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Suitable Instruments for Integrating Biodiversity Considerations in Climate Change Mitigation Activities, particularly in the Land Use and Energy Sector

by

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Summary of the Final Report

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Research project 202 85 275

The target of the study “Suitable Instruments for Integrating Biodiversity Considerations into Climate Change Mitigation Activities, particularly in the Land Use and Energy Sector”, which was carried out on behalf of the German Federal Environmental Agency, was to compile and evaluate relevant instruments for the integration of biodiversity aspects into climate change mitigation activities.

Climate protection measures within the framework of the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol (KP) comprise a number of activities which may have a potential impact on the protection and the sustainable use of biodiversity. This relation has to be reflected in implementing the UNFCCC and the Convention on Biological Diversity (CBD) and in achieving their objectives respectively. Therefore awareness for both potential conflicts and synergies in this area has evolved in the course of the negotiations on both the conventions. New initiatives were launched in order to better integrate biodiversity aspects when shaping and implementing activities in the framework of the KP. This is also a central demand for the implementation of the CBD (SBSTTA VI/7).

These activities analysed within the scope of this study are carried out within the land-use, land-use change and forestry sector (LULUCF) as well as the energy sector. In this context the present study focuses on climate protection activities which are eligible under the Clean Development Mechanism (CDM) and Joint Implementation (JI), two of the flexible mechanisms of the Kyoto Protocol.

The instruments which were analysed in this document comprise: Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), guidelines, and indicators.

In detail the study covers the following aspects:

- the description and analysis of relevant agreements under the UNFCCC and the CBD;
- the description of guidelines and modalities arrangements for the realisation of activities in the framework of JI and CDM;

- the relevant developments in international investor and financial services of organisations such as the World Bank;
- the potential conflicts and positive effects of climate change mitigation activities on biodiversity;
- the description and analysis of selected instruments for the consideration of biodiversity aspects while planning and implementing carbon sink and renewable energy projects;
- the evaluation of the four instruments - EIA, SEA, guidelines and indicators concerning the integration of biodiversity requirements;
- and the recommendations for the application of these instruments.

Based on this, there is a separate toolkit referring to the specific types of activities and giving concrete advice for the necessary consideration of biodiversity aspects during climate protection measures particularly for land-use change and selected energy projects.

International Conventions and Institutions

Within the framework of the UNFCCC fundamental decisions were taken by means of the Bonn Agreement and the Marrakesh Accords. They particularly concern the application of the flexible mechanisms Clean Development Mechanism (CDM) and Joint Implementation (JI) as well as the crediting of biological carbon sinks. The seventh meeting of the Conference of the Parties of the UNFCCC (COP 7), in Marrakesh laid down that the record obligations for sink projects also had to include information about the impact of these projects on biodiversity. The ninth Conference of the Parties (COP 9), 2003 in Milan, adopted special guidelines for afforestation and reforestation projects (A&R) in the framework of CDM. Eligible activities under the JI are afforestation and reforestation (A&R), forest management, cropland management, grazing land management revegetation and energy activities. Under CDM only A&R and energy activities are eligible. From the latter once more only nuclear energy is excluded.

In the framework of the study the project cycles of both mechanisms were examined in order to identify those places at which the consideration of biodiversity could be integrated as early as possible by means of suitable instruments and the toolkit to be drawn up.

Under the CBD progress has been achieved in formulating global targets, recognising EIA and SEA as suitable tools to integrate biodiversity requirements, recognising the need for indicators for monitoring and reporting and analysing the interrelationship between biodiversity and climate change. An important declaration is the Strategic Plan for the CBD, adopted on the sixth meeting of the COP (Decision VI/26), including the overall target to "achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to benefit of all live on Earth" (UNEP/CBD/COP/7/20/Add.3).

Instruments for the Consideration of Biodiversity Aspects during Planning, Approval and Implementation of Climate Change Mitigation Activities and Projects

Within the framework of the study EIA, SEA, guidelines and indicators were considered to be the most promising instruments. They were specifically examined.

Environmental Impact Assessment (EIA)

The Marrakesh Accords provide for a project design document (PDD) in order to document and evaluate the environmental impacts resulting from a project. In case of significant environmental impacts, an EIA has to be carried out in accordance with the provisions of the legal basis of the host country. This applies to JI as well as to CDM. Going beyond the Marrakesh Accords, EIA is compulsory for afforestation and reforestation projects under CDM according to the provisions of decision FCCC/SBSTA/2003/L.27, §12(c), if there are any negative influences considered to be significant. Their documentation has to be submitted to the designated operational entity by project participants and be based on the analysis of socio-economic and environmental impacts including impacts on biodiversity, natural ecosystems and areas beyond the project boundaries. In the case of CDM, an additional confirmation from the host country has to be obtained stating that the planned project contributes to sustainable development.

