Wuppertal Institute
for Climate, Environment
and Energy

Further Development of the Project-Based Mechanisms in a Post-2012 Regime

Final Report of the Project Commissioned by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

FKZ KI I 4- UM08 41 727

Final Report

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Federal Ministry for the
Environment, Nature Conservation
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November 2009

Publisher's Information

Publisher:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

11055 Berlin, Germany

Website: www.bmu.de

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Acknowledgements

This report is based on an R&D project commissioned by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, FKZ KI I 4- UM08 41 727.

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List of Acronyms

ADATS	Agricultural Development & Training Society
ANAM	Autoridad Nacional del Ambiente (Environmental National Authority, Panama)
AWG-LCA	Ad Hoc Working Group on Long-term Cooperative Action under the Convention
AWG-KP	Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
BM	Build Margin
BMU	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)
BRT	Bus Rapid Transit
CABEI	Central American Bank of Economic Integration
CAN	Climate Action Network
CBCP	Colombo Bagasse Cogeneration Project
CBD	Convention on Biological Diversity
CCB Standards	Climate, Community & Biodiversity Standards
CCBA	The Climate, Community & Biodiversity Alliance
CCPG	Central China Power Grid
CCS	Carbon Capture and Storage
CDCF	Community Development Carbon Fund
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CETESB	Companhia de Tecnologia de Saneamento Ambiental (State Secretariat of the Environment)
CFCs	Chlorofluorocarbons
CFLs	Compact Fluorescent Lamps
CIMGC	Comissâo Interministerial de Mudança Global do Clima (Interministerial Commission on Global Climate Change, Brazil)

CISA	Consorcio de Inversiones S.A.
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMP	Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2-eq.	Carbon dioxide equivalent
COG	Coke Oven Gas
COP	Conference of the Parties to the UNFCCC
CORDELIM	Oficina Nacional de Promoción del Mecanismo de Desarrollo Limpio del Ecuador (The National CDM Promotion Office in Ecuador)
CPP	Captive Power Plant
CWEME	China National Water Resources & Electric Power Materials & Equipment Co. Ltd
DAIA	Departamento de Avaliação de Impacto Ambiental (Department of Environmental Impact Assessment, Brazil)
DFP	Designated Focal Point
DNA	Designated National Authority
DNV	Det Norske Veritas
DOE	Designated Operational Entity
E2RC	Environment and Research Center
EB	CDM Executive Board
EBP	Ernst Basler + Partners Ltd.
EBRD	European Bank for Reconstruction and Development
EEAA	Egyptian Environmental Affaires Agency
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERPA	Emission Reductions Purchase Agreement
ESAP	Environmental and Social Action Plan

ETS	Emissions Trading Scheme
EU	European Union
EvD	Evaluation Department
FBOMS	Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e o Desenvolvimento (Brazilian Forum of NGOs and Social Movements for the Environment and Sustainable Development)
FONAM	Fondo Nacional del Ambiente, Perú (National Environmental Fund, Peru)
GDP	Gross Domestic Product
GHG	Greenhouse gas
GMOs	Genetically Modified Organisms
GS	CDM Gold Standard
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
HCVs	High Conservation Values
HFC	Hydrofluorocarbons
IFC	International Finance Corporation
ILO	International Labour Organization
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPDP	Indigenous Peoples Development Plan
IPM	Integrated Pest Management
IRR	Internal Rate of Return
IVM	Integrated Vector Management
JI	Joint Implementation
KBA	Key Biodiversity Area
LDCs	Least Developed Countries
LoA	Letter of Approval
LRF	Livelihood Restoration Framework
LULUCF	Land-Use, Land-Use Change and Forestry

MARENA	Ministerio del Ambiente y los Recursos Naturales (Ministry of the Environment and Natural Resources, Nicaragua)
MARN	Ministerio de Ambiente y Recursos Naturales (Ministry for Environment and Natural Resources, El Salvador)
MDGs	Millenium Development Goals
MDL	Mecanismo de Desarrollo Limpio (Clean Development Mechansim)
MINEC	Ministerio de Economía (Ministry of Economy, El Salvador)
MPPL	Malavalli Power Plant Pvt Ltd
n.a.	Not applicable
n.d.	No date
N_2O	Nitrous oxide
NAMAs	Nationally Appropriate Mitigation Action
NGO	Non-governmental Organisation
NH_3	Ammonia
NO	Nitric oxide
NO_2	Nitrogen dioxide
NO_x	Mono-nitrogen oxides (NO and NO_2)
NPV	Net Present Value
O&M	Operation and Maintenance
OAMDL	Oficina Argentina del Mecanismo para un Desarrollo Limpio (Argentine Agency of the Clean Development Mechanism)
OCIC	Oficina Costarricense de Implementación Conjunta (Costa Rican Agency for Joint Implementation)
ODA	Official Development Aid
ODL	Oficina de Desarrollo Limpio (Agency for Clean Development, Bolivia)
OHS	Occupational safety and health
OLADE	Organización Latinoamericana de Energía (Latin American Energy Organization)

OM	Operating Margin
ONDL	Oficina Nacional de Desarrollo Limpio (National Agency for Clean Development, Nicaragua)
PACO	Programa de Atención Comunitaria (Community Engagement Programme)
PAMA	Plan de Acción y Manejo Ambiental (Environmental Action and Management Plan)
PCBs	Polychlorinated biphenyls
PDD	Project Design Document
PFC	Perfluorocarbons
PIN	Project Idea Note
PNUD	Programa de las Naciones Unidas para el Desarrollo (United Nations Development Programme)
POPs	Persistent Organic Pollutants
PPA	Power Purchase Agreement
RAP	Resettlement Action Plan
REDD	Reducing Emissions from Deforestation and Forest Degradation
REEEP	Renewable Energy & Energy Efficiency Partnership
RPIs	Relevant Performance Indicators
Rs.	Rupees
SBSTA	Subsidiary Body for Scientific and Technological Advice
SEED	Society for Energy and Environmental Development, India
SERNA	Secretaria de Recursos Naturales y Ambiente (Office for Natural Resources and the Environment, Honduras)
SF_6	Sulphur hexafluoride
SO_2	Sulphur dioxide
SO_x	Sulphur oxides (e.g. SO_2)
SSC	Small Scale CDM
SSN	SouthSouthNorth
TASMA	TamilNadu Spinning Mills Association

TBH	Tenaska Bolivia Holdings SRL
TGO	Thailand Greenhouse Gas Management Organization
TIMS	The Tabbin Institute for Metallurgical Studies
TNEB	Tamil Nadu Electricity Board
TSPs	Total Suspended Particulates
TÜV	Technischer Überwachungs-Verein (Technical Inspection Association)
UN	United Nations
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
VCS	Voluntary Carbon Standard
VER	Verified Emission Reduction
WB	World Bank
WBGU	Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (German Advisory Council on Global Change)
WCD	World Commission on Dams
WHO	World Health Organization
WWF	World Wide Fund for Nature

Executive Summary

Background and Project Objective

While the Clean Development Mechanism (CDM) continues to grow rapidly, there are many critics doubting its climate integrity and its contribution to sustainable development. Against this background, the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit) commissioned the Wuppertal Institute to conduct a study on the further development of the project-based CDM within the future climate regime. The study focuses on how to foster the CDM's quality in terms of its contribution to sustainable development and technology transfer, as well as quantitative aspects, that is, the environmental integrity of CDM projects. The aim was to develop concrete recommendations on how to improve the effectiveness of the CDM in qualitative and quantitative terms.

