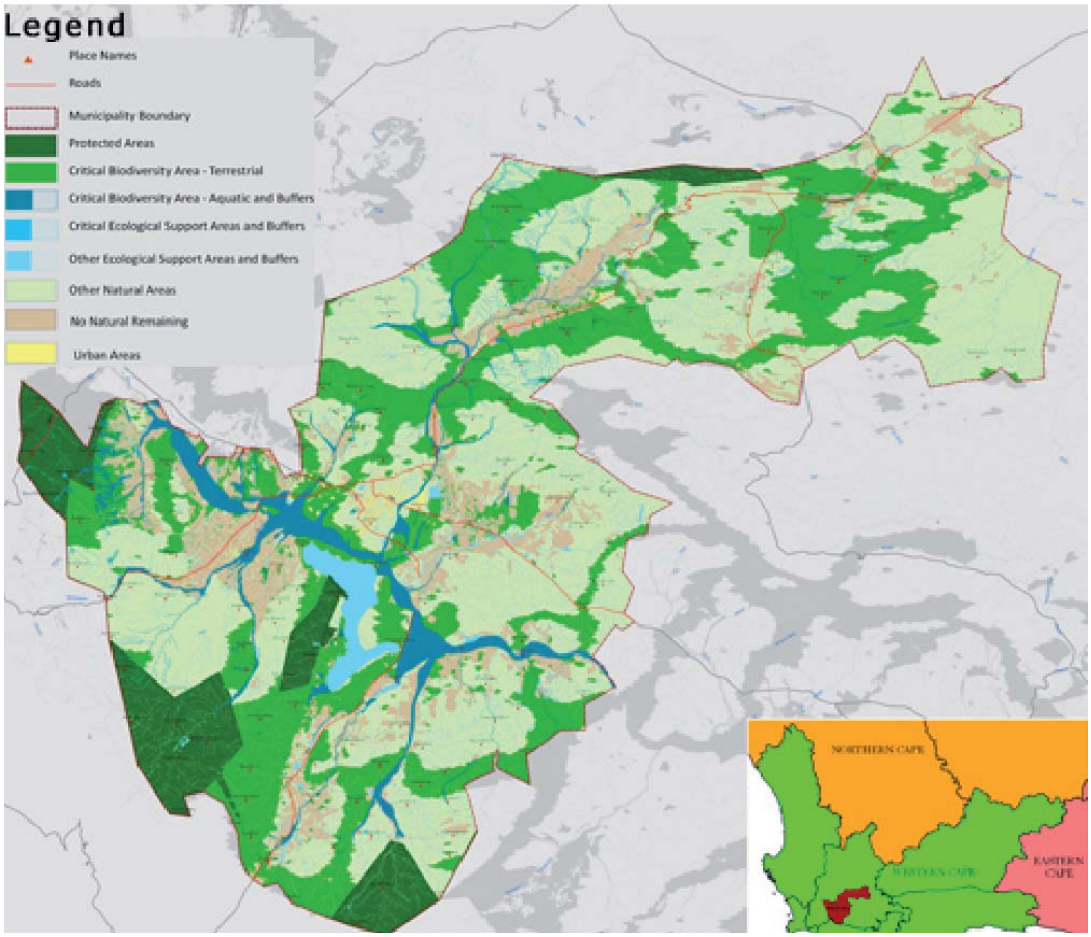
The community established 'Breedekloof Wine and Tourism', a company representing - and funded by- the wine producers of the area. The initiative appointed a social 'development manager' from 2008 who co-ordinates a range of outreach and capacity building programmes: e.g. technical training of farm workers and making available bursaries for study, tourism guide training; building tourism awareness in schools, advice on career planning in tourism; and entrepreneurial activities, to build local human capital in relation to available tourism resources.

Decisions on resource use and development applications are still taken by disparate authorities at local and provincial levels with different mandates. However, the formation of the UBCEG has increased the collaboration between key stakeholders in discussing development and land/ resource use in the Upper Breede and Slanghoek Valley, identifying priority areas or areas of concern, and in reaching a shared vision for the area. These factors help to align resource and development decision making.

2.4 Role of integrated planning

South Africa's Constitution, national laws, policies and guidelines agree that integrated planning for ecoregional economic development makes good sense

and should be applied in practice. However, good plans alone, in the hands of decision makers and authorities, were insufficient. A 'top-down' approach may work where there is political buy-in to conserving nature. In this case this buy in was absent; the main concern of people was employment and the future of their businesses. Local government was responsive to a local, 'bottom up' initiative, and recognized its own role, not only as a regulator and planning authority, but also as a facilitator, co-ordinator and supporter of the initiative. The opportunities and constraints of natural resources in the defined region set the boundaries within which alternative economic development options were explored. The approach targeted an area characterised by shared biophysical features and natural resource use, and pressing environmental and socio-economic issues; the area was not defined by administrative boundaries. Participatory mapping techniques were used. Individual farm maps were combined with critical biodiversity area maps and agricultural resources maps into an Area-Wide Planning map. This map reflected the limitations of - and pressure on - different natural resources, priority areas and threats, enabling authorities to take informed decisions on development applications.



Critical Biodiversity Areas Map: Breede Valley Municipality (Maree & Vromans, 2010)

3 HIGHLIGHTS FROM THE UPPER BREEDE RIVER AREA CASE

Although 'top down' plans were in place, shared frustrations around ineffective and un co-ordinated governance in a priority area for agricultural production, biodiversity conservation and social development catalysed local action by key stakeholders to pursue sustainable land use practices. Proposals for improvement in the area are being fed into IDPs from the 'bottom up'.

A 'bottom up' approach holds promise of enduring long term effects in geographical areas where it is based on - and driven by - the needs of key local stakeholders to find workable solutions to resolve the competing demands on land and natural resources, maintain financial viability and tackle growing poverty and unemployment.

Clear benefits of this approach were the co-operation and collaboration to achieve a common purpose with shared objectives and desired outcomes for an area. Ecological issues of concern to all of the main stakeholders in the area were addressed, with positive spinoffs for skills training and employment. By identifying key areas for biodiversity conservation, examining the natural resource needs of agriculture, as well as the needs of local communities, synergies were sought to realize a number of priorities.

The approach resulted in co-ordinated local activities and projects; sharing of information, knowledge and expertise; collaboration in education and training; joint strategic planning and extension work; and improved motivation to access funds for ecosystem-services related work and training in the area, thus benefiting unemployed people. Decision making on proposed development has been helped by improved communication, co-operation and alignment between responsible authorities.

The total economic value of ecosystem services flowing from biodiversity and natural resources in the Cape Floral Region (essentially the province) amounts to over 10% of the regional GDP (Box 3).

Box 3: Summary of the value of biodiversity in the Cape Floral Region (Turpie et al, 2003)

Type of value (in 2000 ZAR)	Total annual value
Consumptive use value (harvests)	R1 401 563 500
Non-consumptive use value (tourism)	R7 443 000 000
Indirect use value (pollination, bee-keeping)	R593 900 000
Option value	?
Existence value	R181 800 000
TOTAL	R9 620 263 500

The socioeconomic 'engine' of the Upper Breede area is agriculture and, increasingly, nature-based tourism. The indirect use values of South Africa's biodiversity account for two thirds of their estimated economic value. For these reasons, although no economic analyses are available at local scale, the value of initiatives in the area to conserve and restore biodiversity and ecosystem services is likely to be significant. Many of the undoubted benefits of interventions in the Upper Breede area are not immediately evident to beneficiaries, or flow to people outside the area. Downstream users and future generations will benefit from improved water management and efforts to restore riparian areas; better protection of biodiversity should help to sustain ecosystem services such as soil conservation and pollination in the region, and safeguard areas as tourism attractions; the nation (and world) will benefit from conservation of globally unique biodiversity, and 'adaptation insurance' and so on. None of these benefits has been quantified in monetary terms to which local people could relate; helping to highlight the possible financial or social consequences of their resource use choices.

4 REPLICATION AND SUSTAINABILITY OF THE INITIATIVE

There is broad consensus that both 'top down' and 'bottom up' approaches are needed. But to make plans work on the ground, ensuring delivery of benefits to local communities, co-ordination of multi-stakeholder interests, collaborative and lasting partnerships, and the pooling of limited resources, are deemed essential.

The UBCEG approach is thus being used as a 'bottom up' role model to complement the implementation of 'top down' plans in both the Greater Cederberg Biodiversity Corridor and the Gouritz Initiative. Both the Gouritz Initiative and the Greater Cederberg Biodiversity Corridor are landscape level initiatives that were funded by GEF, given their unique biodiversity and ecosystem services value (they are situated within global biodiversity hotspots); the UBCEG model is to be applied in a 'beyond donor funding' world[4] . Both are essentially about people (primarily rural communities and landowners) and how they use the land (i.e. the associated social and economic benefits). They both strive to embed sustainable ways of using land and the natural resources of this unique and diverse region, for the long term benefit of their inhabitants - i.e. 'sustainable living landscapes'. Community development is a priority in these areas, and diversification of land uses (e.g. tourism) with the aim to ensure their sustainability is being explored in partnership with local communities, as in the UBCEG example.

UBCEG's aim is to 'change a culture; the way landowners think about the environment'. That takes time and they feel that they are beginning to see positive results. UBCEG will need to secure State funds annually via established channels (e.g. IDP) for alien plant clearing/ restoration, and associated job creation; skills training will continue to be carried out with help from private funders, by Breedekloof and through government initiatives. However, the commitment and collaboration of UBCEG is catalyzing change: by 'setting a positive example' in the area, UBCEG is seeing a gradual 'mindset change', with landowners starting to take responsibility for clearing alien invasive plants on their own land (i.e. without government funding); and programmes such as Working for Water give HDIs a 'skills jumpstart', enabling them to set up their own small enterprises in future.

4 Jennifer Gouza, CapeNature, pers. comm.

5 MESSAGES THAT CAN BE CONVEYED FROM THE STUDY

5.1 Key learning points

South Africa's Constitution, national laws, policies and guidelines agree that ecoregional economic development makes good sense and should be applied in practice. The key question is 'how'.

Good plans alone, in the hands of decision makers and authorities, are insufficient to achieve sustainable development in practice.
Ecoregional economic development can be achieved from a 'top down regulatory' approach or a 'bottom up ethos' approach. These approaches serve different purposes, are targeted at different stakeholders, and will have different outcomes. For the past decade, efforts have been directed at providing better spatial plans underpinned by more accurate and defensible scientific and technical information, supported by improved guidance on 'what to do where, and 'how to implement'. These efforts have not resulted in plans link socio-economic development needs and the biophysical environment that must support such development. It is too early to evaluate the effects of the recent 'better plans' on the ground, but indications are that they are insufficient to achieve sustainable development in practice. Implementation of these plans is weak, because of a lack of commitment to - or understanding of - the underlying need to conserve the natural environment, poor enforcement power, and lack of capacity.

This paper looks at two broad approaches, namely a 'top down, regulatory' plan-making approach which is reactive and aimed primarily at decision making, and a 'bottom up, community-driven' approach which is proactive and aimed at actions on the ground

A 'top-down' approach may work where there is political buy-in to conserving nature; where buy-in is absent, however, a 'bottom up' approach has a better chance of long term success.
The level of awareness of the linkages and interdependencies between natural resources and biodiversity, local livelihoods and the local economy amongst the institutions tasked with implementing spatial development is a fundamental consideration: where there is political buy-in to conservation of biodiversity and a deep appreciation of the role of ecosystems in delivering valued -and economically valuable - ecosystem services, a 'top down' regulatory approach may work. Where that buy-in and appreciation is questionable, however, implementation of plans is likely to flounder, despite their being based on cutting-edge science and best available information. Similarly,

capacity and commitment to implement, check and enforce EED is essential; simply imposing a different approach on local authorities which scientists and consultants believe is optimal, is unlikely to work.

Ultimately, 'top down' and 'bottom up' approaches (the 'nutcracker') may offer synergies in working together for EED.
In South Africa, SDFs and EMFs need to evolve into a single strategic framework that conveys a clear and compelling case for EED and informs rational decision making by statutory authorities. To make things happen on the ground, the 'bottom-up' approach appears to have the best chance of successfully delivering lasting benefits. **It is thus important for government to be responsive to local initiatives, and to recognize its own role not only as a regulator, but as a facilitator, coordinator and supporter of these initiatives.**

5.2 Messages for policy and decision makers

- Understanding human dependency on nature. An understanding and appreciation of the dependencies of the local economy and livelihoods on the natural environment is a critical success factor in implementing the EED. The point of departure is sustainable development, recognizing the natural resource base - biodiversity and ecosystem services - as the principal 'base layer' enabling socioeconomic development. That is, the opportunities and constraints of these resources set the boundaries within which different forms of socioeconomic development can be explored and implemented.

- Target an area characterised by shared issues. The plan should target an area characterised by shared biophysical features and natural resource use, and pressing environmental and socioeconomic issues, rather than an area defined by administrative boundaries. It is best to focus on key issues of interest or local concern to develop an approach. For example, in the Upper Breede area, financial pressures, access to agricultural land, water and a dire need for jobs and skills training are the key issues to the community. Invasive alien plants impacts on all these key issues; its clearing provides a spectrum of benefits. So a focus on that aspect served as a common and binding interest to which all could relate.

- Shape plans to serve end user needs. In South Africa, the 'top down' approach provides a defensible basis for decision making by authorities on development applications. To be effective in target areas and have a lasting benefit, however, EED is best driven by local stakeholders with a common purpose and shared interests about their natural resources and socioeconomic environment. The plan should be shaped to serve the needs of the end users, taking into account institutional and capacity constraints.

- Choose the most effective scale to meet priority needs. The issue of 'what scale' to apply ecoregional economic development planning is critical. With increasingly large scale geographical areas, buy-in at local level decreases proportionately, and the accuracy of spatial plans - and thus their credibility and uptake' may decrease. Many of the actions needed to implement EED should be taken at a local or regional level; however, changes in laws and policies that contain perverse incentives or drive inappropriate resource use (e.g. excise tax) would need to be addressed at national level.

- Focus on valued ecosystem services. The plan should incorporate all ecosystem services valued by different and current stakeholders. The plan should also address ecosystem services underpinned by existing biodiversity but not yet recognized or valued by the current generation.

- Give 'so what' information and guidance. The plan should give explicit 'so what' information of direct relevance to users: it should identify 'bottom lines', 'irreplaceable' areas with clear guidance on what would - and what would not - be appropriate in these areas (e.g. limits of acceptable change).

- Use the right language. The plan should be simple, practical and accessible to users, and should use the 'language of the implementers'. Without that, the messages it is trying to convey will not be heard.

- Package the message to influence local stakeholders. The plan frequently deals with common property resources. The negative impacts on these resource uses may not be experienced by the communities in which they occur, but by downstream communities or society as a whole; for this reason limitations on resource use may not be seen to be either sensible or necessary. A clear picture of the monetary and/ or utility values of critical ecosystem services is most likely to influence attitudes to ecosystems, and the allocation of resources to their repair and conservation. Deterioration in the security and quality of water resources, for example, would carry serious weight in changing local attitudes.

- Draw 'bottom lines' to catalyze change. Similarly, the realization that further conversion of natural areas for cultivation is unlikely to be permitted, given the global value of biodiversity, underlined the need to diversify income streams. Tourism, in part underpinned by biodiversity and landscape character, has become increasingly important to the area, opening opportunities for employment, skills training and revenue generation.

- Define State and private responsibilities. There is a need for clarity about the respective roles and responsibilities in conserving and managing 'common property' resources. Unless the State provides clear incentives and financial or 'in kind' support for positive conservation measures for the greater societal good (e.g. clearing invasive alien plants), landowners will not change their 'business as usual' practices unless they personally experienced negative impacts (e.g. greater fire hazard, aggravated flooding) and/or they perceive values in excess of their investment.