Dealing with ventures of significant environmental impact the host country may not define how to carry out EIA in detail. CDM projects are particularly concerned. Upon condition that EIA regulations about the participation of the public are lacking, one should opt for the World Bank's EIA procedure (Environmental Assessment (OP/BP 4.01)) in order to apply minimum standards. Although legally binding EIA regulations exist, the provisions often do not sufficiently consider biodiversity. The study gives detailed advice which basic aspects for biodiversity conservation should be considered in designing and planning climate change mitiga-

tion projects. The two documents CBD UNEP/CBD/COP/6/20, Decision VI/7, Appendix 2 (2002) and UNEP/CBD/SBSTTA (2003) represent important and helpful documents giving instructions to integrate biodiversity aspects during the different steps of an EIA.

Strategic Environmental Assessment (SEA)

SEA is an appropriate tool for including biodiversity requirements into climate-related plans, programmes and policies. The main actors who will apply SEAs are national and regional authorities or governments, and donor or funding agencies that fund climate projects. However, a broad application of SEA, especially for LULUCF projects, depends on the national regulatory frameworks and on the question if SEAs are considered compulsory for the type of projects and activities possibly considered. It also depends on the question whether project-based activities are part of a formally stated policy, plan or programme or if they are just planned and carried out independently and negotiated directly between the investor and the host country. The adoption of a formal national or regional policy, plan or programme is not a binding requirement for participation in the CDM or JI mechanisms (Decisions 17/CP.7 and 16/CP.7).

Guidelines

Guidelines are well-known instruments for integrating biodiversity requirements into policy sectors other than environment, i.e. in the forestry, energy and agricultural sectors. They contribute to facilitate policy options, planning mechanisms and management processes for effective implementation of sustainable land use systems. This study deals with framework guidelines such the ecosystem approach, developed under the CBD, and with guidelines in areas which are relevant for different types of climate change mitigation activities.

Indicators

The discussion and analysis of indicators follow a two-string approach:

- The first string gives an overview on the development of biodiversity indicators at global, European and national levels.
- The second string structures indicator sets and approaches according to different thematic areas which offer the possibility to design climate mitigation projects under the provisions of the KP and the MA. These comprise land management including

cropland management and grassland management and the restoration of degraded areas, and energy including hydropower and dams and biomass production.

The present study provides an overview of the institutions involved in indicator development, thereby highlighting concrete results, and actual efforts undertaken and identified gaps.

In this context the first part describes, for example, the development of indicators by the UN Food and Agriculture Organization (FAO), the (Organization for Economic Cooperation and Development (OECD), the CBD, and the Millennium Ecosystem Assessment (MEA). The Land Quality Indicator (LQI) program is one of the important processes in this context describing the links between the pressures on land and biodiversity induced by human activities, in this case carbon mitigation activities.

A second part of the chapter on indicators outlines indicators which directly address land as a whole as well as indicator sets which concentrate on a certain aspect of land. These general approaches as well as indicator sets focusing on cropland management and livestock as well as specific grassland management indicators relate to climate mitigation projects and are presented in the respective chapters. However, the use and development of biodiversity indicators face the following constraints:

Despite the intensive work of many organisations and initiatives on the development of biodiversity indicators DELBAERE (2002) stated a big discrepancy between scientific indicator development and policy requirements.

There is a further incompatibility concerning the technical requirements of indicator sets and the data availability. WETTERICH & KÖPPKE (2003) came to the conclusion that the majority of the OECD indicators cannot be applied for national monitoring because the available data do not meet the technical requirements. In order to develop suitable state indicators an appropriate data base has to be provided. In the UK or Switzerland i.e. the data availability is given due to respective programmes for the assessment of the state of biodiversity in these countries. Some regions lack the political or scientific framework for additional research. In other regions, i.e. drylands, comprehensive data collection is difficult to achieve due variable climate and diversity of responses to rainfall (BUNNING 2003).

Furthermore there are numerous specific national, regional and local policies as well as local and site-specific conditions which require a profound selection or generation of indicators for the integration of biodiversity concerns.

To date, a number of state indicators has already been developed as well as pressure indicators. Impact and cause-effect indicators should complement the indicator sets in the future.

The level of indicator applicability should be clearly indicated like i.e. outlined in the preliminary list of sustainable development indicators by Eurostat (European Commission 2004).

Harmonisation and coordination of ongoing indicator developments or existing indicator sets have already started in some areas, i.e. agro-biodiversity indicators, and should become one of the premises in indicator development.