The analysis in this project consists of four main parts:

- First, an analysis of the "CDM Gold Standard" (GS). The aim of this analysis is to assess the robustness this premium label and determine whether elements of the GS could be adopted for the CDM as a whole.
- Second, an analysis of "conventional" CDM projects. The aim of this part is to find further best practice examples of sustainable development benefits and the demonstration of additionality under the conventional CDM.
- Third, an analysis of the approval procedures of the host country Designated National Authorities (DNAs). Here as well the intention is to survey the current practice and if possible identify elements that might be suitable to be adopted for the CDM as a whole.
- Fourth, the report takes into account the proposals for reforming the CDM that have been tabled in the international negotiations and their current status. This analysis in particular aims at assessing to what extent it would be politically feasible to implement the results derived from the aforementioned analysis under the United Nations Framework Convention on Climate Change (UNFCCC).

The final chapter presents recommendations on improving the CDM based on the outcomes of the analysis.

Results

Summary Assessment of the CDM Gold Standard

Positive List

The GS only allows renewable energy and end-use energy efficiency projects. The aim of this list is to focus efforts on projects that are seen as most important for climate change mitigation and most likely to contribute to sustainable development, screening out project types that are seen to have a limited potential to contribute to these objectives.

However, a positive list screening out everything except renewable energy and end-use energy efficiency can be considered an arbitrary definition of sustainable development. There are certainly other project types that also contribute to sustainable development, such as transport or sustainable waste management practices.

Safeguarding Principles

Under the GS, the project developer has to apply the UNDP (United Nations Development Programme) safeguarding principles. These principles are derived from the Millennium Development Goals (MDGs). To comply with these principles, the project developer has to submit a description in how far a principle is relevant to the CDM activity, an assessment of the gravity of the risks, and the corresponding mitigation measure that is planned to be undertaken.

In general, it appears sensible to make use of clear criteria in order to ensure that projects at a minimum do not cause harm such as human rights violations. Unfortunately, all of the GS projects analysed in this study were developed according to version 1 of the standard, which did not include the safeguarding principles (projects based on GS version 2 were not yet sufficiently advanced in the project cycle to be useful for inclusion in the analysis). Therefore, no practical experiences could be assessed. However, the safeguards are generally in line with safeguards defined by multilateral financial institutions such as the European Bank for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC).

Sustainable Development Matrix

To be eligible for the GS, project developers need to assess their projects against a list of criteria of environmental, social and economic impacts. Its application is handled flexibly. In order to avoid unnecessary costs and to assure that application is feasible, the projects proponents are not required to assess criteria that will obviously not be affected. Moreover, the GS does not require to commission quantitative impact assessments, but settles for doing a plausible qualitative explanation of the potential impacts. The most important means to assure high quality is a “bottom-up review process”, meaning that the GS experts closely monitor project design and implementation.

On this basis, it is clear that there is a certain degree of subjectivity involved in the matrix assessment. This was also confirmed by the interviews the research team conducted. But there is obviously a trade-off between objectivity and transaction costs, especially for a voluntary standard like the GS. Requiring detailed quantitative analysis of project impacts would substantially increase implementation costs and thus make use of the GS increasingly unattractive.

The value of the matrix can therefore be seen in making project participants think about how their projects impact local conditions with regard to aspects that are seen as key, such as water quality, employment etc. It also serves to make the assessment transparent by requiring presentation in an easily accessible scoring format.

Stakeholder Consultation

The GS demands a comprehensive stakeholder consultation. This includes at least two meetings, both of which have to be prepared and carried out in a non-technical manner. This is to be proven by a detailed documentation. In addition, the global network of GS supporter non-governmental organisations (NGOs) is expected to critically assess the project design.

The analysis of the implementation of the stakeholder consultations in practice has yielded a mixed result. In some host countries the lack of a discussion culture is a problem. Stakeholders sometimes think that they are tested on their knowledge of the projects and answer questions so as to show that they have learned something about the project instead of discussing projects critically. Moreover, in case of more controversial projects, local residents may be intimidated and not voice all their concerns if the stakeholder consultation takes place in the presence of government officials. Nevertheless, other cases showed that the GS requirements for stakeholder consultation result in more ambitious consultations and serve to improve the projects.

The GS supporter NGOs are not really able to fulfil their quality assurance function: They usually do not have the capacity to look into specific projects, not even the local chapters of internationally organised NGOs such as Greenpeace.

Additionality requirements

As regards the demonstration of additionality, the GS relies on the official UNFCCC additionality tool and the combined tool and is hence vulnerable to the same weaknesses. Given that analysts consider a significant proportion of the CDM project portfolio to be actually non-additional, it is very likely that the GS is similarly affected.

The assessment of the GS projects in this study shows that indeed GS projects are not necessarily best practice examples for the demonstration of additionality. While some projects are in parts very strong in terms of clarity and transparency, in all projects there are elements that are not convincing due to insufficient specificity of statements, insufficient transparency and lack of independent sources.

Sustainability Monitoring

In addition to the ex ante assessment, the GS project developer has to submit a sustainability monitoring plan. This is used to verify ex post if the CDM project has indeed contributed to sustainable development as assessed ex ante.

The GS's ex post monitoring can be regarded as an innovative instrument since it reassesses the project developer's ex ante information. It can be assumed that this requirement makes the project developer consider the impacts of the project early in the process and in as much detail as possible.

However, the requirement to only monitor indicators where the ex-ante assessment yielded a non-neutral score creates an incentive to keep the ex-ante analysis brief in order to minimise the monitoring requirements.

Costs and Benefits

From our analysis it can be concluded that the GS does not impose an undue burden on project participants. All project developers that were interviewed responded that the GS requirements are manageable and can be met with a reasonable amount of additional work.

However, the additional investment does not always pay off. While there is strong interest for the GS on the voluntary market, compliance buyers have so far shown very little interest in the GS since it legally makes no difference whether they use conventional or GS credits. For some projects the higher price has acted as a disincentive for buyers.

Gold Standard Conclusions

In conclusion, our analysis shows the GS to be a tool that can be applied by project participants without too many problems. They generally consider the additional effort required to be manageable.

In part, this is certainly due to the flexible approach of the GS, which allows for different understandings of sustainable development. The sustainable development matrix mainly serves to make sure that all aspects that may be important are considered for each project and to provide transparency. It is not applied as a strict tool requiring a detailed quantification of all criteria. The most important means to assure high quality is the close co-operation of project developers with independent institutions and local stakeholders.

The stakeholder consultation requirements with their demands for at least two rounds of consultations and making project information easily available appear robust. Weaknesses that appeared in the analysis are largely due to general lack of capacity within civil society in developing countries. Obviously, the GS can only provide tools to improve the situation within the project, but not solve more fundamental problems not connected to the projects as such.