Sources

The following people were interviewed as part of this project, either in person (*), or via email or telephone (**):

- Garth Mortimer*: Provincial biodiversity conservation agency, CapeNature, and member of the Upper Breede Collaborative Extension Group
- Anthony Mietas*: Social Development Manager with Breedekloof Wine and Tourism
- Sakkie du Toit*: Landowner and farmer in the Upper Breede area, and founding member of Breedekloof Wine and Tourism
- Nik Wullschleger*: 'BolandEnviro' environmental and resource management consultant, Worcester
- Charl de Villiers*: Independent environmental consultant, previously manager of the Botanical Society of South Africa's 'biodiversity in environmental assessment' programme
- Jeffrey Manuel*: Manager of Environmental Assessment and Land Use Planning, South African National Biodiversity Institute
- Rodney Cronwright**: 'Setplan' planning consultant working with the provincial environmental department on Spatial Development Frameworks; author of the provincial rural development guidelines
- Rudolph Röscher**: Provincial Department of Agriculture and member of the Upper Breede Collaborative Extension Group.

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5 The Impumelelo Innovations Award Trust evaluates numerous public sector projects from across the country each year to reward innovative projects that aim to enhance the quality of life of poor communi ties

CASE STUDY: MASTER PLAN FOR THE REHABILITATION AND REVITALISATION OF THE EX-MEGA RICE PROJECT AREA IN CENTRAL KALIMANTAN, INDONESIA

By Wim Giesen, Euroconsult Mott MacDonald[6]

Case summary

In 1995, the Government of Indonesia (GOI) started the Central Kalimantan Peatland Development Project - commonly known as the Mega Rice Project - to convert up to one million hectares of peat and lowland swamp for rice cultivation. In spite of many protests, an area of 1.4 million ha was converted by extensive construction of thousands of kilometers of canals. The drainage of peatlands resulted in serious degradation, deforestation and wildfires. The land proved largely unsuitable for rice cultivation and roughly half of the 15,594 transmigrant families that moved to the area have now left. Local residents have suffered through damage to the area's natural resources and the hydrological impacts of the project. The Master Plan for the Rehabilitation and Revitalisation of the Ex-Mega Rice Project (EMRP) in Central Kalimantan ('Master Plan project' or 'MP project'), carried out between 2007 and 2009, was established to support the implementation of a Presidential Instruction on rehabilitation and revitalisation of the area. The objective of the MP project is to assist the process of rehabilitation of degraded lowland swamps, by updating existing data and knowledge of the area, and using this as a basis to support GOI, the working groups, local government and communities in developing a strategy for rehabilitation and revitalisation of the local economy.

1 CONTEXT

The Master Plan for the Rehabilitation and Revitalisation of the Ex-Mega Rice Project (EMRP) Area in Central Kalimantan ('Master Plan project') is a project carried out in 2007-2009 for the Government of Indonesia (GOI), funded by the Embassy for the Kingdom of the Netherlands (EKN) and implemented by a consortium led by Euroconsult Mott MacDonald and Deltares.

In 1995, GOI started the Central Kalimantan Peatland Development Project 'commonly known as the Mega Rice Project' to convert up to one million hectares of peat and lowland swamp for rice cultivation. An area of 1.4 million ha (Figure 1) was directly affected by this project that involved extensive

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construction of thousands of kilometres of canals, and led to serious degradation and deforestation of the area as a result of drainage of peat and wildfires. The land proved largely unsuitable for rice cultivation and roughly half of the 15,594 transmigrant families that moved to the area have now left. Local residents have suffered through damage to the area's natural resources and the hydrological impacts of the project.

The aim of the Master Plan project was to support GOI in addressing the issues facing the EMRP area after the largely failed development attempts of the 1990s. Specifically, the Master Plan was to support the implementation of the Presidential Instruction (Inpres) No. 2/2007 on Rehabilitation and Revitalisation of the Ex-Mega Rice Project Area in Central Kalimantan, and assist the working groups established within the National Planning Agency BAPPENAS for implementing the Inpres.

2 THE MASTER PLAN PROJECT

2.1 Case description

Main objective of MP activity

The objective of the MP project is to assist the process of rehabilitation of degraded lowland swamps, by updating existing data and knowledge of the area, and using this as a basis to support GOI, the working groups, local government and communities in developing the strategy for rehabilitation, and revitalisation of the local economy.

The Master Plan project provides an excellent example of ecoregional economic development, as it specifically aims at (ecoregional) rehabilitation and (economic) revitalisation of a vast, severely degraded peatland and lowland swamp, and can provide an alternative route for development for peatland elsewhere in the region, and an example for rehabilitation of degraded lowland swamps/peatlands.

The case applies to lowland swamps of Southeast Asia, particularly the peat swamp habitats of Borneo and Sumatra (IMO104 & IMO160 of WWF's Global 200 ecoregions), and to a lesser extent the peat swamps of Peninsular Malaysia (IMO145) and those of southern Papua (not listed in the Global 200).

Figure 1 The ex-Mega Rice Project (EMRP) area covers 1,462,000 hectares in the eastern part of Central Kalimantan

Policy objectives for development & biodiversity in EMRP area

These are expressed in the Inpres, and presented on 16th February 2007 by President Dr. H. Susilo Bambang Yudhoyono as '*We want to rehabilitate and conserve a large part of the peat and land area and restore its condition. By doing this, we can prevent further degradation of the environment and restore the ecosystem. The second objective is to develop and optimize local agriculture in the remaining part of the area. Central Kalimantan is one of the provinces prone to forest fires. From year to year, it has been a source of the haze in our country. We really hope that this will decrease significantly as well as the other major problem of flooding. It is hoped that employment and agriculture can reduce poverty in the area. And, importantly, carbon dioxide emissions from Central Kalimantan will be reduced so that our atmosphere is more protected from global warming and climate change*'.

In a press release dated 10th September 2009, the National Council on Climate Change stated that 'Emission from peatland is measured to be 45% and forestry 35% from the total <of> Indonesia's greenhouse gas emission'. In a recent report[7] it was calculated that emissions from Southeast Asian peatland contributed 8% of annual global CO_2 emissions, and of this more than 90% came from Indonesia. GOI has set itself the target of reducing carbon emissions by as much as 26 percent by 2020, and this voluntary reduction of

7 Hooijer, A., Silvius, M., Wˆsten, H. and Page, S. 2006. PEAT- CO_2, Assessment of CO_2 emissions from drained peatlands in SE Asia. Delft Hydraulics report Q3943 (2006)

carbon emissions was announced by President Susilo Bambang Yudhoyono at the G-20 summit in Pittsburgh, in June 2009. To achieve this voluntary target, the government will follow low-carbon development strategies in the implementation of its Medium-Term Development Plan (RPJMN).

It is recognised that Indonesia is already losing its peatland biodiversity, and the current rapid decline needs to be halted soon, otherwise much will simply disappear. And with it, Indonesia loses economic potential as useful species may also be lost. In 1993 it was already calculated that while >60% of Sumatra's peat swamp forest remained, only 9% was more or less intact. The latter figure now stands at (or close to) zero, and all that one can hope is that some of what remains will recover.

Main activities of MP

The MP project focused on updating and refining physical and socio-economic data on the EMRP area (including technical studies and detailed maps; Box 1), and on using this information as a basis for planning. Spatial planning further involved the development and application of macro-zoning concept, i.e. with the initial planning phase based on physical land suitability (ecohydrology) and legislation. Workshops on macro-zoning and master planning were held at various levels (provincial, district, sub-district) and culminated in the production of a Master Plan Synthesis document and MP Summary. These were presented and again 'workshopped' at various levels on various occasions, to refine the documents and build consensus and ownership.

Box 1: Physical and socio-economic data refined & updated by MP

- Collation, field studies and analyses of Land Use/Land Cover, hydrology, peat depths, biodiversity, socio-economics, population, and so on.
- Detailed mapping of available data (producing a GIS for BAPPENAS & BAPPEDA, plus a hard copy Map Atlas).
- Technical studies (20 in all, including fires, hydrology, peat subsidence, biodiversity, agriculture, spatial planning, livelihoods, communities, rural infrastructure, institutions & economics/finance).
- Technical reviews (6 in all, including science, succession in peat swamp forest, hydrology, land cover, flood analysis & LIDAR)
- Guidelines (7 in all, including peatland rehabilitation, canal blocking, reforestation, hydraulic design & monitoring)

2.2 Main driver (catalyst) behind the case

In spite of largely unsuitable land for rice cultivation, the conversion of 1.4 million ha of peatland through drainage interventions resulted in land degradation and wildfires. Half of the transmigrant families have left the area. Local residents suffered through damage to the area's natural resources. A

presidential decree asked for rehabilitation of the area and to provide plans for a sustainable economic development of the area.

2.3 Stakeholders involved in EMRP case & their roles

Planning processes fail if they are inadequately embedded into existing structures and institutions, and without local ownership, even a technically impressive Master Plan would end up being ignored. The Inpres anticipated this potential pitfall and specified that the MP team reported directly to and worked together with BAPPENAS (and its working groups), the Governor's office in Central Kalimantan (Kalteng) and the Provincial Planning Agency BAPPEDA (where the team was based). The MP team expanded the institutional setting further, and in Kalteng worked with key stakeholder Local Government agencies (at provincial and district level) such as Agriculture, Forestry, Public Works, Fisheries, Health, local knowledge institutes such as the University of Palangkaraya and CIMTROP[8], and NGOs such as CARE, Wetlands International, WWF and BOS Mawas. Government agencies were involved in (consensus building) discussions and workshops, while NGOs and knowledge institutes were also involved in data collection and analyses. Local communities, including traditional Dayak communities, spontaneous migrants and transmigrants were involved in participatory rural appraisals (PRAs), discussions and district level consensus building workshops.

3 HIGHLIGHTS FROM THE MASTER PLAN CASE

The MP activities and inputs resulted in an outcome of general acceptance of the macro-zone approach for spatial planning in the EMRP area, and using this as the main guiding principle for development and conservation. A direct result of discussions with Agriculture and Transmigration departments resulted in the (temporary) suspension of transmigration and resetting of the target for transmigration development (was 93,000ha, now likely to be in the range of 10-30,000ha). It also resulted in the suspension of licences for oil palm plantations on deep peat (i.e. >3m depth). Both suspensions are not perceived as 'anti-development', but will allow for refocusing of development (e.g. to other crops, or other geographic areas) and help avoid further degradation of peatland. Other achievements include:

- proposed revision of the Inpres (esp. maps) and draft provincial spatial plan (RTRWP);

8 Centre for International Cooperation in Management of Tropical Peatland; associated with the University of Palangkaraya

- use of the macro-zoning approach by others, e.g. WACLIMAD /BAPPENAS[9], Papua (EKN);
- use of guidelines for rehabilitation of degraded peatland (hydrological rehab) and peat swamp forest (PSF rehab) by other parties;
- major projects now focus on implementation of (parts of) what was developed under the MP, e.g. AusAID IAFCP-KFCP[10] (northern Block A & Block E of EMRP area).

Importantly, private investors are now also starting to show interest, for example, in new crops that are adapted to deep peat hydrology, and in 'restoration concessions' whereby logged-over areas are restored for economic use.

4 MESSAGES THAT CAN BE CONVEYED FROM THE STUDY

4.1 Key learning points

An ecohydrological approach is crucial

A solid rationale based on ecohydrological land evaluation is required in peatland prior to development and conservation, rather than the haphazard, blanket (one size fits all) approach used under the MRP, and ongoing in newly allocated concessions for oil palm, rubber and rice on deep peat. Peat domes where peat depths are >3m must be managed as single hydrological units, and this requires a delta-approach (keeping the peatland hydrological unit intact) to management rather than a river basin approach (as a dome may drain into more than one basin). This goes against recent developments in Indonesia, whereby in Integrated Water Resources Management (IWRM), river basins are the basic management unit (vie Indonesian Law No. 7/2004 on Water Resources). To avoid conflicts, harmonisation will be required between the water law and the draft legislation on peatlands (in the PP Rawa).

To proceed with macro-zoning it is important to first separate clear-cut conservation and development areas, and then recognize an intermediate zone that needs to be adapted to both conservation and development. In the macro-zoning approach developed by the MP project (and the related Partners for Water-funded National Lowland Development Strategy project[11]), conservation zones[12] are all areas of deep peat (>3m depth; the legal boundary; Kepres No. 32/1990) and areas protected for other reasons such as biodiversity; protection of peat and (where applicable) biodiversity are the main goal of management, although sustainable use forms can be considered in areas not important for biodiversity conservation. Development zones are (drainable) areas on

9 The World Bank-funded 'Water Management for Climate Change Mitigation and Adaptive Development in the Lowlands' (2010-2011)

10 Indonesia-Australian Forest Carbon Partnership & Kalimantan Forest Carbon Partnership

11 Project 'Towards Formulation of a National Lowland Development 'Strategy for Indonesia

12 Conservation is meant here in a broad sense, not only conservation of biodiversity, but also conservation of peat and peatland. In the EMRP area, much biodiversity has already been lost, so when discussing con servation, this often primarily means peatland conservation.

mineral soils, plus areas of shallow peat (<3m) that are not hydrologically linked with peat domes[13] ; in these areas agriculture, plantation development and associated industries, and settlements are to be concentrated. The outer margins of peat domes where peat depths are less than 3m are defined as adapted management zones, where development must be adapted so that it does not lead to loss of the peat dome; in practice this means that zero drainage development is the aim[14].

The macro-zoning approach seems more appropriate in the peatland ecoregion than the traditional FAO Land Use Planning approach that follows socio-ecological zoning, as the latter uses agricultural land use units as the basis rather than ecohydrology, which is more relevant in the peatland ecoregion.

Hydrological rehabilitation is needed

The MP project shows that in order to rehabilitate and revitalise the EMRP area, hydrological rehabilitation of the conservation zone and adapted management zones is required, as in most cases this has been disturbed. This is needed to conserve peat domes and their biodiversity and hydrological function, but also to curb the ongoing (and massive) CO_2 and haze emissions. An exception is a large part of the northeast (eastern Block E), where past logging did not use canals for extraction, but rail systems instead that left the hydrology more-or-less intact. In this area managed by the NGO BOS Mawas, the logged peat swamp forests are vigorously regenerating and most biodiversity value has been retained. In all other areas the hydrology is altered and requires rehabilitation, which is both expensive and challenging (as experienced under CKPP).

The paradigm that peatland needs to be drained in order to achieve economic development (i.e. for agriculture) needs to be revised, as it is a flawed approach that promotes unsustainable practices. Nearly all ongoing economic activity in peatland of the ecoregion(s) is currently based on drainage and conversion of the system, leading to CO_2 emissions, increasing fire hazards, and in some areas eventually to flooding of subsided peatland. Farming systems based on an intact or rehabilitated peatland hydrology need to be developed, but it is obvious that much more needs to be learned about what can be carried out in economic sense in the adapted management zone.

Develop traditional and local resources

Traditional users of peatlands used mixed peatland forest systems as their source of livelihood, and these were hydrologically intact, with management consisting of enrichment planting, selected felling and harvesting of non-timber forest products (NTFPs). We cannot expect modern agriculture to follow suit, but lessons need to be drawn. There are probably in the range of 1200-1500 higher plant species in this ecoregion, and these need to be explored for possible economic use. Most already have a local use and simply need to be screened for wider potential, markets, propagation and growth requirements.

13 Traditional dayak communities are located along the main rivers, cultivating the (mineral soil) levees that form a main part of the development zones.

14 A fourth category (minor in terms of area) is the coastal zone, where coastal protection, biodiversity, fisheries, saline intrusion and a whole range of other aspects need to be taken into account. This is outside of the present scope, focusing on peatland.