Conclusion of the Results

The analysis of the study brought forward that all the instruments incorporate aspects on how to consider biodiversity in climate projects. Nevertheless for an optimal integration of biodiversity considerations into climate change mitigation activities also the four investigated instruments had to be still adapted and developed. Table 1 provides an overview of the advantages and disadvantages of these instruments.

Table 1: Advantages and disadvantages of different instruments in integrating biodiversity aspects

Instrument	Advantages	Disadvantages
EIA	EIA is widespread and commonly used in many countries. EIA often is founded on a legal basis. A large set of proven methods and procedures as well as best-practice from many sectors is available. EIA has political backing in the international climate and biodiversity policy process.	In many countries, the consideration of biodiversity aspects is not explicitly required in EIA legislation. Many climate project types would not be subject to an EIA because the agriculture and forestry sector are not included in EIA legislation in some countries. In practice, EIA often fails to include biodiversity aspects adequately into EIA due to lack of time, funding and expertise - especially if biodiversity is not mentioned explicitly in the terms of reference.
SEA	SEA overcomes an important weakness of project-based EIA in that it can be used to assess a wider range of possible alternatives. Different mitigation options, e.g. including or excluding LULUCF sector activities, could be tested against each other. If SEA is carried out early, certain activities, project types or areas could be excluded from	Not many countries have established binding regulations on SEA, especially developing countries lack legislation on this instrument. There are no standard methods that could be applied internationally. The costs for a SEA are usually not borne by the project proponent, as in EIA, but by the public. This could be a disincentive for developing coun-

	the very beginning before the planning stage. SEA is currently gaining importance worldwide, especially in organisations like the World Bank that are working in the field of carbon funding. SEA has political backing in the international climate and biodiversity policy process.	tries to apply the instrument, as they would have to bear the additional costs. The inclusion of biodiversity aspects is not well-established in SEA practice.
Guidelines	Guidelines are an internationally widespread approach for bearing in mind ecological consequences of management measures (e.g. forestry, grassland, etc.) or other activities (e.g. dams). Guidelines have been applied for a long time and proved to be effective e.g. in sustainable land management. Guidelines can be drawn up for different levels in order to meet the respective (government) specifications and the required extend of consideration of biodiversity aspects; they can also be adjusted in detail to the respective ecosystem.	Worldwide many guidelines exist already for some areas of land use activities. However when applied, the extent of consideration for biodiversity differs considerably (e.g. the different forest guidelines). Some approaches only state the requirement: “Biodiversity is to be considered resp. to be protected”. The use of such guidelines does not guarantee optimum realisation of all requirements in the context of the CBD. For some project types or ecosystems suitable guidelines do not exist to sufficiently consider biodiversity aspects. Additionally, in order to use guidelines indicators are often needed for monitoring. If these indicators are missing (see above), the adequate realisation is hard to control.
Indicators	Indicators support detained analysis of driving force, pressure, state impact, and response as well as cause-effect relationship. Suitable means for monitoring and reporting and sit-selection. Indicators might directly flow into political decision making processes. Reliable statements for projects involving land uses which do not require EIA or SEI.	Discrepancy between scientific indicator development and policy requirements. Data availability does not always meet technical requirements. Specific indicator set required for variety of project types, ecosystems and land management. Indicator generation time-consuming and costly. <u>General Constraints:</u> Indicator development and research relies upon adequate political and scientific framework. Data collection might be difficult due to external factors (i.e. climate variability).

		Scientific uncertainty and poor understanding of ecosystem processes.

The instruments analysed have reached a good level of development; they can already form the basis for preventing significant adverse impacts on biodiversity when designing and realising climate projects e.g. according to the CDM. Some of these instruments and guidelines have already been implemented, i.e. in the context for sustainable forest or grazing land management. As these activities are also quoted under the Marrakesh Accords, they represent suitable instruments for future climate change mitigation projects.

The Environmental Impact Assessment (EIA) is an internationally widespread approach for considering ecological consequences of measures and actions, in many countries EIA is already founded on a legal basis. The requirements for making an EIA can vary considerably. These requirements could sometimes be more specific or explicit especially as to considering biodiversity aspects when carrying out a measure. At the same time, there are already promising approaches for an improved integration of biodiversity-related issues into environmental impact assessment legislation. For this reason, the minimum requirements for EIA set up by SBSTTA should generally be taken into account for climate projects in order to assure sufficient protection for biodiversity.