Assessment of Conventional CDM Projects

Assessment Regarding Sustainable Development

The analysis of the selected conventional CDM projects showed that the existence of host country sustainable development criteria does motivate project developers to think about sustainable development aspects. Half of the projects analysed did in fact demonstrate at least in theory that their project activity yields co-benefits beyond greenhouse gas (GHG) reduction. Whether these benefits actually materialised was impossible to verify as there is no ex-post monitoring of sustainable development aspects and no stakeholders or civil society organisations could be found that had engaged in any of the projects.

Assessment Regarding Additionality

As for additionality, it can be said that the analysed Project Design Documents (PDDs) did, broadly speaking, not reveal any approaches that could be considered best practice. To the contrary, from the PDDs and validation reports, additionality is at least doubtful in all cases.

Most of the PDDs using an investment analysis derive all or at least a certain number of decisive parameters from company-internal information. In addition,

no PDD sufficiently justified why certain key parameters in the sensitivity analysis were altered by a certain percentage.

The barrier analyses have a very similar shortcoming: they seldom substantiate the barriers. The use of independent sources to substantiate facts and figures claimed in the PDDs is especially rare.

The picture does not change with regard to the current practice analyses. In many cases project proponents try to very narrowly describe their respective technology/business approach in order to distinguish them from other activities and claim that their project is the “first of its kind”.

Assessment of DNA Approval Criteria and Procedures

As for the DNA’s sustainable development criteria, transparency and clarity are the main problems. The analysis shows that most host countries have a rather general list of non-binding guidelines rather than clear criteria. This makes it easy to comply with the requirements: PDD sections on sustainable development as well as validation reports tend to have vague wording avoiding concrete and verifiable statements.

Also, it is usually unclear whether and how criteria are weighted by the DNAs in the approval process: this adds to the tendency to keep PDD texts very general and vague. Without clear guidance how to evaluate sustainable development aspects, the process gets highly subjective and leaves too much room for interpretation – for both applicants and evaluators.

It would increase transparency if at least every DNA criterion was to be mentioned and addressed in a list, even if only with a “not applicable” entry.

A further problem is that although Designated Operational Entities (DOEs) review the environmental assessment and the documentation of stakeholder consultations, they have no mandate to validate compliance with host country DNA criteria. This leads to claims of sustainable development benefits that are never evaluated. Theoretically, DNAs could take over at least the monitoring. However, most of them would run into capacity problems. Even “large” DNAs such as the Brazilian one do not see themselves as able to do this systematically.

The stakeholder consultation is often only rudimentary, completely unregulated and badly documented. An exception is the Brazilian example with its obligation to inform at least 10 stakeholder groups including the Brazilian NGO forum. Another useful approach is the Nicaraguan requirement for a letter of approval from the local mayor’s office. However, the capacity problem on the part of civil society remains.

Similar to the GS projects analysed in this study, the number of "conventional" projects that actually changed after stakeholder consultation is extremely limited: among the projects analysed, not a single project was changed, at least not the activity in itself.

Current Status of the Negotiations

The future of the flexible mechanisms is being discussed under both the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) and the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP). The discussions under the AWG-LCA mainly focus on "new" mechanisms, namely sectoral approaches and crediting of nationally appropriate mitigation actions (NAMAs). As this study focuses on the project-based CDM, these discussions are beyond the scope of this report.

The following section will lay out and assess the proposals for improving the environmental integrity and contribution to sustainable development of the CDM that have been tabled under the AWG-KP. To provide a comprehensive picture of all the proposals that have been negotiated, the discussion is not only based on the draft decisions that were under discussion in the latest rounds of the negotiations in November 2009 in Barcelona, but is also based on a previous version from April 2009 that contained additional proposals that are no longer present in the current text. These were in particular the introduction of positive or negative lists and making achievement of co-benefits mandatory for registration under the CDM.

Proposals that do not relate to standards for environmental integrity and sustainable development, such as measures to improve the regional distribution of projects, are not discussed.

Standardised, Multi-Project Baselines

Under the current CDM rules, baselines are established individually for each project on the basis of a methodology approved by the CDM Executive Board (EB). In the negotiations, it has been proposed that the EB should define standardised baselines "by establishing parameters, including benchmarks, and procedures". These standardised baselines could then be used for the demonstration of additionality and calculation of emission reductions.

In fact, the EB has in the past already moved in this direction, for example with the approval of methodology ACM 0013 for highly efficient fossil fuel fired power plants. This methodology establishes the baseline using a benchmark that is based on the 15% most efficient plants in the host country that use the same fossil fuel.

Expanding this approach and in particular mandating the EB to develop such baselines on its own initiative would be useful to move towards more objectivity in the CDM.

However, defining appropriate standardised parameters like benchmarks would be a complex challenge since it would need to take into account the specific circumstances of a technology, country and sector. This shift in approach from bottom-up to top-down methodology development would therefore probably necessitate a further strengthening of the technical capacity at the EB.

In addition, it bears noticing that additionality testing and baseline setting can never be fully objective. The baseline-and-credit approach of the CDM measures projects based on assumptions about what would have happened in the future under “business as usual” conditions, which is by definition hypothetical. Regulating additionality testing is therefore always a balancing act between accepting non-additional projects and shutting out truly additional projects. Similarly, setting the baseline is always a balancing act between setting it too high or too low. Where this balance should be struck is a policy decision.

Positive or Negative Lists

While not present in the current negotiation text, previously the text contained an option to introduce positive or negative lists of project types. According to the older negotiation text from April 2009, establishing a positive list would have meant to establish a list of project types that would have been assumed to be nearly always additional and thus would not have been required to undergo project-by-project additionality testing. A negative list would exclude specific project types that are assumed to nearly always be non-additional from eligibility.

From the perspective of environmental integrity, it does not seem recommendable to simply assume a specific type of project to be always additional. Whether a project would be viable without the CDM always depends on the specific circumstances.

A central feature of the GS is a positive list in another sense: The restriction of eligibility to renewable energy and demand-side energy efficiency projects.

Positive or negative lists in principle appear as a very easy way to rule out project types that are generally seen as undesirable. However, while such lists may be useful to prevent harmful projects, their use to promote good projects seems limited. It would be too simplistic to assume that certain project types are generally positive as a matter of principle.

It might therefore be recommendable to solve problems related to particular project types not at the level of the CDM but at a higher level. For example, emissions of industrial gases would seem to be a good candidate for being tackled through NAMAs, as are currently being negotiated for developing countries under the UNFCCC. Usually, these gases can be reduced through relatively simple end-of-pipe solutions, which could be mandated by regulations in developing countries. Industrialised countries could compensate developing countries for the associated costs through fund-based financing approaches.

Co-Benefits

The current negotiation text contains three options to address co-benefits of CDM projects:

1) To not take a decision on this issue
2) To request the EB to implement measures to enhance the “visibility” of co-benefits
3) To promote co-benefits with the following measures
   (a) exemption from or postponement of fees
   (b) expedited registration process
   (c) application of simplified modalities and procedures

For option 3, the text contains a draft list of such co-benefits. A DOE would validate the achievement of co-benefits.