The economically valuable (latex producing) swamp jelutung Dyera polyphylla is already being used in PSF rehabilitation in the EMRP area and has been planted in a medium sized plantation in Jambi, Sumatra, while the University of Gajah Mada in Yogyakarta is studying the potential of a number of swamp species of tengkawang (a range of dipterocarp species) in West Kalimantan. Several valuable timber and pulp species are also known (e.g. ramin Gonystylus bancanus, Shorea balangeran & Alstonia spathulata) and have been trialed in various locations. However, more needs to be done, including revisiting past studies as much information has been collected in the past and awaits application. In any case, it is obvious that the base for economic development in the adapted management zone is far too narrow and needs diversification.

What is currently happening in the ecoregion is highly dynamic, and it is hard to keep up with developments. While concessions on deep peat may be suspended or even revoked at provincial level, similar concession permits are being granted at the district or even village level, as this is now possible under the decentralisation law. This means that in practice the 3m depth legal boundary is largely ignored, and continued efforts will be required to curb unwanted activities on deep peat. The draft provincial spatial plan (RTRWP) for Kalteng is being drafted, but as the draft was based on compromise or old information, this means that revisions will be required. The carbon market (and REDD[15]) has been very dynamic and many have hopped on the REDD bandwagon (e.g. 30+ pilot projects in Indonesia alone), although the mechanisms for implementation and the final outcome remain uncertain. It is also uncertain how peat will be taken into the carbon equation, although possible mechanisms for this are now emerging. Lastly, the new concept of 'restoration concessions' as pioneered by BirdLife Indonesia (in the Harapan rainforest in Jambi/South Sumatra) is being upscaled and tried elsewhere, including in degraded peatland in Kalimantan by Wetlands International.

Commercial interest in 'restoration concessions' is an indication that peatland rehabilitation is not only of ecological and social benefit, but also of economic interest: peatland rehabilitation makes economic sense. The cultivation of species adapted to peatland hydrology (rather than requiring drainage) is economically viable in its own right (e.g. NTFPs in restoration concessions, Dyera polyphylla plantation in Jambi, Sumatra). Also, carbon credits can be accrued (providing extra incentive), as CO_2 emissions can be significantly lowered by hydrological rehabilitation. The benefits of a rehabilitated peatland will also be felt over a wider area, not only because of reduced haze/smoke, but also as a source of water in the dry months.

Economic development should focus on peatland rehabilitation & revitalisation

In the MP economic analyses, three scenarios were considered for the long-term economic development of the EMRP area: i) Scenario 1 - No change; ii) Scenario 2 - Plantations; and iii) Scenario 3 - Peatland rehabilitation and agricultural revitalization. The third scenario was deemed likely to produce

15 Reduced Emissions from Deferred Deforestation.

better development outcomes than 'no change'or 'plantations'. In particular, under 'peatland rehabilitation and agricultural revitalization' poverty rates are more likely to fall, and there is a lower risk that these gains will be undone through the dependence on a single commodity (a major risk of Scenario 2).

To encourage agricultural revitalization, the Government should not attempt to select commodities that farmers should grow (as implied by the Inpres 2/2007 financing plan). Instead, it should seek to remove or lower barriers that are currently preventing farmers (including but not limited to subsistence farmers) from generating higher financial revenue than is currently the case. Measures to achieve this include the following: (i) improve access to information, (ii) improve access to markets, and (iii) improve access to credit.

What MP contributes to the discussion on need to integrate economic/social development with biodiversity conservation
Past ICDP[16] projects in Indonesia (e.g. funded by multilateral and bilateral donors in the 1990s) were evaluated by the World Bank in 1998[17] and found that there was seldom a balance between conservation and development on these projects: they were either conservation or development projects, masked with a veneer of the other aspect. From the lessons learned, it is obvious that the MP case has contributed substantially to the discussion in Indonesia on how to proceed with development and conservation in the peatland ecoregion(s), and how to balance these (e.g. in the adapted management zones). The focus on the need for spatial planning based on ecohydrological principles (involving identification of macro-zones) in peatland areas is being adopted by others, as are the various guidelines produced for rehabilitation.

4.2 Messages for policy and decision makers

- A Master Plan is crucial for complex areas. The MP provides a clear and rational basis upon which decision makers can make choices, in a spatial framework, i.e. base development and conservation in peatland on macro-zoning as carried out in the EMRP area. This means recognising ecohydrological units and defining conservation, development and adapted management zones.

- Stop draining. We need to overturn the paradigm that drainage is required in order to achieve development in peatland! Drainage directly leads to irreversible loss of peat, CO_2 emissions, fire and haze. The 'crops' currently being cultivated in peatland plantations require drainage, but we urgently need to invest in alternatives that do not need drainage. Some are already known and can be tried immediately, such as swamp jelutung and swamp tengkawang, but also various timber and pulp species. However, >1000 species are known from Indonesian peatswamps, and this richness needs

16 Integration of Conservation and Development Projects.
17 Wells, M., Guggenheim, S., Khan, A., Wardojo,W. and Jepson,P. (1998) -Investing in Biodiversity. A Review of Indonesia's Integrated Conservation and Development Projects. World Bank, East Asia Region.

to be explored further. We are utilising far too little of the resources that are available, and to use peatland simply as a culture medium for exotic crops (oil palm, Acacia, Hevea rubber) does not do justice to Indonesia's diversity.

- Promote use of adapted indigenous species. The cultivation of species adapted to peatland hydrology is economically viable and of commercial interest. Government should stimulate this interest further by widely adopting the macro-zoning approach, and adopting an 'adapted species' policy. GOI should also promote applied studies into propagation and marketing of potentially interesting species.

- Save biodiversity & resources. Action is required to save peatland biodiversity and resources, as key peatland reserves are poorly protected in spite of an official protection status. Similarly, deep peat (>3m depth) is officially protected, but in practice is being used for plantation concessions. Obviously, more is required than regulations that can be (and are systematically) ignored, and verification systems need to be applied (e.g. vie REDD).

- Master planning takes time & effort. The usual approach to spatial planning involves sending teams from Jakarta that interact with provincial administration and aim at a quick harmonisation of existing sectoral plans. These plans are seen as imposed and are often soon forgotten, with local planners soon reverting back to business as usual. The MP approach, whereby macro-zoning was discussed at length (over 1.5 years), at various stages (draft, mid-term and final) at levels varying from (sub-)district to provincial and national, by contrast, lead to a high degree of acceptance of the Master Plan at various levels.

- Verify MP implementation. Ownership (e.g. of the Master Plan approach) does not automatically lead to implementation, as compromise and facilitation are deeply ingrained in the Indonesian bureaucratic system. Monitoring and verification programmes such as are required by REDD and REDD+ may facilitate a stricter adherence.

ECOREGIONAL ECONOMIC DEVELOPMENT IN THE LAKE NAIVASHA REGION, KENYA

By Frans Oosterhuis, Institute for Environmental Studies[18]
With contributions from Bart Geenen and Robert Ndetei.

Case summary

Lake Naivasha is a freshwater lake situated in the Great Rift Valley, less than 100 km NW of Nairobi, Kenya. The lake and its surroundings are rich in nature and wildlife. The lake was designated as a Ramsar site in 1995. Due to its richness in natural resources (including freshwater and fertile soils), as well as its proximity to Nairobi, the area is attractive for many economic activities. Consequently, the population has increased dramatically over the past decades. Agriculture, fisheries and tourism are the main sectors providing income and employment. Especially large scale irrigated horticulture has become an important activity in the lake's coastal zone. Small scale (subsistence) farming and animal husbandry are also important agricultural activities. The intensification in the use of land, water and other natural resources has led to a number of environmental problems: reduced water quality, over abstraction of water, deforestation, soil erosion, overgrazing, overexploitation of fish and wildlife stocks, destruction of natural habitats, and increased competition for land use.

In the area, a number of bottom-up initiatives have been taken to address environmental challenges by adding price tags to valuable natural resources and combining economic development with ecosystem conservation and livelihood improvement for local communities. Examples include the promotion of efficient water use by the Lake Naivasha Riaparian Association (an organization of landowners and users around the lake), the implementation of PES agreements by horticultural companies to take conservation and restoration measures, the development of private wildlife corridors and sanctuaries around the lake and the support of community projects by Certified Emission Reduction Credits (CERs) obtained by Kenya's main electricity generation company. The initiatives show that in an area that is under great pressure from competing land and water users, effective mechanisms can be created to manage resource scarcity and promote biodiversity and economic development simultaneously, providing interesting examples of processes and instruments that can be used in ecoregional economic development. The case further illustrates the importance of bottom up processes and common awareness among stakeholders and the need and opportunities

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for economic diversification (like jobs in restoring ecosystem services or alternatives for small farmers).

1 CONTEXT

1.1 The setting

Situated in the Great Rift Valley, less than 100 km NW of Nairobi, Lake Naivasha is a freshwater lake lying at an altitude of almost 1900 m. Its average size is about 100 to 150 km2, but due to its shallowness this varies remarkably over the seasons and the years. The lake is fed mainly by two rivers (Malewa and Gilgil) and has no surface outlet. The basin area covers some 2300 km2 and includes a.o. the western slopes of the Aberdares mountains. The lake and its surroundings are rich in nature and wildlife. Its shores have a dense papyrus vegetation, and the lake is home to a substantial hippopotamus population and a wide variety of bird species. Lake Naivasha was designated as a Ramsar site in 1995.

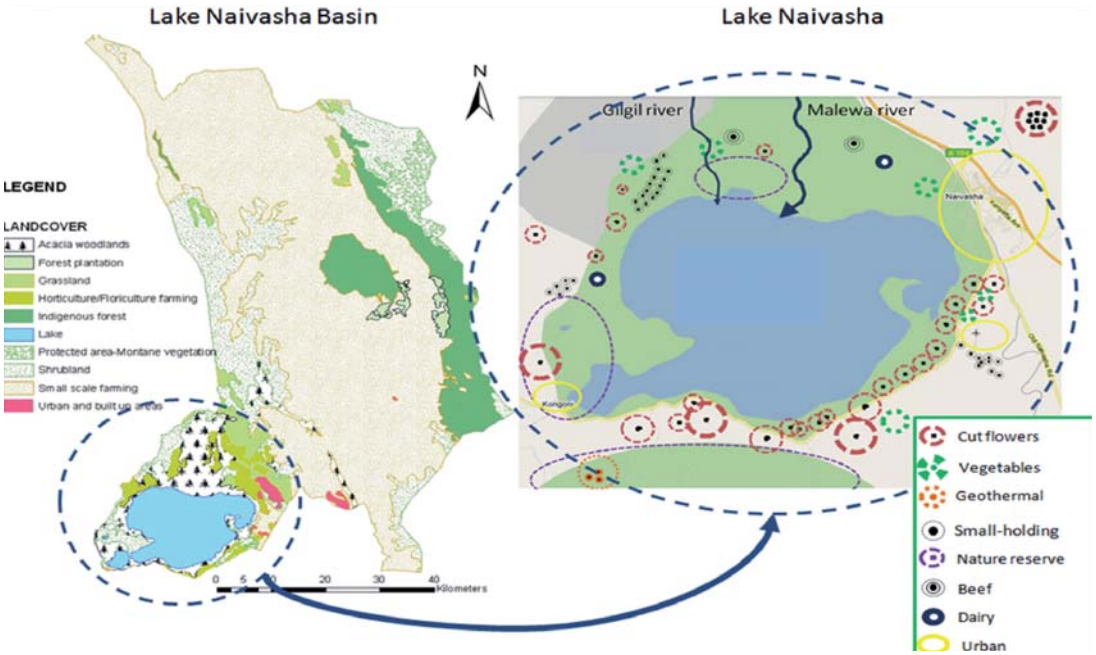

Figure 1: The Lake Naivasha catchment area, with forest areas (managed by Community Forest Associations) indicated in yellow and green. Source: Pegasus 2010.

1.2 Economic significance

Due to its richness in natural resources (including freshwater and fertile soils), as well as its proximity to Nairobi, the area is attractive for many economic activities. Consequently, the population has increased dramatically over the past decades. Agriculture, fisheries and tourism are the main sectors providing income and employment. Especially large scale irrigated horticulture has become an important activity in the lake's coastal zone. Flower exports from the Lake Naivasha area nowadays are among Kenya's main sources of foreign earnings (together with tea and tourism). Besides large scale horticulture, small scale (subsistence) farming and animal husbandry are important agricultural activities. In the upper part of the catchment, forestry (by) products are also significant: the economic benefits of the Aberdares for forest adjacent households were estimated at some KSH 18,000 (more than USD 200) per household per year. Geothermal energy is used both for greenhouse heating and electricity production, and an expansion of geothermal capacity is foreseen.

Box 1. Employment in the Lake Naivasha region

The Naivasha basin accounts for 1.6% of Kenya's total population and contributes at least 2.1% of its GDP. Naivasha is also clearly attractive from a jobs perspective. The formal employment to population ratio is about 8.3% as compared to the national average of 5.1%, and this does not include the self-employed on small holdings.

	Direct jobs in Naivasha	Indirect jobs in Naivasha	Related jobs in Kenya
Vegetables	5 000	5 000	5 000
Flowers	20 000	20 000	20 000
Total	25.000	25.000	25.000

Table 1: Estimated employment from vegetable and flower production in Naivasha

From Table 3, it is estimated that flower and vegetable production in the Naivasha basin provides a total of at least 75 000 jobs in Kenya (although this is a conservative estimate). This is split between employment opportunities on the farms themselves and to jobs further up the value chain (such as truck drivers and vegetable packers). The agricultural sector completely anchors Naivasha's economy and it is estimated that it provides further 25 000 indirect jobs in the basin.

Source: Pegasus 2010

1.3 Environmental issues

The intensification in the use of land, water and other natural resources has led to a number of environmental problems: reduced water quality (a.o. eutrophication, siltation, pesticides), overabstraction of water, deforestation, soil erosion, overgrazing, overexploitation of fish and wildlife stocks, destruction of natural habitats, and increased competition for land use. Some ecological indicators show rapidly decreasing trends (see Figure 2).

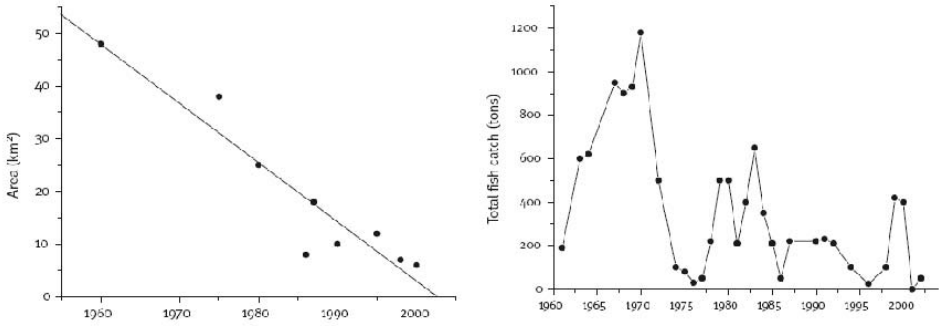

Figure 2. Lake area under papyrus (left) and total fish catch (right). Source: Becht et al., 2006

While there is agreement on the existence of environmental problems, for some of them there is a lack of consensus in literature and among stakeholders on their seriousness. For instance, some authors believe that irreversible eutrophication of the lake's ecosystem could happen in the near future, whereas others see less reason for concern. Furthermore, as the causal relationships are not completely understood, it is not always possible to ascribe specific phenomena (such as dropping water levels) to specific actions and actors (among others due to insufficient hydrological knowledge).
In economic terms, environmental problems can be seen as market failures. The users of environmental and ecosystem services (such as clean water, biomass and wildlife) do not always pay the full cost of their provision, whereas financial incentives to maintain the supply of these services are largely lacking.