SEA is not well-established in comparison to project-based EIAs. SEA can be interpreted in many different ways and is less suitable for the implementation of biodiversity aspects in specific project types. Nevertheless it is a good instrument at the level of plans and programmes. It can be used e.g. for large-scale planning which project type can be carried out in which regions without negative impacts on biodiversity. Moreover SEA can be used for analysing climate policies of individual countries in order to take into consideration biodiversity aspects for all climate change mitigation activities and for improving the integration of adaptation measures.

For some activities EIA is obligatory due to the respective legislation; in other cases however, the authors think EIA is not necessary to assess impacts on biodiversity. Concerning activities such as grazing land, cropland, and forest management, for example, we can stipulate (i) that there are either no significant adverse impacts on biodiversity; or (ii) that well developed other adequate instruments exist which can guarantee a sufficient consideration of biodiversity aspects. In any case, project planning should include scoping the possible effects on biodiversity as well as the existing gaps in data and information about the project area in order to propose measures for closing the data gaps.

For hydropower activities (run-off river and storage dams) however, an EIA should be obligatory because particularly dam projects always cause a significant adverse impact on biodiversity. In use of biomass, and revegetation activities it must be observed individually if the project activity will result in significant environmental impacts.

Indicators are used on many different political levels. They can be used as an independent instrument (monitoring and reporting) but also as an important supplement for EIA and guidelines in order to integrate biodiversity concerns into climate projects.

Numerous indicator sets already exist in the areas of cropland and grazing land management. However for project developers they are neither systematised nor made available. Furthermore there is hardly any guidance yet on practical application.

On the one hand, indicators are important for consideration and assessment of biodiversity with regard to state, trends, and impacts; on the other hand, indicators also play an important part for the assessment of political integration of biodiversity in other political areas. The European Environment Agency and the European Commission are intensively working in this field and published respective indicators. However this is not discussed on a global scale yet.

Generally the DPSIR framework is often quoted but still there are predominantly state indicators, a limited number of impact indicators and very few approaches to assess cause - effect relationship, and responses. This is in many cases accompanied by gaps in the data availability.

There are numerous specific regional, national and local policies as well as local and site-specific conditions which require a profound selection or generation of indicators for the integration of biodiversity concerns. This requires a time-consuming and costly process.

For site selection, decision making processes, monitoring and reporting functions in climate mitigation project indicators are a fundamental means. But to date their application is limited in practice due to the lack of suitable data in any regions of the world. For this reason the further development of indicators should be intensified.

Guidelines differ considerably in quality and intensity as to integrating biodiversity aspects not only within the same project type (e.g. forest management) but also on the different project levels and between the different project types. International regulations such as the ecosystem approach are not sufficiently precise yet in order to make sure a specific project considers biodiversity aspects, they nevertheless form the basis for regulations to be drawn up later e.g. on a national level.

In the forestry sector, many different regional guidelines already today form a good basis (which can of course be optimised as to considering biodiversity aspects). In other projects, suitable project guidelines still need to be evaluated.

Overall, the discussed instruments need optimisation in order to integrate biodiversity requirements more detailed into account for the project types mentioned above.

Apart from this discussion, particularly the realisation of sink projects should not cause additional significant negative impacts on biodiversity.

The study also shows that in consistently implementing the existing instruments it is already possible to contribute considerably to maintaining biodiversity during carrying out climate mitigation activities. It is therefore important to persistently use these instruments when implementing climate change activities in the context of CDM or JI or on a voluntary basis in the context of domestic actions and all other activities to cope with climate change while working on their improvement to better include biodiversity aspects. This means that existing knowledge gaps (e.g. data for indicators) need to be closed.

Toolkit

In order to give practical information about suitable instruments and decision support, the toolkit “Integration of Biodiversity Concerns into Climate Change Mitigation Activities” was elaborated on the basis of the results of this study. It is published separately by the Federal Environmental Agency of Germany. The objective of this toolkit is to provide practical guidance on designing climate mitigation projects or activities in a way that will also benefit biodiversity. It is designed for experts who plan, implement or evaluate climate change mitigation activities. It is also a useful tool for stakeholders that are involved in a project cycle for CDM or JI project activities.

The first part of the toolkit provides an overview of possible climate mitigation activities, especially in the LULUCF and energy sector, and their possible benefits and negative impacts on biodiversity. The second part introduces selected instruments that could be applied for the integration of biodiversity aspects into climate change mitigation activities. The advantages and disadvantages of these instruments for the indicated purpose are discussed and further literature for practical work with these instruments is presented. The third part of the toolkit is intended to help project planners or evaluators (e.g. Designated Operational Entity (DOE), Independent Entity or Designated National Authority (DNA)) to apply these instruments and the relevant biodiversity aspects on an activity-specific basis. This section contains a series of decision trees and checklists for the most common project types.