One option in a previous version of the negotiation text went even further. According to this proposal, projects would have been required to demonstrate specific co-benefits as a requirement for registration. That is, projects that did not demonstrate co-benefits would not have been eligible for registration.

The list of co-benefits in the current negotiation text is very generic. In particular “economic growth” would probably apply to all CDM projects. The elaboration of co-benefits would therefore need to be more sophisticated. In particular, either the Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol (CMP) or the EB would need to define specific indicators to measure whether a project is achieving co-benefits.

As for the proposed promotion measures, an exemption from or postponement of fees would set a positive incentive to achieve co-benefits. By contrast, it does not seem clear what could be a useful simplification of the project cycle for projects with co-benefits that would not threaten to undermine the environmental integrity of the CDM. If simplifications can be made without endangering the CDM’s environmental integrity, it does not seem clear why

such simplifications should apply only to projects with co-benefits and not to all projects.

Multiplication and Discount Factors

So far, each tonne of emission reductions under the CDM is rewarded with one Certified Emission Reduction (CER) which can be used to offset 1t carbon dioxide equivalent (CO_2-eq). The current negotiation text contains a proposal to introduce multiplication and/or discount factors, that is, to increase or decrease the number of CERs issued. The text does not specify on what basis multiplication or discount factors should be applied.

As discussed with regard to standardised baselines, no approach to demonstrating additionality and setting the baseline can ever be perfect. Discounting is a possibility to address this problem at the aggregate level for the mechanism as a whole: if one estimates that x% of all CERs are not additional, one could discount CERs by that percentage. If the discount rate is set higher, even a net environmental benefit may be possible.

The problem with this approach is that it would hurt the truly additional projects, which actually do depend on the CER revenue to become viable. By contrast, non-additional projects would only have their windfall profits reduced and could still be brought forward. Therefore, discounting is not an instrument to screen out individual non-additional projects. Nevertheless, since even truly additional projects do not achieve a net atmospheric benefit, this trade-off seems acceptable in the interest of the mechanism's environmental integrity.

In principle, discounting and multiplication factors might also be a viable approach to promoting desired projects. However, the multiplication of CERs would lead to higher increases of emissions in the industrialised countries than are being reduced in developing countries. To maintain climate integrity, such multiplication of CERs would therefore need to be balanced by equivalent discounts of CERs in other projects. The proposal in the negotiation text does indeed contain a provision according to which the total quantity of CERs issued would not be allowed to exceed the total quantity of reductions. However, implementing this provision would require a very complex accounting mechanism to balance out multiplications and discounts. It would also raise the question what should happen in case the discounts are not sufficient to balance out the multiplications. Introducing multiplication factors to promote sustainable projects is therefore not a recommendable avenue.

Recommendations

Improvement of the CDM's environmental integrity should be a priority under the UNFCCC. The CMP and the EB should significantly strengthen the CDM's modalities and procedures and the EB's guidance.

Regarding sustainable development, we in essence suggest to introduce an additional **set of modalities and procedures** which would safeguard enhanced sustainable development benefits and improve the environmental impact of the CDM projects. These should include

- Criteria and indicators for assessing the environmental, social and economic impact of a project
- Detailed requirements for stakeholder involvement
- Monitoring of the newly introduced elements
- An independent assessment process

The introduction of these modalities and procedures could be pursued with **different levels of ambition**. Here, we differentiate three approaches:

- An ambitious approach, that is, adopting mandatory modalities and procedures to make sure that projects achieve sustainable development benefits
- A "do no harm"-approach, which would imply adopting mandatory modalities and procedures to make sure that at least projects have no negative impacts
- Developing voluntary modalities and procedures for assessing sustainable development benefits, in line with the current negotiation text on promoting co-benefits

A third angle to look at the recommendations is the **level at which action is taken** to implement the new requirements. Action would ideally be taken by the **UNFCCC**: the CMP would adopt additional modalities and procedures, which would then be operationalised by the CDM EB. If this cannot be achieved, we suggest that **individual countries** or groups of countries, such as the European Union **(EU**) or the **EU and the** United States of America **(USA**) together, introduce their own additional requirements for importing CERs into their respective emissions trading systems and for their own purchases.

The following recommendations are structured according to this latter differentiation: first, we look at the UNFCCC level and examine which modalities and procedures could be introduced under which approach. Second, we explore the options groups such as the EU or the EU and the USA could pursue

to improve sustainable development and environmental benefits of CDM projects.

Evidently, the introduction of new standards would increase the costs of developing CDM projects. The analysis of the CDM Gold Standard suggests that the additional effort required should be quite manageable. Nevertheless, if strengthened standards drive up prices for the whole mechanism, as would be the result of mandatory standards, it can be expected that a higher share of the required reductions would be met through domestic action rather than offsetting.

Recommendations for Regulations under the UNFCCC

Improving the CDM's Contribution to Sustainable Development

In terms of the substance, the three approaches identified above – ambitious, do no harm and voluntary – need not necessarily be much different from each other. For example, a "do no harm"-approach would need to ask many of the same questions as an ambitious approach as regards impacts on air and water quality, labour conditions etc. Under both approaches, meaningful stakeholder involvement, regular monitoring and independent third-party assessment should be required to make sure that the claims made by project proponents do indeed reflect the actual situation. Similarly, if criteria are purely voluntary, one can make the case that they should then be especially strong to denote real best practice. The main difference would be that under a voluntary or ambitious approach some additional criteria could be developed to assess whether there are positive impacts. For example, technology transfer could be a positive impact, but lack of technology transfer does not mean that a project has a negative impact. Therefore, the different approaches often overlap, while in other cases they show dissimilarities.

Table 1 summarizes the different steps which could taken at UNFCCC level according to the different levels of ambition.

Table 1: Options under an UNFCCC Approach

	Ambitious Approach	**Do no Harm Approach**	**Voluntary Approach**
Environmental, Social and Economic Impacts	Do No Harm Criteria and Indicators on environmental and social aspects Plus Criteria to assess positive project impacts	Do No Harm Criteria and Indicators on environmental and social aspects	Do No Harm Criteria and Indicators on environmental and social aspects Plus Criteria to assess positive project impacts
Stakeholder Involvement	Active invitation of relevant groups, two rounds of consultations, specific documentation requirements, grievance mechanism	Active invitation of relevant groups, two rounds of consultations, specific documentation requirements, grievance mechanism	Active invitation of relevant groups, two rounds of consultations, specific documentation requirements, grievance mechanism
Monitoring	Sustainable development monitoring plan to assess compliance with safeguards Plus assessment of sustainable development benefits	Sustainable development monitoring plan to assess compliance with safeguards	Sustainable development monitoring plan to assess compliance with safeguards Plus assessment of sustainable development benefits
Independent Assessment	DOEs assess compliance with the relevant additional criteria	DOEs assess compliance with the relevant additional criteria	DOEs assess compliance with the relevant additional criteria

Source: Wuppertal Institute

Criteria and Indicators for Environmental, Social and Economic Impacts

Do no Harm Safeguards

Table 2 provides a list of suggested safeguarding criteria and indicators based on the various national and international standards assessed in this report.