2. HIGHLIGHTS FOR ECOREGIONAL ECONOMIC DEVELOPMENT

2.1 Local initiatives

In the Lake Naivasha area, a number of bottom-up initiatives have been taken to address environmental challenges by adding price tags to valuable natural resources and combining economic development with ecosystem conservation and livelihood improvement for local communities. Examples include the following:

- Already in the 1990s, the Lake Naivasha Riparian Association (LNRA), an organization of land owners and users around the lake, developed and implemented a management plan and codes of conduct to ensure sound environmental management of the lake's resources. Water metering is one of the issues LNRA has been pursuing, so as to promote efficient water use. For its achievements, LNRA received in 1999 a Ramsar Wetland Conservation Award.
- More recently, the LNRA and 'the Lake Naivasha Growers' Group (LNGG, an organization of large scale horticulture farms), entered into a Payment for Environmental Services (PES) agreement with upstream water users. The latter commit themselves to take conservation measures (riparian restoration and grass strips), for which each of the almost 600 participating landowners receives an amount of USD 17. In May 2010, a symbolic cheque of USD 10,000 was transferred between the respective Water Resource Users Associations (WRUAs) (see picture).

Photograph: Marijke Boonstra

- The problem of overfishing in Lake Naivasha has been addressed in 2002 by a temporary ban on fishing for one year (enforced with the cooperation of the fishermen themselves). At present, an annual closed season is in force during the fish breeding season.
- KenGen, Kenya's main electricity generation company, obtains Certified Emission Reduction Credits (CERs) for a number of its projects, including a recently completed geothermal power plant extension just south of Lake Naivasha (Olkaria II, 3rd unit). Under the World Bank Carbon Finance Agreement, additional funding of USD 1 per tonne of carbon emission reduction will be made available annually to be used for community projects, including water projects. Furthermore, KenGen operates its geothermal plants within the boundaries of a national park (Hell's Gate), in close cooperation with the Kenya Wildlife Service (KWS). Besides the wildlife, the geothermal development has become a tourist attraction in itself.
- Kenya's 2005 Forest Act provides for Community Forest Associations (CFAs) to have co-management responsibilities in state-owned forests. In return for their role in forest protection and sustainable forest management, CFAs can obtain the (exclusive) right to use forest resources and harvest (by)products, including fuel wood, timber, medicinal herbs, honey and silk. In the Lake Naivasha catchment area, two CFAs are currently being established, with assistance from WWF, and these CFAs are developing 'Participatory Forest Management Plans'.
- Private wildlife sanctuaries and corridors around Lake Naivasha (some of them related to the large flower farms) play an important role in protecting biodiversity and maintaining ecological networks.

2.2 Policy Context

In 2007, the Government of Kenya released its new long term national planning strategy 'Kenya Vision 2030'. It is based on three 'pillars':

- Economic (main objective: 10% GDP growth per year as from 2012);
- Social (including also environmental objectives);
- Political (aiming at a democratic system).

'Vision 2030' foresees, among others, a growth in tourism and agriculture (both in volume and in terms of value added), as well as measures to achieve a clean, secure and sustainable environment by 2030. One of the short term 'flagship' projects is the conservation of wildlife corridors and migratory routes.

The 'Kenya National Biodiversity Strategy and Action Plan' (NBSAP) was presented in 2000 and aims at implementing the Convention on Biological

Diversity (CBD) at the national level. Its general objectives are basically the same as those of the CBD. The involvement of local communities is an important element of the NBSAP. Among the specific targets is a commitment to progressively increase forest cover from the current 2% to 10% of the country under a protected area system. In its Fourth National Report to the CoP of the CBD (2009), the government states that there is reasonable evidence that Kenyan society has engaged in biodiversity conservation. However, 'rapid implementation of the CBD and biodiversity conservation are heavily affected by the country's inadequate capacity with respect to its financial, human, scientific, technical and technological needs'.

The Lake Naivasha catchment area is administratively divided between the districts of Nakuru and Nyandarua. Both districts have their long term regional development plans, aiming at poverty eradication and sustainable development. The LNRA-initiated Lake Naivasha Management Plan (already mentioned above) has the primary objective to manage existing human activities in the lake ecosystem through voluntarily-adopted, sustainable, wise-use principles to ensure the conservation of this freshwater resource and its associated biodiversity.

The Kenian Water Sector Reform 2002 delegates tasks and responsibilities via the Water Resources Users Associations (WRUA) to the catchments. The sub-catchment management plans designed by the WRUA are funded through a Trust Fund. An umbrella WRUA coordinates the various plans of the sub-catchments. For the first time in the history of Kenya, a gazettement notice has been ratified by the Ministry of Water providing the mandate to the WRUA in Lake Naivasha for collecting water tariffs and giving them the authority to block the distribution of water permits until further notice. The Government of Kenya considers Lake Naivasha as 'the' pilot for the water sector reform and therefore is in full support of the developments in the region.

3. MESSAGES THAT CAN BE CONVEYED FROM THE STUDY

3.1 Achievements, lessons learnt and key messages

Acknowledge interdependences: A key factor in the effective management of Lake Naivasha is the recognition of the interdependences between the different resources throughout the catchment area (even though the exact nature of these interdependencies often still remains unknown). As a result, a large number of stakeholders are involved. The existing legal, administrative and institutional framework adds to the complexity.

Create common awareness among stakeholders: Despite the complexity in the Lake Naivasha area, the examples mentioned above show that in an area that is under great pressure from competing land and water users, effective mechanisms can be created to manage resource scarcity and to promote biodiversity and economic development simultaneously. This does not mean that there are no problems or conflicts of interest (in fact, there are many of them), but the common awareness among stakeholders on the importance of sustainable management of the region's natural resources and ecosystems creates windows of opportunity for viable solutions.

Bottom up support is key: The ecoregional economic development of the Lake Naivasha area is clearly a 'bottom-up' process. For example, the initiative to draw up a management plan for the lake was taken (in the 1990s) by the LNRA and recognized later on by the government, giving it an 'official' status. The implementation of the (regularly updated) management plan is the responsibility of the Lake Naivasha Management Implementation Committee (LNMIC). Most of the main stakeholders are represented in the LNMIC, ensuring broad support and creating a platform for consensus building and dispute settlement.

Involve both the vocal and the less vocal: Some stakeholder groups, however, are not directly involved in the management of the lake and its basin. These include for instance the small farmers in the upper catchment area and the Maasai pastoralists who use the lake's riparian zone during dry periods. As these groups have an impact on, as well as an interest in, the quantity and quality of the water and other resources, it is important to have them 'on board' as well. This underlines the relevance of initiatives such as the mentioned PES scheme and the financing of community projects by the main economic actors in the area.

Use regulatory or economic instruments to facilitate eco-regional development: The involvement of local communities in natural resource management may also be stimulated by recent regulative changes. For example, the 2002 Water Act gives co-management responsibilities to the Water Resource Users Associations (WRUAs), and the 2005 Forest Act does the same to Community Forest Associations with respect to forest resources (as mentioned above). Obviously, these responsibilities can only be effectively implemented if the users have complementary resources at their disposal as well, such as awareness, information, skills, and finance.

Aim for converting value into financial resources: More generally, the successful management of natural resources in the Lake Naivasha region appears to be under permanent threat of a lack of financial resources among most of the stakeholders, including the governmental ones. This may be an indication that although the value of this ecoregion's assets is widely appreciated by the stakeholders inside the region, there is still scope for a broader recognition of their value beyond the catchment borders.

Stimulate a master plan and support bottom-up initiatives simultaneously: Given the large number of stakeholders and interests in Lake Naivasha, as well as the rich variety in cooperative initiatives for sustainable economic development and resource management, there seems to be a need for an additional 'master plan' that would aim at coordinating and unifying the area's ecoregional economic development. The WWF is aiming for such an overall plan. It should be noted, however, that a master plan should not lead to a reduction in support for viable bottom-up initiatives, and assistance in incorporating global issues in them. These bottom-up initiatives have been the driving force of change in the Lake Naivasha region and will remain a factor for future developments.

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PLANNING AND ENVIRONMENTAL ASSESSMENT IN THE GREATER MEKONG SUBREGION

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Case summary

The Greater Mekong Subregion (GMS) consists of Cambodia, the People's Republic of China (PRC), the Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Vietnam. The total population of the GMS is 420 million. In 1992, with the assistance of the Asian Development Bank (ADB), the GMS countries launched a program of subregional economic cooperation - the GMS Program. With assistance of and pressure by the donor community, the GMS Core Environment Program (CEP) combined with the Biodiversity Conservation Corridors Initiative (BCI), known as the CEP-BCI, was officially launched in 2006 by the ADB involving the active participation of the relevant government agencies. By means of this program, sectoral departments take the initiative for sustainability assessment of their policies. The main objectives of the Core Environment Program are to:

1. Embed environmental dimensions in GMS Economic Cooperation Program;
2. Positively influence GMS development process, strategies and investments;
3. Integrate and create synergies between poverty reduction and biodiversity conservation;
4. Partner with state and non-state stakeholders on resource mobilization (knowledge, human and financial) coupled with program development and implementation.

This case focuses on the two components of CEP-activities that have concrete linkages with spatial planning and ecoregional economic development: Environmental Assessment of Economic Corridors and Sector Strategies, which aims to ensure GMS development strategies and investment plans are environmentally sound, economically efficient and socially equitable.

Biodiversity Conservation Corridors Initiative, which aims to establish sustainable management and use regimes in the GMS biodiversity conservation corridors.

Within the GMS countries, pilot Strategic Environmental Assessments (SEA's) (experimental, as most relevant decisions had already been taken) led to a strong sensitization of government officials on the value of SEA in a planning process. It was acknowledged, not only within environment departments but also by officials from sectors and planning departments, that the early recognition of potential social or environmental impacts of a plan and thinking about more sustainable alternatives does help the planning process, and avoids later problems during implementation.

The recognition of the potential benefits of applying SEA came from national and provincial sector and environment departments that had actually seen the outcomes of the pilot trials and decided to pursue next steps in the implementation of SEA. Other environmental assessment capacity development programs (prior to decision making) were implemented independently in the context of bilateral cooperation. The availability of a biodiversity corridors map made it possible to highlight areas of potential conflict, through which the need for alternatives or mitigating measures easily becomes obvious. SEA is the procedural context to facilitate this process.

1 CONTEXT

The Greater Mekong Subregion (GMS) consists of Cambodia, the People's Republic of China (PRC)[19], the Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Vietnam. In 1992, with the assistance of the Asian Development Bank (ADB), the GMS countries launched a program of subregional economic cooperation - the GMS Program.

GMS Lending Portfolio

As of 31 December 2006, ADB had extended loans totaling about $1.92 billion-$1.252 billion from ordinary capital resources (OCR) and $669 million from the Asian Development Fund (ADF)-for 28 loan and grant projects with a total project cost of $6.8 billion. These projects are in transportation (18), energy (4), health (3), and tourism (3). GMS governments and development partners have provided about $2.2 billion and $2.7 billion, respectively, for these 28 projects.

The GMS Program has focused strategically on the '3Cs' of connectivity, competitiveness, and community. Connectivity among the GMS countries has been enhanced through the development of infrastructure,

19 The People's Republic of China has been represented geographically in the Greater Mekong Subregion by Yunnan Province since 1992. In December 2004, Guangxi Zhuang Autonomous Region was formally in cluded.

particularly transport corridors, power interconnection systems, and telecommunication networks. The economic competitiveness of the subregion as a whole has been improved not only through these infrastructure links but also through the facilitation of trade, private investment, and tourism. A heightened sense of community is being fostered as GMS countries jointly address shared social and environmental concerns such as the prevention and control of communicable diseases and the protection of the subregion's rich biodiversity and ecosystems.
The total population of the GMS is 420 million. GMS economies have grown at one of the fastest rates in the world since the early 1990s with annual gross domestic product growth averaging over 6% from 1993 to 2005. Economic growth in the GMS remained strong in 2005 and 2006 at over 8% annually. The openness ratio of GMS economies - defined as the ratio of total trade to GDP at current market prices - more than doubled between 1992 and 2006; the tripling of total GMS merchandise exports during this period clearly manifests this increase in openness. Intra-regional trade increased even more dramatically with the volume in 2005 being 15 times that in 1992. Annual tourist arrivals also more than doubled from 10 million in 1995 to nearly 24 million in 2006.

Growth in the key economic sectors energy, agriculture, fisheries, tourism and transport is propelled by major infrastructure developments planned for in the GMS through regional economic corridors and GMS core programs. Concentration of development along transport routes (transport or economic corridors) allows for economies of scale, scope, and agglomeration to be exploited.

The region regards protected areas as a form of land tenure to the benefit of the countries. Cambodia, Lao PDR and Thailand have national systems of protected areas (PAs) covering over 21 percent of their territory. Encompassing a large part of their remaining natural forests and major watersheds. In terms of proportion of national area protected, these are some of the most extensive PA systems in the world. The three countries aim to have 25 percent under protection over the next five years. Vietnam has a smaller, though by global standards still significant, national system covering 8 percent of the country, about to expand by another 5 percent if proposed additional terrestrial and marine areas are included. Their systems embrace areas established by central government and an increasing range of PAs set up at local level. The growth of local PA initiatives is a strong trend in Lao PDR and Vietnam and expected to pick up rapidly in Cambodia when regulations are in place to guide and facilitate the process.

The GMS economic corridor system consists of three main corridors involving multiple routes. These are designated the North-South Economic Corridor (NSEC), the East-West Economic Corridor (EWEC), and the Southern Economic

Corridor (SEC). All three corridors are orientated toward seaports. For landlocked Laos and China's Yunnan Province, this provides valuable access to world markets. Billions have been spent on infrastructure to provide physical connectivity in the Greater Mekong Subregion. Transport time for people and goods have been reduced. The next step is to put the physical infrastructure to work serving the needs of economic development. Or in other words, to transform transport corridors into economic corridors. For this to happen, the soft infrastructure of institutions must create a supportive environment for trade, transport, and travel. A sound regulatory framework is needed to govern the movement of goods and people across borders and of the capacity to implement and enforce it. In addition the role of grassroots business and community organizations is essential in supporting and moving the economic agenda forward and bringing it to life.[20]

With regard to poverty reduction, between 1990 and 2003 the proportion of people living on less than $1 a day fell from 46 to 33.8% in Cambodia, 33 to 13.4% in PRC, 52.7 to 28.8% in Lao PDR, from 10.1% to less than 1% in Thailand, and 50.7 to 9.7% in Vietnam. Participation of countries in this subregional cooperation initiative has led to a narrowing of the gap between the least and most developed countries. Yet, while significant progress has been made in reducing overall poverty, within-country inequality increased over the same period[21].

A flipside of the fast economic growth is that biodiversity - species, ecosystems, genetic diversity - is lost at unprecedented rates. The key GMS economic sectors of energy, agriculture, fisheries, tourism, and transport depend to a large extent on the ecosystem services provided by healthy natural systems. Agriculture and fisheries provide livelihoods for at least half the GMS population and significant contributions to GDP. Sub-regional development programs are threatening the resource base for these fundamental economic sectors, including expansion of agriculture itself (GMS 2005[22]).

Without dedicated action, it is likely that GMS will over the next century lose more than half of its remaining natural land and water habitats, one third over the next few decades alone. Biodiversity loss in GMS is mainly the result of overexploitation of natural resources and habitat loss, through construction of roads and other developments such as damming of rivers for hydro-power and irrigation. There is a growing concern in the countries that increasing development activities in the economic corridors will adversely affect critical ecosystems in such a way that this would undermine the functioning and productivity of the sub-region's ecosystems. This in turn could threaten economic development, social stability and environmental security.

Consequently, the subregion continues to face significant challenges in the future among which are (i) lifting the still large number of poor people from poverty, especially in rural and remote communities; (ii) making development

20 Wiemer C., 'Economic corridors for the Greater Mekong Subregion', EAI Background brief no. 479 (Septem ber 2009).

21 UN ESCAP (2008). Economic cooperation and regional integration in the Greater Mekong Subregion (GMS). Trade and Investment Division, Staff Working Paper 02/08.

22 GMS-BCI 'Strategic Framework and technical Assessment', (2005)

more inclusive and achieving the Millennium Development Goals; (iii) ensuring environmental sustainability while rapid development proceeds. A mid-term review of the 10-year GMS Strategic Framework (2002-2012) found that significant progress has been made in pursuing priority initiatives, but large infrastructure gaps remain and more attention needs to be paid to realizing development benefits and ensuring sustainability. The challenge is how to make this growth sustainable - by balancing economic, social and environmental dimensions - and equitable, thus lifting the majority of people in the GMS out of poverty.

2THE CORE ENVIRONMENT PROGRAM WITHIN THE GMS PROGRAM

2.1 Case description

With assistance of ·nd pressure by the donor community, the GMS Core Environment Program (CEP) combined with the Biodiversity Conservation Corridors Initiative (BCI), known as the CEP-BCI, was officially launched in 2006 by the ADB involving the active participation of the relevant government agencies (http://www.adb.org/projects/gms-biodiversity/strategy.asp). The GMS Environment Minister's meeting and 2nd GMS Summit endorsed the implementation of the CEP and its flagship BCI component.

The main objectives of the Core Environment Program are to:

1. Embed environmental dimensions in GMS Economic Cooperation Program;
2. Positively influence GMS development process, strategies and investments;
3. Integrate and create synergies between poverty reduction and biodiversity conservation;
4. Partner with state and non-state stakeholders on resource mobilization (knowledge, human and financial) coupled with program development and implementation.

The CEP is coordinated by the Environmental Operations Centre (EOC) in Bangkok, under responsibility of the Asian Development Bank. It was recognized that the CEP-BCI would benefit from independent technical advice provided by individuals with considerable global and regional experience in mainstreaming environmental considerations into development initiatives. This led to the establishment of a Technical Advisory Panel (TAP) with the IUCN serving the function of the Secretariat. The objective of this seven-member TAP was to provide independent technical advice to the GMS Working Group on

Environment on CEP implementation, in consultation with the EOC.

CEP activities are divided over 5 components. This case will focus on the first two components that have concrete linkages with spatial planning and ecoregional economic development:

- Component 1: Environmental Assessment of Economic Corridors and Sector Strategies.
  Aim: Ensure GMS development strategies and investment plans are environmentally sound, economically efficient and socially equitable.
  Activities:
  - Develop national-level capacity for environmental assessment of energy, transport and tourism strategies and plans;
  - Assess potential environmental impacts of GMS energy, transport and tourism strategies and investments.
- Component 2: Biodiversity Conservation Corridors Initiative.
  Aim: Establish sustainable management and use regimes in the GMS biodiversity conservation corridors.
  Activities:
  - Initiate at least five biodiversity corridor pilot sites tied to GMS economic corridors;
  - Link biodiversity conservation to poverty reduction.

The other components are:

- 3: Country Environmental Performance Assessments to enhance and institutionalize environmental performance assessment capacity and use;
- 4: Capacity Building for Environmental Management, aimed at creating a self-sustaining GMS environmental governance and management regime;
- 5: Sustainable financing, aimed at initiating strategies and mechanisms to promote the financial sustainability of landscape conservation and environmental management efforts in the GMS.

2.2 Main driver (catalyst) behind the case

- Ecosystem services support agriculture and fisheries, providing livelihoods for at least half the GMS population. The resource base for these fundamental economic sectors, is threatened by loss of biodiversity at unprecedented rates.
- Assistance of ·nd pressure by the donor community.
- Ownership of and responsibility for the SEA (Strategic Environmental Assessments) process lies with the sector department (e.g. hydropower, tourism); sustainability thus becomes internalized in the sector department. Informal 'benchmarking' between countries; all want to perform as good as the lead country.

2.3 Involvement of stakeholders

Due to its participatory nature, SEA (Strategic Environmental Assessment) is a formalized procedure to bring stakeholders concerns into a planning process. SEA thus contributes to more transparent decision making and thus contributes to more democratic procedures

2.4 Role of integrated planning in this case

The role of integrated planning is limited to bringing a sustainability perspective into sectoral planning processes. By bringing stakeholder concerns into the planning process and the availability of a biodiversity areas map forces sectoral planners to look into the spatial consequences of their plans, i.e. where to plan certain activities, where not, and where to take corrective measures if necessary. This can be considered to be a first important step towards fully integrated planning. The optimal situation is considered a full integration of SEA and planning, as early as possible, which would bring a spatial planning component into any planning process with potential environmental consequences. Since SEA is the responsibility of the plan owner, it has a strong potential to sensitize the responsible planners to have an integrated perspective on environmental and social sustainability.

3 HIGHLIGHTS FROM THE GMS CASE

The Biodiversity Conservation Corridors Initiative (BCI)

BCI aims at preventing ecosystem fragmentation that will result from pressures inherent in the economic development along the GMS economic corridors. Unmitigated fragmentation will threaten local livelihoods and ecosystem services needed for sustainable development in the GMS. The BCI is inspired by the Netherlands Ecological Network and was introduced by the Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving) with strong support from Netherlands Embassy officials. BCI consists of a network of connected protected and sustainable use areas to conserve the region's critical ecosystems (functions and productivity). It is based on an assessment of trends in conservation status of indicator species in the entire region. The result of this assessment was a map with clearly demarcated areas of prime conservation interest.

Six pilot sites have been established to demonstrate workable defragmentation approaches (http://www.adb.org/projects/gms-biodiversity/why.asp). Assessments and monitoring plans for at least three priority ecosystems have

also been developed. See also the figure below. BCI outcomes should eventually be reflected in National/Regional Sector Strategies and Socio-economic Development Plans (for example PRSPs).

The expected results of the Biodiversity Corridor Initiative are:

1. direct poverty reduction,
2. maintaining ecosystem integrity and sustenance of environmental services
3. sustainability in the macro-economic context.

Implementation

Most of the $ 40 million contributed by the donor community to CEP-BCI (the Netherlands government contributing over 25%) has been invested in the BCI. Many projects in the pilot sites are implemented with the help of WWF, which follows a highly participatory approach involving local grassroots organizations in the project. Local initiatives play an important role in this approach.

There appeared, however, to be a mismatch between the expectations of WWF and the officials supervising the implementation of CEP. At higher levels of decision making emphasis was placed on creating 'green' areas, while the implementing organizations were focused on direct poverty reduction through environmental conservation. A classical class of 'conservation versus development' thinking among officials, against the 'conservation for development' approach by WWF. The mismatch created a vacuum between the individual projects in the field and the higher levels of decision making, causing the principally positive local result to be neglected at higher decision making levels. This has led, among other factors, to the withdrawal of several donors and the dismantling of the Technical Advisory Panel, as there was too little emphasis on integration of poverty reduction with conservation activities.

Positive impacts

In spite of a difficult path of implementation, the very existence of the Biodiversity Corridor map has had a significant impact. Some of these impacts are:

- in all planning studies, the map is included and taken into account;
- the international donor community puts heavier requirements on projects located in the biodiversity corridor zone;
- additional safeguards are being requested for proposed projects;
- even though the donor community plays a significant role in the environmental agenda, the national leaders of the participating countries have signed for the BCI.

In the declaration of the 2nd GMS environment minister's meeting (28 January 2008), the ministers refer to a poverty free and ecologically rich GMS. They state that '*poverty alleviation remains at the core of our development efforts, confident that sound environmental management contributes to generation*

of income and reducing livelihood vulnerabilities. We recognize the importance of finance, knowledge and technology in improving our environmental management performance and preparedness for addressing emerging challenges of climate change'. They also state to be 'immensely encouraged by the early achievements if the biodiversity conservation corridor initiative'.

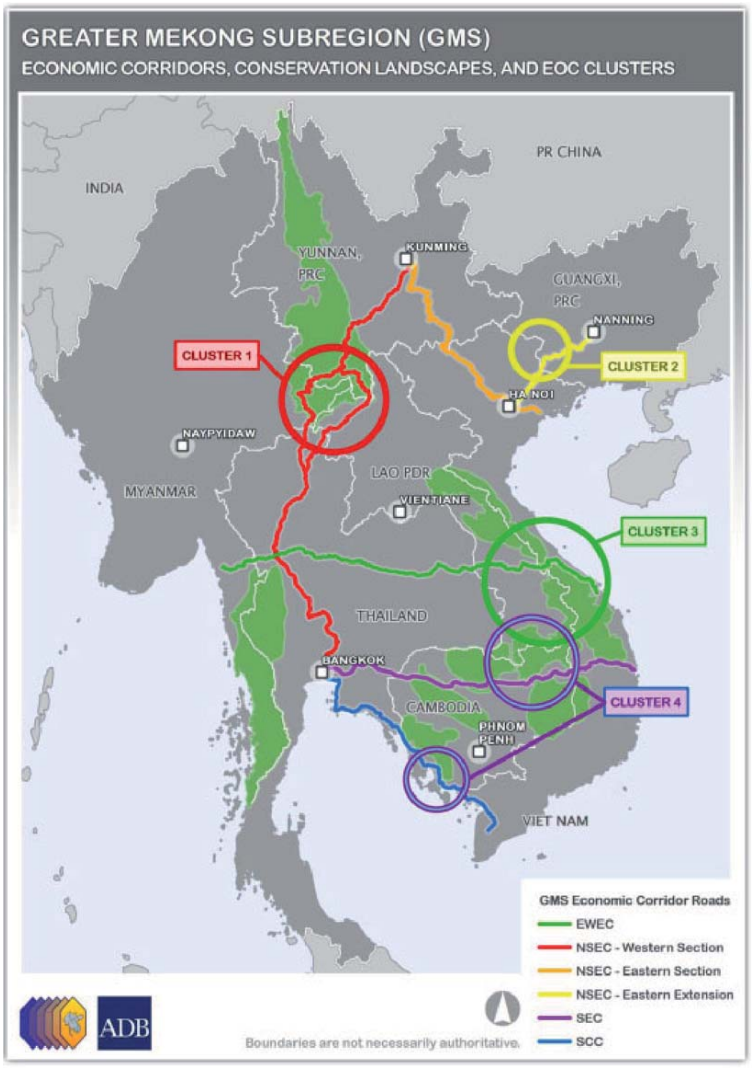

Figure: Economic and Biodiversity Corridors in the Greater Mekong Subregion.

The Environmental Assessment Component

The overall aim of this component is to ensure GMS development strategies and investment plans are environmentally sound, economically efficient and socially equitable. Deliverables of the program include

1. Strategic Environmental Assessments (SEA) of key sector strategies such as transport, energy (hydropower), and tourism;

2. SEAs of north-south and the southern economic corridors investment plans;
3. Environmentally sound and economically efficient strategy assessment; and
4. Design tools for transport, hydropower, and tourism sectors and the north-south and southern economic corridors.

Three pilot Strategic Environmental Assessments have been carried out under the auspices of CEP in the period 2007-2008.

- Ex post, evaluative SEA for North-South corridor;
- Pilot SEA for National Tourism Plan of Cambodia;
- Ex post, evaluative SEA for 5-years plan on hydro-power development in Vietnam.

Because of the experimental nature of these SEA's, carried out as an exercise after most relevant decisions had already been taken on the respective plans, the studies were not under high political pressure. They were therefore perfectly geared towards their task of showing the potential strength of SEA as a planning support tool, to test new plans against sustainability criteria. Within the countries these pilots led to a strong sensitization of government officials on the value of SEA in a planning process.

These pilot SEAs were supported by a significant outreach budget. Good information material was developed and distributed over the participating countries. Furthermore, members of the TAP were actively involved in sensitization of top-level officials at various government departments. The TAP also had a half-day meeting with the entire board of directors of the ADB, including a 2-hour private meeting with the ADB president, explaining the importance of SEA as a tool to address sustainability issues in governmental planning.

It was acknowledged that the early recognition of potential social or environmental impacts of a plan and thinking about more sustainable alternatives actually does help the planning process, and does avoid later problems during implementation. This sensitization was of course strongest within environment ministries or departments, but not only limited to these. Officials from sector (tourism, hydropower) as well as planning departments became convinced on the potential strength of the instrument.

Parallel to the pilot SEAs, other environmental assessment capacity development programs were implemented independently in the context of bilateral cooperation. It is therefore difficult to single out the role of the pilot SEAs, but one cannot underestimate the impact of actual hands-on experience, providing practical evidence of what is learned during training.

Examples of the actual impact of the program can be seen at regional, national and provincial level:

- Vietnam's Energy Department is carrying out an SEA for its next 5-year hydropower plan. Oral information suggests the commitment to the process is high. The SEA still has to prove whether it had a real influence on the planning process.
- Laos, Thailand, China and to a limited extent Myanmar are jointly implementing an SEA for a tourism development plan in the transboundary Golden Triangle region. International consultant carry out the study with strong ADB involvement. Although the influence on national policies is said to be limited, the example effect of the SEA is considered significant.
- In Cambodia two provinces are carrying out SEA for provincial social-economic development plans.
- Quang Nam province in Vietnam is implementing an SEA for a provincial spatial plan. An ecological corridor is potentially threatened by rapid economic development. Land use planning is seen as essential to manage this development process. SEA is used to assess the sustainability of land use plans. The SEA is seen as a pilot for other land use planning processes in Vietnam.
- Laos is contemplating an SEA for its hydropower development strategy.

All these SEAs are ex ante studies, so prior to decision making, and initiated by the owner of the plans, i.e. planning or sector departments at national of provincial level.

Another noteworthy spin-off is that the Mekong River Commission (the river basin commission for the Mekong basin, excluding China) now has also embraced SEA for hydro-power development and has started a collaboration with the GMS program (partly funded by the Netherlands).

From a contents perspective, one of the main messages understood by the participating agencies was that biodiversity is not only about 'protecting the green'. The bottom line in all work was that biodiversity provides ecosystem services that support livelihoods and provide opportunities for economic development. Maintaining biodiversity thus is important for the future (keeping opportunities open) ·nd for the present generations (sustaining economic growth). Especially the latter was an eye-opener for officials working in other sectors than environment.

From a conservation perspective the availability of the biodiversity corridors map was an important asset. By simply superimposing a spatial plan or economic corridor development plan over the biodiversity corridor map, areas of potential conflict are highlighted and the need to think about potential alternatives or mitigative measures immediately becomes obvious. SEA is the procedural context to facilitate this process. In the pilot SEA for the North-South Economic Corridor a start was made to add ecosystem services to the BCI map, especially those related to hydrology and erosion sensitivity.

All of the above has happened while internal reporting and evaluation within CEP and TAP revealed that CEP actually did very little with the outcomes of the pilot SEAs, especially in relation to sensitization among Sector Working Groups of GMS and sector authorities within the countries. In stead of preaching for the converted (environmental departments), the real challenge lies in getting the important economic sector on board. So, the success of the introduction of SEA is not a top down story related to GMS activities. Moreover, the recognition of the potential benefits of applying SEA came from national and provincial sector and environment departments that had actually seen the outcomes of the pilot trials and decided to pursue next steps in the implementation of SEA.

One of the TAP members had two interesting personal observations. In many countries environmental assessment is strongly demanded by civil society organizations. In the GMS region these organizations do not have a strong foothold yet and have very limited influence on governments. The introduction of environmental assessment started with donor pressure, but now that SEA and its requirements on transparency and public involvement becomes better known, civil society organizations are gradually becoming more involved in government planning and decision making.

A second observation was the role of informal 'benchmarking' between countries. In other words, if one country in the region performs well on a certain issue, other countries are inclined to follow suite. The intensive collaboration in the GMS region between civil servants reinforces this attitude. In this respect, China was found to play an important role as frontrunner, also with respect to environmental safeguards and procedures.

4 MESSAGES THAT CAN BE CONVEYED FROM THE STUDY

From the case study several lessons can be learnt. These lessons also constitute the main messages that can be conveyed to policy makers and decision makers.

Biodiversity is about human livelihood. Biodiversity is more than 'green stuff' that needs protection; it is the provider of essential ecosystem services which in their turn support livelihoods and economic development.

Strategic Environmental Assessment enhances sustainability of plans. SEA is recognized as a tool to integrate biodiversity (in the broad sense indicated above) in spatial and economic development plans, and to provide relevant information for decision making.