Table 2: Suggested Do No Harm Criteria and Indicators

Criteria	Possible Indicators
Environment	
Air quality	Concentrations/emissions of NO_x[1], SO_x, lead, CO[2], ozone, POPs[3], mercury, CFCs[4], halons, NH_3[5] etc.
Water quality and quantity	Levels of biological oxygen demand, biochemical oxygen demand, thermal pollution, mercury, NO_x, SO_x, POPs, lead, coliforms, etc.
Soil condition	Levels of lead, NO_x, SO_x mercury, cadmium, etc.
Other pollutants	Level and frequency of noise etc.
Biodiversity	Number of affected or threatened plants, animals and natural habitats, occurrence of non-native species etc.
Social and Economic	
The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicity in Human Rights abuses.	
The project respects property rights and other national legislation.	
The project does not involve and is not complicit in involuntary resettlement.	
The project does not involve and is not complicity in the alteration, damage or removal of any critical cultural heritage.	
The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.	
The project does not involve and is not complicit in any form of forced or compulsory labour.	
The project does not employ and is not complicit in any form of child labour.	
The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.	
The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments.	
The project does not involve and is not complicit in corruption.	
The project does not lead to a net loss of employment.	

Source: Wuppertal Institute

Further safeguards should be developed for specific project types. For example, as foreseen in the GS, relighting project activities that imply the substitution of incandescent light bulbs by compact fluorescent lamps (CFLs) should provide a

[1] Mono-nitrogen oxides.

[2] Carbon monoxide.

[3] Persistent Organic Pollutants.

[4] Chlorofluorocarbons.

[5] Ammonia.

detailed description of how the CFLs will be collected and disposed of or recycled, with a particular attention to the mercury contained in the CFLs. Similar provisions should be foreseen for all projects with life-cycle impacts that go beyond the project boundaries.

Criteria for Measuring Positive Contributions to Sustainable Development

As regards the assessment of a positive contribution to sustainable development, either as mandatory requirements or as voluntary criteria, a matrix approach with verifiable indicators such as the one used by the CDM GS is clearly superior to vague qualitative guidelines without concrete indicators, as provided by most host country DNAs. As noted, many of the questions to be asked on whether a project has positive benefits would be the same as when asking whether it has negative impacts. But there are also many aspects that are not relevant in a “do no harm” assessment, for example potential pro-poor impacts or technology transfer. The suggested criteria and indicators in Table 3 should therefore be seen as complementary to those listed in Table 2 above.

Table 3: Suggested Criteria and Indicators to Assess Positive Project Impacts

Criteria	Possible Indicators
Social	
Quality of employment	Wage level, required skill level of jobs created etc.
Livelihood of the poor	Quantified access of people to health services, sanitation, waste management, etc.
Access to affordable clean energy services	Change in traditional fuel consumption, electricity consumption per person, etc.
Human and institutional capacity	Quantified access to education and skills, changes in income and asset distributions by region, ethnicity, religion and socio-economic groups
Gender equality	Changes in female enrolment in schools, female literacy rate, female earned income, number of jobs and positions for women, women in government or other decision-making bodies
Social well-being of communities	Costs and benefits are equally shared among community groups and members
Economy and Technology	
Quantitative employment and income generation	Number of jobs created, level of income from the project, etc.
Balance of payments and investment	Amount of domestic and foreign direct investment
Technology transfer and self-reliance	Use of previously not available technology, number and nature of training activities and number of participants
Adaptation to climate change	Use of new harvesting techniques, new business approaches, protection of facilities and/or infrastructure against heavy weather events

Source: Wuppertal Institute

Stakeholder Involvement

CDM projects may significantly affect the livelihoods of local populations. It should therefore be a matter of course to involve them in the decision on whether to approve a project and how to design it. The CMP should therefore

establish clear international requirements for how to conduct stakeholder consultations. These should include:

- Specific requirements for the preparation of the consultations, including who to involve, how to contact stakeholders, and how to present the project in a non-technical manner and appropriate local language.
- A requirement to have at least two rounds of stakeholder consultations including at least one physical meeting. This should include specific requirements on how to organise the two rounds.
- Establishment of a grievance mechanism to address problems that might arise during the implementation phase. If valid grievances are not addressed appropriately, the project should no longer receive CERs.

Monitoring

Improving the CDM's contribution to sustainable development should include mechanisms to make sure that compliance with safeguards and, in a case of an ambitious approach or voluntary guidelines, claimed sustainable development benefits are actually achieved. These aspects should therefore be monitored in addition to the emission reductions. This should cover the general standards as well as project type-specific standards where applicable, such as the life-cycle standards discussed above.

The project participants should be required to submit a sustainable development monitoring plan as part of the PDD. The monitoring plan should cover compliance with the safeguard criteria and, if applicable, all sustainable development indicators.

In addition to the general public commenting period that applies to monitoring reports under the CDM, the sustainable development monitoring report should also be specifically submitted to the stakeholders that were involved in the ex ante stakeholder consultation.

Independent Assessment

Compliance with the above requirements should be validated and verified by the DOEs. Again, this should hold irrespective of whether a voluntary, do no harm or ambitious approach is taken.

Strengthening the Environmental Integrity of the CDM

All projects examined in this study had significant shortcomings as to the transparency and credibility of the additionality assessment, mirroring the results from other studies. These shortcomings highlight areas that need to be significantly improved to safeguard the CDM's environmental integrity:

- *Specification of "First of its Kind" and "Common Practice",* to specify which technologies a project should be compared with, what are thresholds for comparability, e.g. deviations in terms of installed capacity, and how many similar projects may already have been implemented for a project to still be able to be considered as "first of its kind". In addition, already implemented CDM projects should be included in the common practice analysis after a certain threshold has been exceeded.
- *Further Specification of Investment Parameters,* to ensure that the investment analysis is conducted in a more consistent manner.
- *Standardised baselines.* The EB should be mandated to develop standardised baselines on its own initiative rather than having to wait for methodology proposals from projects. Paragraph 48 (c) of the CDM's modalities and procedures (contained in the Marrakesh Accords) does already give the option to use the performance of the top 20% of similar activities conducted in the previous five years as basis. In particular in those sectors with large point sources – power production and large industries such as cement, aluminium, iron and steel – the establishment of standardised baselines should be viable.
- *Discounting.* Additionality testing and baseline setting can never be fully objective. To compensate for the non-additional projects that will inevitably get through even with strengthened additionality testing and baseline setting, CERs should be discounted. The discount rate should be based on a robust assessment of the fraction of CERs that are likely to be non-additional.

Regulations Within the EU or Other Groups of States as a Fallback Option

If reforms of the CDM at the international level fail, a fallback option would be to impose additional requirements on the use of the CDM in the national regulations of buyer countries. Measures could be taken at two levels:

- Eligibility of CERs in domestic emission trading schemes
- Action by buyer governments

In terms of measures, the following options are conceivable:

- Adoption of negative lists
- Adoption of modalities and procedures on project quality
- Discounting CERs used in domestic emission trading systems

Here as well, an ambitious, a "do no harm" or a voluntary approach could be taken. Under the first two approaches, eligibility in emission trading systems and purchases by governments could be tied to specific criteria on project quality. Under a voluntary approach, measures could be elaborated to promote

projects that demonstrate co-benefits. In terms of substance, the criteria and procedures suggested above for an UNFCCC approach could in principle equally be used for an unilateral approach.

The feasibility of such an approach is demonstrated by the fact that the EU has already taken this approach with respect to hydropower projects with an installed capacity above 20 MW. Here, the EU requires that projects respect the standards developed by the World Commission on Dams (WCD). To demonstrate compliance, project proponents need to submit a compliance report based on a template that was agreed on between the EU member states. These reports need to give detailed information regarding compliance with the seven strategic priorities defined by the WCD and needs to be validated by a DOE.

The possibilities are also demonstrated by the Belgian Joint Implementation (JI)/CDM Tender programme. In Belgium, sustainable development is one of the scoring criteria in the decisions on purchasing CERs. The analysis is based on the original GS sustainability matrix version 1. Project developers score the impact of their projects on the GS matrix, and the DOE assesses and validates this analysis. In addition, Relevant Performance Indicators (RPIs) for monitoring the impact of the project on sustainable development are determined. The scoring and monitoring are evaluated and have to obtain minimum scores in order to be selected for contract negotiations. A monitoring report has to be submitted annually so that the Belgian buyer can follow up the project and its impact. Furthermore, Belgium requires the right to make unannounced visits to the project, especially in case they are informed of any abnormalities, for example by NGOs, trade unions or Belgium's diplomatic network.

Finally, while the additionality question should ideally be resolved at UNFCCC level, if CDM reform does not proceed satisfactorily, there would be a case for departing from the principle that all tonnes are equal. To safeguard the integrity of the EU Emission Trading Scheme (ETS), the EU could choose to not accept CERs on a 1:1 basis in the EU ETS but to apply a discount. As suggested for discounting under the UNFCCC, the discount rate should be based on a robust assessment of the fraction of CERs that are likely to be non-additional.

Table 4 summarizes the different options for the two levels.

Table 4: Options for Groups of States or Individual Countries

	Ambitious Approach	**Do no Harm Approach**	**Voluntary Approach**
Domestic ETS	Negative Lists Modalities and Procedures Requiring Positive Impacts Discounting CERs	Negative Lists Modalities and Procedures to Prevent Negative Impacts Discounting CERs	Preferential Access for Projects with Positive Impacts
Buyer Governments	Negative Lists Modalities and Procedures Requiring Positive Impacts	Negative Lists Modalities and Procedures to Prevent Negative Impacts	Giving Preference to Projects with Positive Impacts

1 Introduction

The first commitment period of the Kyoto Protocol ends in 2012. In 2005, the eleventh Conference of the Parties to the UNFCCC (COP 11) and first Conference of Parties serving as Meeting of the Parties to the Kyoto Protocol (CMP 1) started a formal process on the architecture of the post-2012 regime. At COP 15/CMP 5 in Copenhagen at the end of this year, parties are supposed to agree on a new multilateral climate change agreement.

As the CDM pipeline is expanding rapidly, this flexible Kyoto mechanism is becoming more and more important. According to the UNEP (United Nations Environment Programme) Risø Centre, the number of new project activities in late 2008 had been the highest ever. As of 1st September 2009, the CDM-Pipeline contains 4631 CDM projects that are at least at validation. 1792 of the projects were registered and a further 234 were in the registration process. According to projections from the current pipeline, no less than 7.4 billion CERs will be issued by 2020 (Fenhann 2009).

However, while the CDM continues to grow rapidly, there are many critics doubting its climate integrity. Several studies and reports have claimed that the CDM approval process was failing to effectively screen out projects that are actually not additional but would also have taken place without the CDM (e.g. Michaelowa/Purohit 2007; Schneider 2007; Wara/Victor 2008).

In addition, according to Art. 12 of the Kyoto Protocol the objective of the CDM is not only to assist countries with quantified reduction commitments in achieving their targets, but also to assist host countries in achieving sustainable development. The DNAs of the host countries are responsible to check and approve the contribution of a project to sustainable development. Here as well research results have been negative: “The main finding of the review is that, left to market forces, the CDM does not significantly contribute to sustainable development” (Olsen 2007).

One particular expectation had been that the CDM would help transfer environmentally friendly technologies to developing countries. While there is little consensus in the literature on what technology transfer comprises, it has been defined by the Intergovernmental Panel on Climate Change (IPCC) (2000) as “A broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, NGOs and research/education institutions.” Several studies have assessed the CDM’s contribution to technology transfer. They commonly define technology transfer as use by CDM projects of equipment and/or knowledge not previously

available in the host country. These studies consistently find that a little more than a third of the projects involves technology transfer (e.g. de Coninck, Haake, van der Linden 2007; Schneider, Holzer, Hoffmann 2008; Seres 2008). One has to note though, that the figures in all studies are based on the claims made in the PDDs. There is no assessment in these studies in how far implementation actually is in line with these claims.

Against this background, the BMU commissioned the Wuppertal Institute to conduct a study on the further development of the CDM within the future climate regime. The study focused on how to foster the CDM's quality in terms of its contribution to sustainable development and technology transfer, as well as quantitative aspects, that is, the environmental integrity of CDM projects. The aim was to develop concrete recommendations on how to improve the effectiveness of the CDM in qualitative and quantitative terms.

The analysis in this project consists of three main parts:

- First, an analysis of the CDM GS. The GS was developed in 2004 by an international expert panel on the initiative of the World Wide Fund for Nature (WWF). It consists of criteria for the sustainability and additionality of projects that go beyond the official CDM modalities. The aim of the GS it to establish a "premium product" on the CDM market. The assumption is that buyers will be willing to pay a higher price for certified high-quality projects. In this way, not only the emission reductions but also the sustainability benefits of a project are to be rewarded financially. The aim of the analysis of the GS in this study is to assess its robustness and determine whether elements of the GS could be adopted for the CDM as a whole.
- Second, an analysis of "conventional" CDM projects. The aim of this part of the analysis is to find further best practice examples of sustainable development benefits and the demonstration of additionality.
- Third, an analysis of host country DNA approval procedures. Here as well the aim is to survey the current practice and if possible identify best practice elements that might be suitable to be adopted for the CDM as a whole.
- Fourth, the report takes into account the proposals for reforming the CDM that have been put on the table in the international negotiations and their current status. This analysis in particular aims at assessing to what extent it would be politically feasible to implement the results derived from the aforementioned analysis under the UNFCCC.

The final chapter presents recommendations on improving the CDM based on the outcomes of the analysis.

2 Methodology

2.1 Analysis of the CDM Gold Standard

As outlined above, the first step of the project is an assessment of the CDM GS. The goal of the analysis is to determine the effectiveness of the GS in promoting sustainable projects. This relates firstly to the question whether the modalities and procedures of the GS can indeed safeguard that projects achieve a high sustainable development benefit. Secondly, there is the question of the balance between the additional effort required by the GS and the additional revenue that can be achieved. The analysis consists of the following elements.

2.2 Theoretical Analysis of the Gold Standard

First, the requirements and procedures of the GS approval process are explained in detail according to the GS guidelines. On this basis, a preliminary common-sense assessment is made regarding the standard's robustness and internal consistency.