Sector representatives own the SEA process. The value of SEA in making sectoral plans more sustainable is recognized by the sector-representatives (specifically energy, hydropower, tourism, and spatial planning). SEA thus has the potential to create 'environmental champions' within sector departments. This recognition is largely created by hands-on experience with the instrument and substantial investment in outreach such as the preparation and distribution of reports, booklets and films.

A formalized map is a strong tool. The availability of a formalized map with important biodiversity areas can be of great influence on planning processes with a spatial component. The very fact that a spatial plan can be superimposed over the biodiversity map leads to the identification of very obvious and easily verifiable potential impacts of a plan. Further elaboration of such maps beyond the conservation status of biodiversity, for example by including key ecosystem services, may provide a readily available, easy to use and potentially influential source of information for planning processes.

Champions are respected and followed. International collaboration works in the sense that front runners ('champions') can set the good examples that others are inclined to follow. Actual implementation can only start within a national (or provincial) context, because legislation, language, social, cultural and economic differences between countries create complex conditions for supranational activities. Furthermore, having front runners implicates that the stage of advancement greatly differs between countries, hindering effective collaboration on an equal basis[23].

Public involvement creates transparency. SEA contributes to more transparent decision making in the sense that civil society has a formal right to provide input in the SEA process, and thus contributed to more democratic procedures. There are indications that the positive SEA experiences enhance the establishment of SEA legislation in Cambodia and Lao PDR.

23 This observation is supported by an internal World Bank plan for capacity development in Africa. In 'Capacity Development in Environmental Assessment for Sub-Saharan Africa: a Comprehensive Strategic Framework'. (WB internal document) a country-based approach to capacity development in Environmental Assessment is strongly recommended.

TRILATERAL WADDEN SEA COOPERATION (TWC), THE DUTCH WADDEN AREA

By Martine van Zijl, CREM

Case summary

The Wadden Sea is the world's largest tidal barrier island system and Europe's largest wetland area. The Wadden Sea is not only a region of ecological importance, but provides many economic benefits as well. The unique natural values of the area are the basis for local livelihoods based on tourism, recreation and other (economic) activities. The Wadden Sea is also rich in cultural heritage, characterised by a variety of landscapes and sceneries (such as dwelling mounds, dikes, drainage ditches, farms and churches), differing traditions and regional cultures.

The spatial planning for the Wadden area was originally developed from a 'exploitation versus nature conservation' perspective but over time has shifted to an approach that is now aimed at the integration of nature conservation and human use on the basis of common targets. In other words, a truly integrated approach. The vision of the Trilateral Wadden Sea Cooperation (TWC) between the governments of The Netherlands, Germany and Denmark is a Wadden Sea which is a unique, natural and dynamic ecosystem with characteristic biodiversity, vast open landscapes and rich cultural heritage, enjoyed by all, and delivering benefits in a sustainable way to present and future generations: nature protection may not lead to the long-term decline in socio-economic conditions for the inhabitants of the Wadden area, and the use of nature may not lead to the long-term decline of biological and ecological diversity.

The TWC has resulted in a number of initiatives in the Wadden area, aimed at combining different interests of different stakeholders and different ecosystem services in the area in a sustainable way. In this way, the TWC provides interesting examples of processes and instruments that can be used in ecoregional economic development, including stakeholder organization (like the Wadden Sea Regional College: RCW), stakeholder cooperation (like cooperation in the mussel sector and the Ems delta region), and financing mechanisms (the Wadden Sea Fund). Moreover, the case provides insight in the benefits of an integrated spatial planning approach combining economic, ecological and social interests: macro-economically the area is generally

doing well, while at the same time the quality of nature in the Wadden area improved.

1 CONTEXT

1.1 The Wadden Area

The Wadden Sea is the world's largest tidal barrier island system and Europe's largest wetland area. It is an area of outstanding natural value, characterized by a high biological productivity. It is a highly dynamic ecosystem with tidal channels, sands, mud flats, salt marshes, beaches, dunes, river mouths and a transition zone to the North Sea (the offshore zone). The area of the trilateral cooperation of The Netherlands, Germany and Denmark, the so-called Cooperation Area, measures approximately 13,500 km2. For this study, the Dutch Wadden area is defined according to the ecological functioning of the system. The surface area totals about 6625 km2 (Van Wetten et al., 1999).

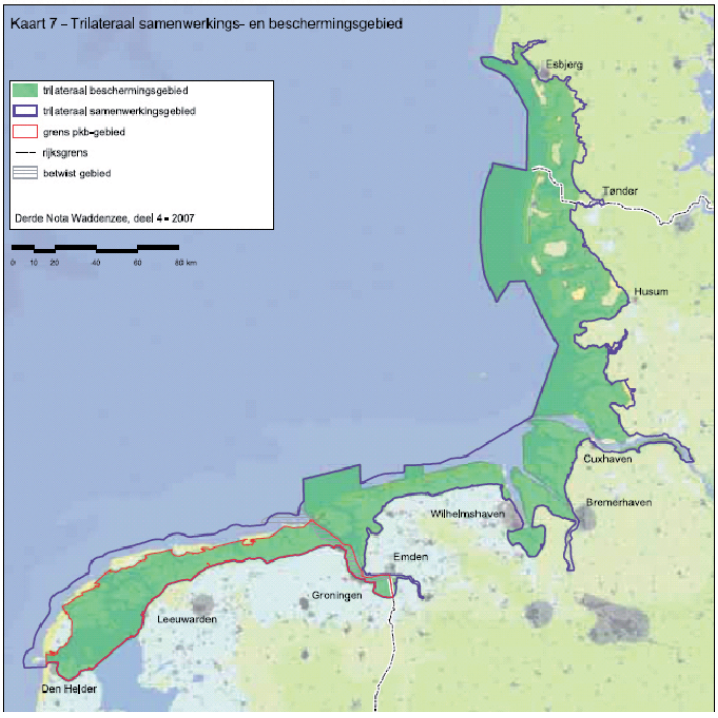

Figure 1. Trilateral cooperation area in the Wadden area. Source: Key planning decision (PKB), 2007

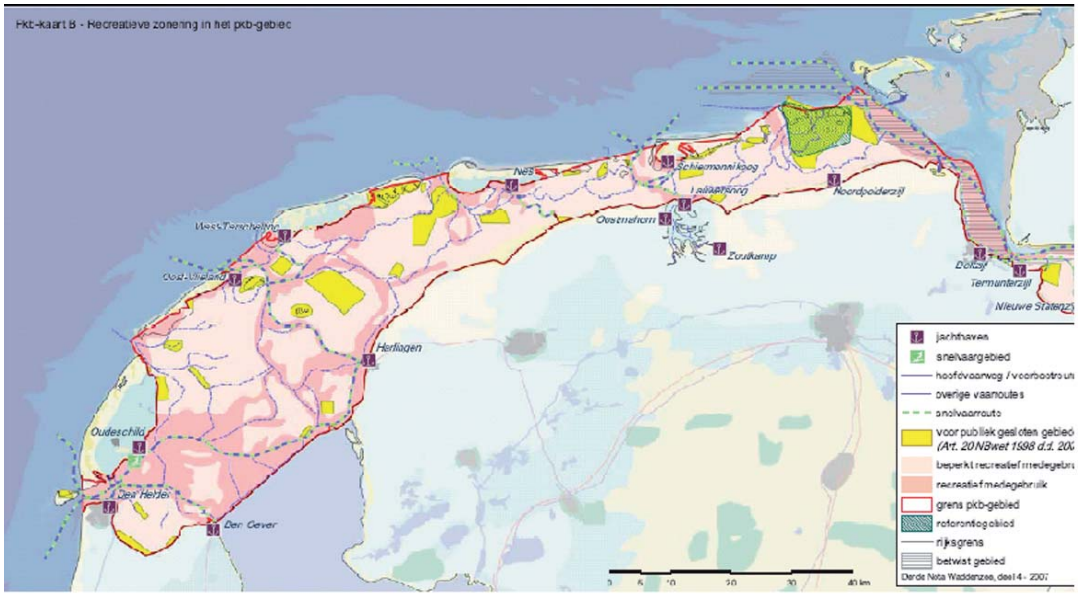

Figure 2. Recreational zoning in the Dutch Wadden area. Source: Key planning decision (PKB), 2007

In June 2009, the Dutch-German Wadden Sea, an area of almost 10 million hectares, was inscribed on the World Heritage List. The Wadden Sea is a key area for migratory and sedentary birds, an important nursery area for North Sea fish and some species of marine mammals. The Wadden Sea is not only a region of ecological importance, but provides many economic benefits as well. The unique natural values of the area are the basis for local livelihoods based on tourism, recreation and other (economic) activities. The Wadden Sea is also rich in cultural heritage, characterised by a variety of landscapes and sceneries (such as dwelling mounds, dikes, drainage ditches, farms and churches), differing traditions and regional cultures. Through national and international designations and treaties, the area has obtained an extended and comprehensive protection status.

Main economic activities in the Dutch Wadden area include:

- Gas production and exploitation
- Fisheries (e.g. cockle, mussel, shrimp)
- Tourism (e.g. sailing, fishing, cycling, hiking mud flats)
- Agriculture
- Shipping / ports
- Military activities
- Wind energy

The spatial planning for the Wadden area was originally developed from a 'exploitation versus nature conservation' perspective but over time has shifted to an approach that is now aimed at the integration of nature conservation and human use on the basis of common targets. In other words, a truly integrated

approach. Due to increasing pressure on natural resources and ecological processes, the governments of The Netherlands, Germany and Denmark started national initiatives to protect the Wadden Sea about three decades ago, resulting in the establishment of several nature reserves. The trilateral - Dutch-German-Danish - cooperation on the protection of the Wadden Sea started in 1978 with the aim to achieve a coordinated and comprehensive management of the complete area. During the first decade of the trilateral Wadden Sea Cooperation the emphasis was on the protection of birds and seals. By the end of the eighties a start was made with a more integrated approach to nature conservation, and at the beginning of the nineties, the regulation of human use was embedded in a system of ecological targets. The first Wadden Sea Plan, a trilateral framework for the national and international protection and integrated management of the Wadden Sea adopted in 1997, marked a new phase in the cooperation. The plan aimed at the integration of nature conservation and human use on the basis of common targets and measures for achieving the common targets. Targets reflected both the need for a recovery of the natural values of the Wadden Sea and the necessity that human activities remain possible in the future.

In March 2010, a revised Wadden Sea Plan was adopted at the 2010 Sylt Conference. At the conference also a Joint Declaration was signed, a formal but not legally binding cooperation between the governments of the three countries, to be implemented by the three countries replacing the 1982 Joint Declaration. The new declaration provides for new governance structures. The 2010 revised Wadden Sea plan also addresses issues such as climate change (and its consequences such as sea level rise, increased temperatures, sediment deficits, and protective measures such as coastal protection), invasive species and shipping safety.

1.2 Valuation of ecosystem services provided by the Wadden area

Van Wetten et al. (1999) valued the ecosystem services of the Wadden area. Bequest and existence values were not included in the study. Using several valuation techniques they estimated the total economic value (TEV) at approximately - 4.4 billion (see table 1). The authors point out that the economic value of these ecosystem services has been underestimated and not properly defined in previous studies.

Table 1 Total Economic Value of the Dutch Wadden area in million euros per year (van Wetten et al., 1999)

Ecosystem service	Valuation method	Value (million euro)
Regulation services		
CO_2 storage	Benefit transfer	35
Flood protection	Damage cost avoided	213
Protection against salt spray	Shadow price	4
Strategic drinking water supply	Shadow price (replacement costs)	353
Seawater purification	Benefit transfer	649
Pest control potatoes	Shadow price	737
Natural accession land	Shadow price (replacement costs)	0.45
Habitat services		
Refuge nature	Shadow price (investments by public bodies)	266
Breeding ground mussel	Market price	154
Breeding ground plaice and sole	Market price	803
Breeding ground shrimp	Market price	92
Information services		
Tourism and recreation	Market price	771
Production functions		
Production mussels	Market price	231
Production cockles	Market price	21
Production lugworm	Market price	0.90
Production shrimp	Market price	83
Total Economic Value (TEV)		4.416

2 CASE DESCRIPTION

2.1 The Trilateral Wadden Sea Cooperation

The vision of the TWC is a Wadden Sea which is a unique, natural and dynamic ecosystem with characteristic biodiversity, vast open landscapes and rich cultural heritage, enjoyed by all, and delivering benefits in a sustainable way to present and future generations. Objectives are to achieve:

- a natural ecosystem, its functions and characteristic biodiversity,
- adaptability to climate change and other impacts,
- maintenance of the landscape and cultural heritage,
- sustainable use as defined by the CBD (Convention on Biological Diversity) and as referred to in the Habitats Directive and
- public support for the protection of the Wadden Sea.

The TWC applies the 'Ecosystem Approach', that is based on an integrated analysis departing from both natural and users functions. The policy objectives are expressed in the TWC plan. Within the constraints of appropriate protection and room for natural processes in the Wadden Sea, economic activities thus remain possible. A precondition for realization of the TWC plan is that all measures, activities and policies mentioned in the plan are to be realized in a sustainable way, which implies:

1. nature protection may not lead to the long-term decline in socio-economic conditions for the inhabitants of the Wadden area, and
2. the use of nature may not lead to the long-term decline of biological and ecological diversity.

Among the main activities of TWC are the development and implementation of plans, policies and projects to maintain and enhance the natural values, landscape and cultural heritage; the coordination and commissioning of research; the involvement of all stakeholders, adequately considering their concerns; intensification of international cooperation, and raising the international profile of the Wadden Sea.

Netherlands National Policies and implementation

The key planning decision (PKB: Planologische Kernbeslissing) outlines the Netherlands government policy for the Wadden Sea. The PKB is area-specific and integrates all relevant spatial government policies for the Wadden Sea. The main objective of the PKB is nature conservation with limited human use of the area. The PKB guides government decisions in international cooperation, and it is leading for spatial planning at provincial and municipal levels.

Following the PKB, a management & development plan for the area was developed. The plan integrates visions of regional governments in the spatial

policy for the area. The plan aims to sustainably develop and protect the area as a nature conservation area, and at the same time develop the area as a vital and economically healthy area to live, work and recreate. To support the development plans, a fund for nature development, management and economic development for the Wadden area has been set up (Wadden Sea Fund).

The program 'Towards a rich Wadden Sea' ('Naar een rijke Waddenzee') follows from the management & development plan for the Wadden Sea, from the Dutch Wadden Sea fund and from the Mussel covenant (see later in the text). The program, in which authorities, environmental organizations and businesses work together, focuses on nature restoration & economic development. The program aims to offer solutions for amongst others the mussel and shrimp sector and Ems harbor area (see 'Highlights').

2.2 Involvement of stakeholders

TWC

The three national governments of the three involved countries (the Netherlands, Denmark and Germany) align their decision making. Decision-making of the TWC takes place through the Trilateral Wadden Sea Governmental Council, the politically responsible body and the Wadden Sea Board, the governing body. The Common Wadden Sea Secretariat (CWSS) supports Board and Council.

Non-governmental stakeholder involvement is organised through the Wadden Sea Forum. This independent, cross-border stakeholder forum consists of representatives from agriculture, energy, fisheries, industry and harbour, nature protection, tourism and local and regional authorities.

Independent advice is provided by advisors, Task Groups, appointed by and reporting to the Board, and Triennial Wadden Sea Conferences to inform policy making and enhance cooperation, including the review of the Wadden Sea Plan.

Towards a rich Wadden Sea

Stakeholders involvement for the program 'Towards a rich Wadden Sea' is organised through:

- The 'Wadden Sea Regional College' (RCW): government, provinces, municipalities and water boards work together on the development of strategic guidelines. The RCW proposed the management & development

plan for the Wadden Sea in 2008. They also have a coordinating role with respect to law enforcement and coordination of government plans and initiatives. All things related to the Wadden Sea can be addressed in the RCW, including international issues such as cooperation with Germany and Denmark.
- The Wadden Coalition represents 8 nature organizations.
- VNO-NCW (Noord); An association representing the private sector in the North of the country.

Decision making processes are supported by the scientific Wadden Academy and the advisory Wadden Sea Council.

3 HIGHLIGHTS FROM THE TWC CASE

Highlights from the TWC case are illustrated by a selection of activities in the area, linked to the TWC plan and illustrating the steps that are taken to integrate economic, social and ecological stakes in the area, involving many different stakeholders.

Allowance of certain activities: gas extraction and cockle fisheries

The TWC plan states that within the constraints of an appropriate protection and a natural development of the Wadden sea, economic activities remain possible. Certain economic activities may be allowed while others may be banned. An example is the Dutch policy regarding gas exploitation and cockle fisheries in the Wadden Sea.

After long and fierce debate, and many research efforts lasting about a decade it was concluded that there were no ecological reasons to prohibit gas exploitation in the Wadden area. The main driver of ecological change created by gas exploitation is soil subsidence, potentially affecting the functioning of fundamentally important tidal mud flats. It was concluded that natural sedimentation rates could compensate subsidence. In 2004 gas exploitation from the Wadden Sea by the NAM was allowed under strict regulations. To protect landscape and ecological values it was decided that gas exploitation was only allowed from outside the boundaries of the Wadden Sea. Oil-pipes thus enter the gas reserves from land in a sideward direction. The precautionary principle was applied: if soil subsidence would pas certain limits, gas exploitation has to be halted. Continuous monitoring is required.

One of the ecological benefits of allowing gas exploitation, is the establishment of the 'Wadden Sea Fund'. The fund was set up in 2007 with some of the tax revenues from gas exploitation in the area. The Dutch Cabinet

will invest 800 million Euros in 20 years. The fund is linked to the PKB and the management and development plan for the Wadden area and is the most important instrument for investments in nature ·nd economy. Economic activities will only qualify for the Wadden Sea fund subsidies if they contribute to a reduction of the pressure on nature.

As of 2004, after many legal procedures, mechanical cockle fisheries were banned from the Wadden Sea because of their destructive influence on life at the bottom of the sea. Mechanical cockle fisheries were bought out with revenues of Wadden gas (€ 122.4 million damage compensation).

Box 1: Gas exploitation from the Wadden Sea
One of the key issues in the Dutch policy debate is the exploitation of gas from the Wadden Sea. Gas exploitation from the Wadden Sea is an important contributor to the Dutch economy, providing a yearly benefit of approximately € 5 billion per year, which is a substantial part of the total revenues of fossil fuels in the Netherlands (see Figure 3). In addition, by reducing the dependency on fuel imports from the Middle East, Dutch natural gas plays an important role in the European Union as well (MinEA, 2004).

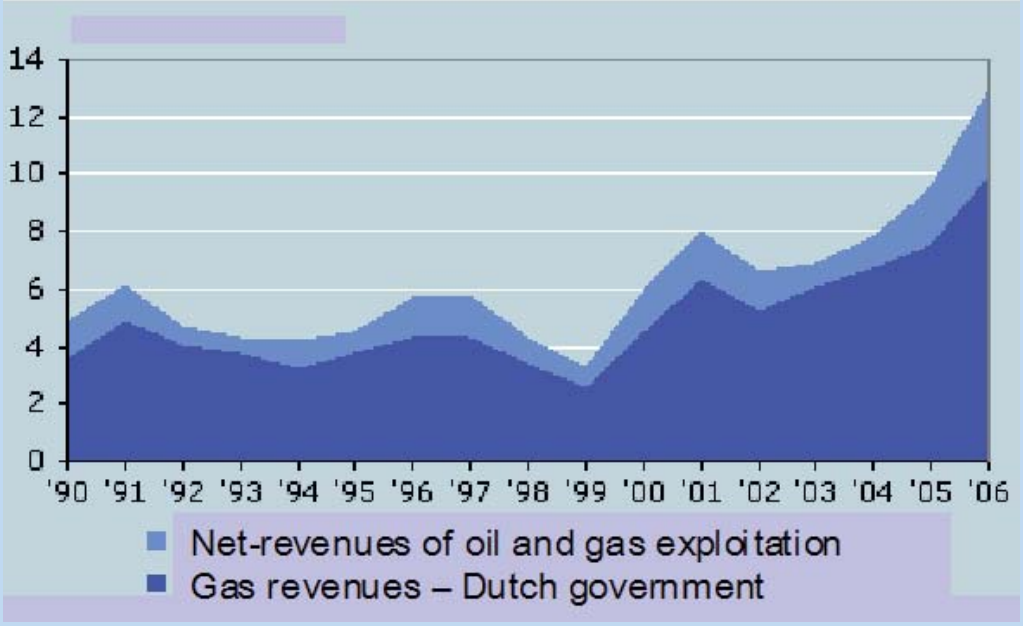

Figure 3 Economic importance of natural gas for the Dutch economy. Source: CBS, 2008

Mussel fisheries

Collection of mussel seed negatively affects the bottom of the sea and bottom life. After several legal procedures in 2006 and 2007 regarding the

permits that were granted (for springtime and autumn fishing), in 2008 the Dutch Administrative Court ruled that the license for springtime mussel seed fisheries in the Dutch Wadden Sea should not have been issued because there was insufficient scientific proof that the activity would not adversely affect the site (according Natura 2000 policy). Despite all tensions, following the ruling, a covenant was agreed between government, the mussel fisheries sector and three nature NGOs, setting out the main principles for a nature restoration program and a transition towards sustainable fisheries. The parties to the covenant share the view that the mussel sector is entitled to a future perspective and that they will strive for a recovery of littoral and sublittoral mussel beds. The parties agreed to cooperate in the transition of the sector and not to go to court to solve differences of opinion.
The sector is implementing some important innovations for sustainably collecting and cultivating mussel seed (economically viable without damaging the bottom of the sea). Projects in the area address the recovery of mussel banks and the development of new, experimental mussel banks. Scientific research into the natural values of the effects of seed mussel fishing will be intensified. The case of the mussel sector shows that through an integral approach it is possible to develop fisheries policies within an area where nature conservation is the main objective.

Shrimp fisheries

The shrimp sector is in the process of realizing MSC-certification. It will offer great market perspective since there is a huge demand for MSC certified shrimps. Current permits for shrimp fisheries, in accordance with nature conservation laws, are valid until the end of 2013 and already refer to the MSC certification process. It is expected that MSC certification will prepare shrimp fisheries for future permits. In 2009 an integral management plan for the MSC certification of the sector has been developed. Nature NGOs have effectively catalyzed the process. Potential complaints from the Netherlands Competition Authority (NMa) were prevented by collaboration between jurists of producer organizations and the NMa. However, more knowledge on the effects of shrimp fisheries on the ecosystem is needed to obtain certification. Research regarding this issue and regarding innovative fishing techniques is financed both by the sector and through subsidy of the Wadden Sea Fund, fitting within the program 'Towards a rich Wadden Sea'. The Dutch government is supporting the research. Danish shrimp fisheries are also involved in the MSC certification process and cooperate with Dutch fisheries. Whether the shrimp sector will succeed in realizing the MSC certification process is not yet clear. During 2010, several adjustments regarding sustainability (duration of fisheries) were made to give restoration of nature time and space. However, through low prices fishermen might be forced to make concessions to the sustainable fishing methods. The shrimp industry is originally rooted in the Wadden area and has many interests. This also makes the case more difficult than the case of the mussel fisheries of which economic interests were more important in other areas.

Harbours and Business parks

The key planning decision describes that it is not allowed to build new harbours or business parks in the Wadden Sea or in areas directly bordering the Wadden Sea. Expansion of harbours and business parks can only take place in an inland direction, though there are some exceptions such as the Den Helder harbour and limited expansion of harbours of the Dutch Wadden islands intended for recreational purposes, if necessary because of (for example) safety issues. Another exception is the potential expansion of the 'Harlingen Sea Port' of which the PKB states that it would preferably occur in an inland direction, but seawards expansion might under certain conditions also be possible.
In 2007, regional plans for the 'Harlingen Sea Port' were directed at further development of the industrial harbour. However, due to the economic situation in the last couple of years, an expansion of the harbour is currently not desired.

Ems harbor area

The Ems-Dollard estuary is under great ecological pressure. Nature and landscape is the victim of recent large industrial development. The Ems port and industrial facilities border directly to the Wadden Sea and Ems delta. There is therefore an urgent need to balance economic activities with natural and landscape values.

In June 2010, several businesses and environmental organisations active in the area have signed an intention to improve nature, environment and economy in the Ems delta region. The parties agreed to work towards a balance of economic growth and environmental interests. Central to the intention is the restoration of the Ems-Dollard nature, realising sustainable industrial and port areas, and giving a boost to the energy economy of the region. To date, legal procedures run against the construction of coal plants in the Ems harbour. Nature NGOs and industry in Ems harbor are diametrically opposed. With the intention, a new, potentially more sustainable path is being created. Nature organisations want to explore whether this way is more profitable for nature, environment and landscape than legal procedures.

The case of the Ems harbor has so far been not successful in realising nature restoration. Landscape value of the area seems to play little or no role in new development plans. The situation in the area is more complicated as it borders Germany, a country having different spatial and economic planning procedures. This illustrates the importance of international cooperation and aligning policies on an international level.

Sustainable agriculture and climate adaptation

Agriculture on the Wadden islands is strongly connected to the area's variety of landscapes and sceneries. Agriculture on the islands is also interwoven with nature and landscape as many farmers combine agriculture with nature and landscape based tourism activities.

Environmentally friendly agriculture has been introduced in the area. An example is the promotion of Dutch regional Wadden Sea products. The Waddengroep foundation (supported by national and regional governments) stimulates the local economy by promoting regional production, processing and trade of raw materials and products from the Wadden Sea region. In 2003, it started a regional brand for producers from the region, called 'Waddengold'. Under certain conditions, services such as tourism facilities and restaurants, may also receive Waddengold certification.

One of the objectives of the PKB is the conservation and promotion of darkness. Current development of 'Wadden greenhouses' that do emit 97% less light than conventional greenhouses (and also save energy) could stimulate the development of sustainable agricultural activities in the Wadden area.

Agriculture in the Wadden islands may provide for ecological recovery of nature areas and an increase in the protection against flooding (function combination). From the time when tidal marshes in some areas have not formed part of agricultural activities (grazing) anymore due to high costs, biodiversity and ecological quality of the tidal marshes have decreased, as well as the safety of the land against floods. Several recovery programs exist for tidal marshes in the area, for example the project 'tidal marsh recovery Groningen', jointly created by nature organisations and land owners, showing the importance of stakeholder cooperation and willingness to invest.

Climate change can have significant effects on the Wadden Sea as sea level rise may cause the tidal flats to permanently submerge. Specific issues with regard to making the Wadden Sea climate proof, are salt marsh development, the reduction of dynamics in the (island) dunes and restoring fresh-salt transitions.

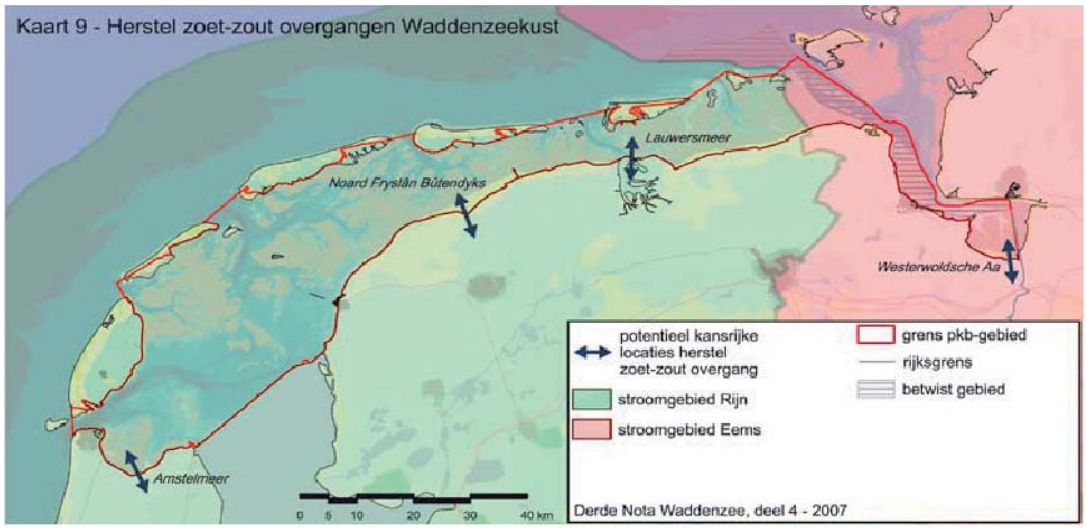

Figure 4. Recovery of fresh salt transitions along the Dutch Wadden Sea Coast.

The arrows indicate potential recovery locations. Source: Key planning decision (PKB), 2007

Restoration of at least two estuaries is one of the objectives in the PKB, but agreement of stakeholders is necessary to start implementation. Estuaries could potentially offer opportunities for a combination of functions: saline agriculture, nature conservation and climate adaptation. However, a common objective is needed. The agricultural sector opposes restoration of estuaries because of salinization of inland areas claiming that underground salt water intrusion is already threatening mainland potato cultivation. Regional policies aim to prevent salinization of inland areas as expectations are that salinization will increase, though not in the extent that the cultivation of current crops would not be possible. The province of Friesland states that saline agriculture inland to the dikes does not offer perspectives as surface water and ground water are not sufficient saline (without measures regarding sea water supply). However, the possibilities for saline agriculture and saline aquaculture, both on the seaside and inland to the dikes, are being investigated. Besides issues such as water supply for inland agriculture, questions regarding cultivation techniques and economic viability also remain.

The 'Deltaprogram Wadden area', part of the national Delta program (in which national and regional governments work together with NGO's), aims to develop an integral, multifunctional approach to ensure long term water safety (flood protection and a sufficient fresh water supply), anticipating on climate change, from 2014 and beyond. The approach would have to make use of natural processes and would have a positive impact on nature, while creating space for sustainable economic activities. Potential measures for climate adaptation of the area are:

- Growing with sea level rise, by means of extra supplementations, stimulating sedimentation on the islands or preventing submergence of mud flats.
- Limiting the pressure on Wadden dikes, by means of tidal marsh development for example.
- Innovative reinforcement of dikes, one way of doing this is making the dike resistant to the flooding of water.
- Alternative building, a strategy not directed at prevention of flooding but at sustainable spatial planning in which land use is being adjusted to the (incidental) presence of water.

The current project regarding dike reinforcement for coastal security and additional drainage capacity of the 'Afsluitdijk' (the dike that connects two provinces on both sides of the IJsselmeer) is also an integral process in which both national and regional governments work together and nature organizations are intensively involved. Four visions have been developed on how to realize the reinforcement that is necessary on the account of climate change. Certain elements of the four visions will be integrated in a new alternative. Based on a plan-Environmental Impact Assessment and a Social

Cost Benefit Analysis (that is expected to be realized in the third quarter of 2010) there will be a decision about the preferred alternative. Most visions focus on a combination of safety and ecology (following the concept 'building with nature'). The vision 'Wadden Works' sees broadening of salt marshes on the Wadden Sea side as an effective way to realize both safety and ecological objectives. It would create a 1,500 hectare natural area. However, it is not yet clear whether this would be in line with Natura 2000 policy. Restoring fresh-salt transitions, that do not let salt water flow into the IJsselmeer, is another element of the visions. On the sea side of the dike, the Wadden area policy would offer opportunities for saline agriculture. The current project regarding salt marsh development along the 'Afsluitdijk' focuses on saline agriculture under controlled conditions.