2.2.1 Comparison of the Gold Standard to Other Standards

Second, the GS is compared to other project quality standards that are being used for offset or development cooperation projects. This part of the study has the aim to determine to what extent the GS is similar to already established quality criteria, where it goes far beyond these and where it lacks requirements.

This chapter of the study describes different quality standards and compares them to the GS. In consultation with the German environment ministry, the following standards were selected for the comparison:

- The standards of the Climate, Community and Biodiversity Alliance (CCB Standards);
- The standard of the EBRD;
- The IFC standard; and
- The Social Carbon Methodology standard.

These were selected based on the following considerations:

The IFC suggested itself due to the role of the World Bank (WB) as the leading multilateral development bank. As the CDM is a market-based mechanism

supposed to mobilise private investments, the private sector arm of the WB appears particularly adequate for the analysis.

An analysis of the EBRD seemed suitable due to the European perspective. In addition, the EBRD takes pride in being “unique among multilateral financial institutions in that it has had an environmental mandate since its inception. This commits the Bank to finance projects that are environmentally sound and sustainable.” (Website EBRD) Due to this very high self-set standard, a comparison of the EBRD and the GS appeared particularly promising.

In addition to standards of multilateral financial institutions, the GS was supposed to be compared to other voluntary offset standards. However, a survey of the market reveals that the GS is in fact almost the only generally applicable standard that puts a focus on sustainable development benefits. Most other generally applicable offset standards have no sustainable development criteria that go beyond those of the “normal” CDM. The only exceptions are the CCB Standards, the Plan Vivo System, and the Social Carbon Methodology standard (Kollmuss et al. 2008). The CCB Standards and the Plan Vivo system are only applicable to land-use, land-use change and forestry (LULUCF) projects. Therefore, the CCB Standards and the Social Carbon Methodology standard were chosen for the comparison.

2.2.2 Analysis of Gold Standard Projects

Third, a number of GS CDM projects are analysed in detail. The study first presents an overview of existing GS CDM projects according to project types. The aim was to draw conclusions on whether certain project types typically pass GS validation or are rejected. Furthermore, an examination of rejected projects was to identify recurrent reasons for rejection. However, as the GS does not keep a record on rejected projects, this step could not be implemented as planned.

In the next step, actual implementation of the GS is analysed for five projects with respect to their additionality and their contribution to sustainable development. This analysis covers not only ex ante project design but also an assessment of the actual impact of the GS during project implementation.

Therefore, the selection of projects focuses on activities that are already at an advanced stage of implementation, in order to be able to analyze how the monitoring and verification of the sustainable development benefits of projects is carried out in practice. While five projects may seem to be a small sample, the number of GS activities issuing CERs was still very low at the time of writing. As of March 2009, only eight projects had already been registered (see Annex 2). One out of these had been registered but not implemented so far due to financial problems (Kuyasa low cost housing energy upgrade project). Two

projects were already issuing CERs (Malavalli biomass and Fujian wind power). The five projects therefore actually cover almost all projects where an ex-post assessment of the GS's implementation was possible.

The selection of five projects was furthermore to account for the distribution of project types. Out of the seven activities that had been successfully implemented after registration, three were wind power projects. We decided to analyse the wind power project already issuing CERs.

Based on these considerations, we selected the following five projects for the in-depth analysis:

- 0009 "La Esperanza Hydroelectric Project" (run-of-river plant in Honduras);
- 0298 "Malavalli 4.5 MW low-density biomass residue Power Plant" (biomass power plant in India);
- 0414 "Solar Steam for Cooking and Other Applications" (solar thermal heat in India).
- 1318 "Fujian Zhangpu Liuao 45MW Wind Power Project" (wind farm in China);
- 1483 "Energéticos Jaremar" (Biogas capture and utilisation in Honduras).

It is important to note that all of these projects were registered under the GS Version 1 while in the meantime a new version of the GS has been developed. The Malavalli biomass project currently applies for renewal of the crediting period. Therefore, the PDD requesting renewal accounts for the Version 2 requirements. Where a verification report is available which contains information on the project's impact on sustainable development a distinction between ex-ante and ex-post documentation of sustainable development benefits is made in the project analysis.

The first part of the analysis of the GS projects is based on a desk review of the PDDs, validation and verification reports. It has the aim to determine whether the practical implementation of the theoretical requirements of the GS is transparent, clear and plausible.

Subsequently, interviews with project participants, DOEs, and representatives from civil society help to assess how the GS can be operationalised and how effective it is. The project developers of the selected GS projects were interviewed to share their experiences with a focus on the additional effort they had to make to meet the GS requirements and the additional revenue they received from using the GS. Representatives of the relevant DOEs add information on how they carried out the evaluation of the GS requirements and on problems that might have occurred in the process. Interviews with representatives of civil society complement the analysis. The GS puts great emphasis on public participation. The interviews with members of civil society were to determine whether this requirement is met in practice and how members of civil society evaluate the projects' sustainability.

The main focus of this part of the study is to determine both the GS' practicability and the implementation of its sustainability requirements in GS projects. All interviews are based on guidelines and structured following the outcome of the theoretical analyses described above as well as the PDDs, Validation and Verification Reports. Not all of the interview partners expected were available for an interview (see chapter 3.4 for details).

2.2.3 Current Market Situation for Gold Standard Emission Credits

Finally, the study examines the price premium carbon funds and other buyers are willing to pay for GS-labelled emission credits. The aim here is to put the additional effort needed for meeting the GS requirements into relation with the additional revenue that can be generated.

For this purpose, a survey of 55 emission reduction credit buyers was conducted (see Annex 6). The list of buyers was compiled on the basis of the UNEP Risø CDM Pipeline and the CDM Bazaar homepage (Fenhann 2009 and Website UNEP Risø). The selection of buyers can roughly be divided into governmental programmes, multi-shareholder (private-government) funds, private shareholders and single companies. The focus was put on buyers with a minimum of 25 projects in the project portfolio; exceptions are companies as they were underrepresented in our compilation.

The survey was carried out via an initial e-mail query and two reminder e-mails. The GS has two products, GS Certified Emissions Reductions (GS-CERs), which can be used for compliance under the Kyoto Protocol or on the voluntary offsetting market, and GS Verified Emission Reductions (GS-VERs), which can only be used on the voluntary market. The generation of GS-VERs is based on a different standard than the generation of GS-CERs. As this study has the aim to develop recommendations for the CDM under the Kyoto Protocol, the analysis focussed on GS-CERs and did not analyze the market for GS-VERs in detail.

Furthermore, Michael Schlup, the director of the GS Foundation and two developers of the GS projects analysed in chapter 3.4 provided information about the market situation of GS-CERs.

2.3 Analysis of the Conventional CDM Project Pipeline

2.3.1 Analysis of Conventional CDM Projects

In the second step of the project, ten conventional CDM project activities are analysed with respect to their additionality and their contribution to sustainable

development. The aim of this analysis is to find further best practice examples outside of explicit quality labelling schemes and to determine to what extent the GS criteria can also be applied to project types that are not covered by the GS.