Tourism and recreation (including recreational harbours)

About 50 parties (including (regional) governments, NGO's and interest groups) have signed the 'covenant sailing recreation' ('convenant vaarrecreatie'). Aim of the covenant is an integral policy to make and keep sailing recreation in the Wadden Sea manageable, coupled to concrete measures and projects. Central to the covenant is a viable combination of recreation and nature protection. The covenant follows (amongst others) from the discussion about the number of mooring places, that took place when developing the PKB. One component of the covenant is the integral plan regarding the expansion of (the amount of mooring places of) recreational harbours in the Wadden area. It is carried out on a municipal level, in cooperation with provincial governments and to be adopted by the RCW. It is expected to make a limited expansion of recreational harbours possible. The covenant is also directed at the development of visitor centers and awareness campaigns to create and stimulate awareness. In 2009, several recreational organizations have decided to start a process together to realize a situation that delivers an optimal trade-off of functions ('Pact van Rede'), by means of a 'Mutual Gains approach' (MGA). The aim is to get subsidies for the projects from the Wadden Sea Fund.
In one of the Wadden provinces, Friesland, there are regional plans to transform the old industry 'Willems' harbour ('Willemshaven') into a recreational harbour. The intention is that the plans would not only focus on compensating for the damage to nature, but also adding to the quality of nature. The Wadden Sea Fund could possibly subsidize the plans. There are also plans to develop the 'Lauwersoog' harbour, but it is not clear yet what the plans will comprehend. In addition, there are plans for preventing the reinforcement of dikes to give nature more space and contribute to the development of nature based tourism activities.

The World Heritage Status of the Dutch and German Wadden area offers opportunities for tourism development. Development of a sustainable tourism strategy is one of the tasks that follows from the World Heritage status. The strategy will comprehend an integral vision that focuses on both tourism development and ecology. It is expected to contribute to the development of

(sustainable) tourism activities. To develop this strategy, a sustainable tourism strategy group has been developed, involving Dutch and German (regional) governments. International cooperation offers opportunities to learn from each other's experiences. Much can be learnt from cooperation with Germany, for example in the field of involving businesses and communicating about the international value of the area. Regional stakeholders (businesses, government, consumers) will also be involved in the process.

Protected status

Since the 1982 Joint Declaration, the Wadden Sea has benefited from a comprehensive national and international nature conservation regime, including protection under European legislation, in particular the Birds and Habitat Directives and Water Framework Directive. The designation of a number of National parks and Biosphere Reserves, education and the sustainable development of the Wadden Sea region and the designation as a Particularly Sensitive Sea Area (PSSA) by the IMO (International Maritime Organization) contributed to the protection of the area.

Economic growth

While nature quality in the area improved, macro-economically the Wadden area is also generally doing well. Although there is no data available that prove a causal relationship between the activities in the area linked to the TWC plan and economic growth, there is circumstantial evidence for this. Employment in the area is generally increasing, both on the Wadden islands and the mainland (for the period 2008 - 2009 see the figure below).

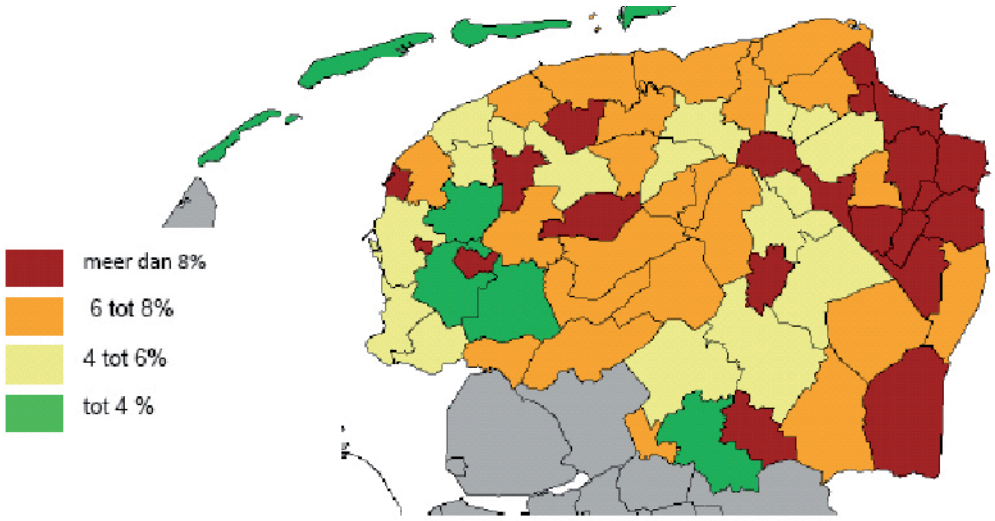

Figure 5. Growth in employment in the Northern part of the Netherlands in the period 2008 - 2009 (fulltime jobs). Categories include (up to/ more than x%) decrease□ ('daling') and growth ('groei'). Source: PWR and LISA'

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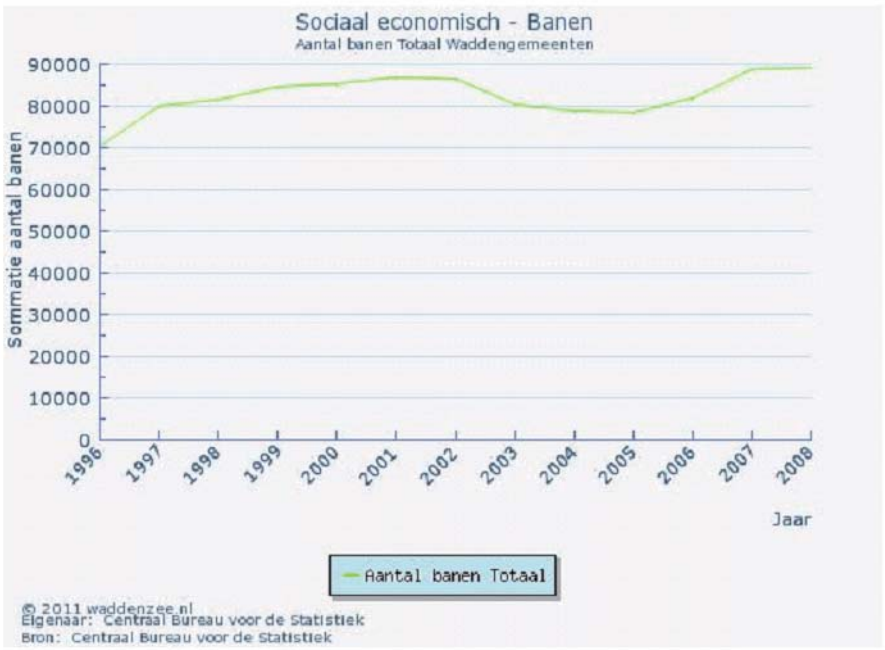

Figure 6 Number of jobs in the Wadden area from 1996 - 2008. Source: CBS

In 2007, jobs in the area consisted of 3% agriculture, forestry and fisheries,19% industry and power supply (among which harbor activities), 43% commercial services (among which tourism) and 35% non commercial services. For the whole of the Netherlands these figures were 2%, 16%, 51% and 31% respectively.

While unemployment in the Northern part of the Netherlands is generally high, unemployment on the Wadden islands is lower than the average of the Northern part of the Netherlands, as shown by the number of people who are unemployed (or are working less than 12 hours per week) and are looking for work (see the figure below). Also, the disposable income on the Wadden islands is higher than the average of the Northern part of the Netherlands.

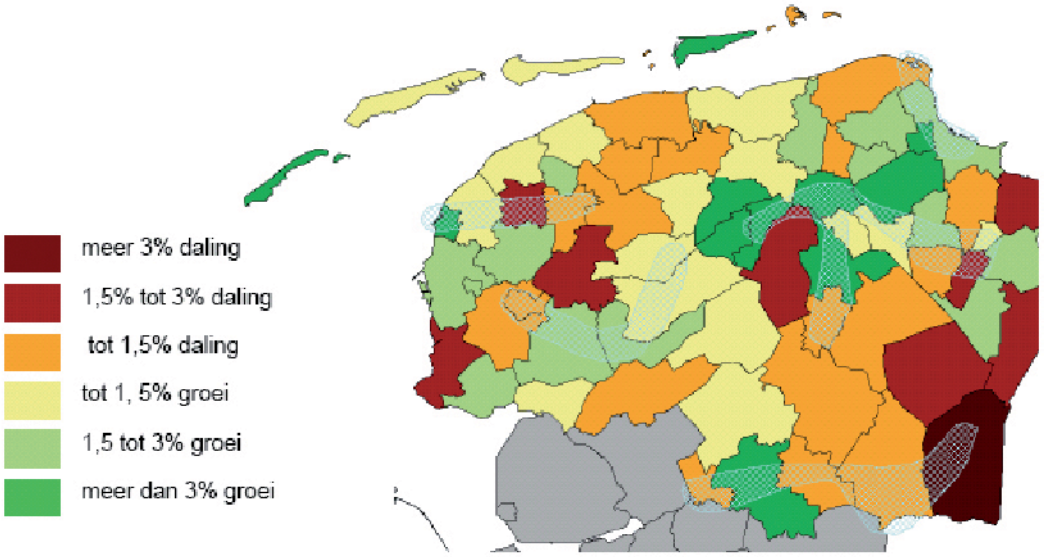

Figure 7. Percentage of the working population that is unemployed (or that is working less than 12 hours per week) and that is looking for work, June 2010. Categories include up to ('tot') and more than ('meer dan') x%. Source: UWV WERKbedrijf.

4 LESSONS LEARNT AND MESSAGES THAT CAN BE CONVEYED FROM THE STUDY

From the case study several lessons can be learnt. These lessons also constitute the main messages from the case study that can be conveyed to policy makers and decision makers.

Aligning economic and ecological interests requires choices

The Wadden area has witnessed a variety of conflicting interests between (conventional) economic activities (such as fishery, port and industrial activities) and nature conservation. As shown by the gas exploitation and cockle fisheries examples certain economic activities may remain possible while others may have to be banned.

Research into what other sustainable economic activities are possible is needed. There may be interesting possibilities for tourism development along the mainland coast as the mainland faces population decline. There are also good perspectives for saline agriculture. Common Glasswort ('zeekraal'), for example, could very well be grown in saline soils in the Wadden area, but is now being imported.

Economic values provide insight in dealing with conflicts of interests

Potential conflicts exist between economic activities. For example, fisheries destroy the food basis of the millions of water and waderbirds, which represent an important tourist asset of the region. In policy making terms, these conflicts boil down to the decision whether or not to restrict certain activities for the improvement of well-being at different spatial levels (regional, national, international). This requires a good insight into the net benefits of activities and of all the values of the area. Economic analysis can provide decision-makers with relevant information. In order to arrive at an optimal trade-off between ecological and conventional economic interests, all the benefits that flow from the Wadden area should be assessed and, where possible, expressed in monetary terms.

Research and monitoring is essential

For an integrated approach, new and different ecosystem knowledge is needed. Presently, it is hard to define ecologically acceptable limits of change as fundamental information is missing. Knowledge at ecosystem level is essential to understand the functioning of the system (especially for a highly dynamic area such as the Wadden area). Social-economic research is essential for determining economic interests. There is an urgent need for economic valuation studies that also quantify the values of ecosystem services and impacts on ecosystem services. Only when (impacts on) ecosystem services have been valued, PES-systems (Payments for Ecosystem Services) can be set up. Policy makers should give researchers the space to experiment and learn. More cooperation between monitoring parties is needed to achieve an efficient monitoring process.

Stakeholder organisation and cooperation is vital

An area the size of the Wadden Sea represents many interests and consequently many organisations play an active role in the area. Willingness of stakeholders to meet each other is therefore a prerequisite. A common objective is key to an approach in which several functions are to be combined. Governments should organise the process of bringing stakeholders together, facilitating them in finding solutions together, and if necessary, include solutions in legislation.

A better organisation of stakeholders with similar interests is necessary for more effective cooperation. Coalitions of stakeholders or a greater role for parties that present several stakeholders (such as the RCW for the Dutch Wadden area) would be desired, given the size of the area. It is for example impossible to discuss fisheries regulations with each individual fisherman; representative bodies, recognised by the fishermen, are needed.

Regional cooperation is essential for the development of an ecoregional vision

The fact that the Wadden area ecologically can not be divided according to

national borders makes an integrated approach more complicated. The Wadden Sea is, from an ecological point of view, one system. Therefore, trilateral/ border crossing cooperation is essential. Initiatives such as TWC are needed for ecoregional economic development, as ecological conditions in one area depend on those in connected areas and as measures are most effective when applied in adjacent areas as well. The Ems harbour case shows the importance of international cooperation and alignment of (economical and spatial planning) policies on an international level.

For uninterrupted regional sea systems such as the Wadden sea, the concerned states will be obliged to develop a regional vision based on the cohesion and functioning of the system. Such a regional vision should indicate the values and functions of the region: how can a sustainable economic and ecological development be realized preserving the existing values and developing the potential values (opportunities). The TWC plan, linking socio-economic and ecological functions of the Wadden Sea to clear objectives, provides an excellent example of such a vision. This development-directed approach needs further elaboration in cooperation at member state level, to do justice to regional differences (ecologically, culturally, legally, economically, etc.).

Both top-down as well as bottom up approaches are needed - watch out for rigidity.

The examples from the mussel and cockle sector show that cooperation between stakeholders is needed at the implementation level, as well as governmental policy development.
The transition in the mussel fisheries sector was induced by the Natura 2000 regulations. The fact that most nature organisations changed their rigid positions on gas extraction and cockle fisheries in the Wadden Sea, was a success factor for EED. Yet a warning is needed on the rigid implementation of regulations. Natura 2000 regulations blocked some nature restoration projects that would additionally function as climate adaptation zones. Rigid implementation of policies may thus limit ecoregional economic development. Similarly, the fact that policies are largely aimed at damage control (such as fishery policy and environmental policy) instead of optimising functions in the context of the marine ecosystem, is obstructing an environmentally friendly sustainable development.

Investments, such as the Wadden fund, creates implementation opportunities.

Availability of money for the financing of nature conservation and restoration activities, and for the development of new sustainable economic activities and buying out unsustainable ones is a great advantage.

EED may require the use of a variety of management instruments

In large complex ecosystems such as the Wadden area, differentiated management arrangements are necessary, with 'zoning' as one of the most important management tools. Within the Wadden Sea region several

approaches and instruments are applied to promote sustainable use: protecting and conserving the ecological integrity, supporting lasting economic prosperity and social well-being. It concerns Integrated Coastal Zone management (ICZM), zoning instruments, the Man and Biosphere approach as well as many examples of interaction with stakeholders (such as the Wadden Sea forum).

What does the case contribute to the discussion on the need to integrate economic/social development with biodiversity conservation?

The Wadden area is unique in the high number of (economic and ecological) interests and high social involvement. Many of the economic interests (e.g. tourism, fisheries, climate adaptation) are linked to ecosystem services provided by healthy ecosystems which stretch beyond country limits. From this viewpoint, integrating economic and social development with biodiversity conservation is key to a successful and sustainable development of the area. The challenge is to assess the value of the different functions and to find the right combination of functions, satisfying different stakeholders' interests. An integral, participative approach is needed to reach an agreement between stakeholders without legal procedures.

Sources

The following people were interviewed as part of this project, via telephone:

- Jouke van Dijk (Professor of Regional Labour Market Analysis, Faculty of Spatial Sciences of University of Groningen)
- Kees van Es (Programmanager 'Towards a Rich Wadden Sea')
- Herman Verheij (Wadden Foundation)
- Sytze Wouda (VROM, 'directie gebiedsontwikkeling, onderdeel Wadden')
- Friesland Province: Anke Kappers (Coˆrdinator Wadden area) , Femke van Akker (Tourism), Truus Steenbrugge (Agriculture), Anne de Vries and Steven van Stralen (Harbours), Arjen van der Mark (Climate adaptation), Bram Hulstman (Recreational harbours).

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