Evidently, ten projects is not a very large sample. However, the ambition of this study was to find real best practice examples, which implies to not only look at the PDDs, but to also gather additional information to cross-check whether the claims made there do actually reflect the real situation. A larger sample was therefore not feasible within the means and timeframe available for this project.

In addition, to increase the likelihood of finding best-practice examples the CDM pipeline was pre-screened to pre-select a list of projects that would be particularly likely to be of high quality. For this purpose, out of the 55 credits buyers noted in section 2.2.3 a shortlist of buyers that appear to put a particular emphasis on sustainable development was established. This shortlist was based the eligibility requirements of these carbon buyers and their sustainable development criteria as far as mentioned in publicly available material such as their websites. The buyers were categorised into entities with “high”, “medium” and “low” apparent relevance for best practice on sustainable development. 15 buyers were classified in the “high” category.

Four out of these, namely “Myclimate”, “atmosfair”, “Gold Carbon Capital Fund” and “Carbon Asset Management Sweden AB – Gold Standard Project Fund”, exclusively focus on GS projects and therefore were not taken into consideration. The remaining buyers were screened for particularly remarkable sustainable development criteria. This led to four buyers, namely the Belgian Government, the Climate Cent Foundation, Tricorona Green and the First Climate Group. A further goal was having a diversified buyer list, that is, to have governmental as well as private buyers represented and to achieve an equal regional distribution. Therefore the CAF Netherlands CDM Facility for the Government of the Netherlands was selected as fifth buyer. Their project portfolio has a focus on Latin American projects, which are underrepresented in the portfolio of the other four buyers.

The final shortlist of five buyers that appeared to put a particularly high emphasis on sustainable development is presented in the following table.

Table 5: Shortlist of high standard carbon buyers

Buyer	Type of organisation	Remarkable aspects
Belgian Government – Tender programme	Governmental programme, managed by government agency	"All potential Belgian tender projects can be eligible for Gold Standard registration with almost no additional effort." Michael Schlup, GS
CAF-Netherlands CDM Facility for the Government of the Netherlands	Governmental programme, managed by a development bank	Regional focus (Latin America and Caribbean)
Climate Cent Foundation	Voluntary measure of Swiss industry, funded by a charge levied on all imports of petrol and diesel at a rate of 1.5 cents per litre	Strong focus on sustainability criteria. Projects with a "development dividend", a clear amount of total CER revenues (10%) that is provided to the local community for additional investments, are favoured.
Tricorona Green	Private shareholder: Part of Tricorona AB, a Swedish company	Key criterion for CDM is that the projects contribute to sustainable development in the host country; strict requirement for stakeholder dialogue with the affected local population, to ensure that the project contributes to sustainable development at local level.
First Climate Group	Private shareholder: The Carbon Credit Company and Factor Consulting + Management AG merged into the First Climate Group (April 2008)	First Climate is one of the main sponsors of the GS Version 2

Source: Own compilation

In the next step, the project portfolios of these buyers were cross-checked with the host-country DNAs that had been selected for in-depth analysis (see section 2.3.2). The rationale behind this was to not only focus on projects likely to be sustainable, but also to be able to combine the analysis of project examples with the analysis of good practice host country approval procedures.

The analysis of the project pipelines of the five previously selected carbon buyers showed that of the 17 DNAs fulfilling our good practice screening conditions, six are represented in the project portfolios of the five carbon buyers (Bolivia, Brazil, El Salvador, India, Nicaragua and Panama). These host countries' DNAs are analysed in chapter 4.3. We selected at least one project activity in each of the respective host countries.

The next selection criterion was to have a balanced regional and sectoral distribution. Therefore we analysed project activities in China even though China does not appear in the shortlist of good practice DNAs. This is because 73 out of 124 project activities in the buyers' portfolios are located in China (see Annex 5). Finally, we selected project activities representing different sectors. China and India are represented with two project activities each, in order to account for their high number of projects in the portfolios. The final list of projects to be analysed includes energy generation projects, domestic and industrial energy efficiency, fuel switch and transport (see Table 6).

Table 6: Conventional projects to analyse

ID	Ref.	Title	Host country	Type	Status
CDM0268	1031	Rio Taquesi Hydroelectric Power Project	Bolivia	Hydro: Run of River	At validation
CDM0094	7	Colombo Bagasse Cogeneration Project (CBCP)	Brazil	Biomass: Bagasse Power	Registered
CDM1577	1390	Power Generation (20MW) by utilizing Coke Oven Gas of China Coal and Coke Jiuxin Limited in Lingshi, Shanxi	China	EE own generation coke oven	Registered
CDM1291	1391	Yuliangwan Small Hydroelectric Project, Hunan	China	Hydro: New Dam	Registered
CDM0956	672	BRT Bogotá, Colombia: TransMilenio Phase II to IV	Colombia	Transport	Registered
CDM0239	297	LaGeo, S. A. de C. V., Berlin Geothermal Project, Phase Two	El Salvador	Geothermal electricity	Registered
CDM0367	494	Switching of fuel from naphtha to natural gas in the captive power plant (CPP) at Dahej complex of Gujarat Alkalies and Chemicals Limited	India	Fossil Fuel Switch	Registered
CDM1362	991	Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning Mills Association (TASMA)	India	Wind	Registered
CDM0284	675	Vinasse Anaerobic Treatment Project	Nicaragua	Biogas power	Registered
CDM3966	-	Cerro Patacón Landfill Gas Utilization Project	Panama	Landfill gas power	At validation

Source: Own compilation

The analysis whether the selected projects are best practice examples concerning sustainable development consists of two steps. First, we used the analysis grid of criteria based on the GS's "sustainable development matrix" we developed for the analysis of the DNAs' sustainable development criteria (see

section 2.3.2) to apply the GS's sustainability criteria to the conventional projects with the information available in the PDDs. This procedure allows to compare the contribution to sustainable development of conventional CDM projects to that of GS projects as claimed in the PDD. It also shows whether the GS can be transferred to project types which are not eligible for GS. Secondly, interviews with the local public and civil society were to allow the evaluation of the projects' impact on sustainable development in practice. Unfortunately, for most projects we were not able to contact relevant stakeholders (see chapter 4.1 for details). Therefore, this part of the analysis was mostly conducted as a desk research only.

In addition, a desk review of the PDDs and the Validation Reports was undertaken to assess in how far the selected conventional CDM projects are best practice examples concerning baseline determination, emission reductions and additionality. The yardstick for this evaluation is in how far the relevant methodologies and tools approved by the CDM EB for the establishment of the baseline and additionality are applied comprehensibly and plausibly. Criteria for this evaluation are inter alia whether independent sources are cited in the establishment of the baseline and additionality, how detailed the analysis is, to which other technologies the technologies employed in the project are compared to as common practice, the barrier type used to prove additionality and the validator's opinion on the PDD's additionality test.

2.3.2 Analysis of Selected DNAs' Approval Process

In the next chapter, the study analyses the sustainable development criteria of selected DNAs and their implementation. The aim here is to determine in how far these criteria can guarantee a project's contribution to sustainable development and how they are implemented in practice.

In order to compare the sustainable development criteria of selected host country DNAs, we first undertook a screening of all DNAs in countries with at least two registered CDM projects.

As of 1 January 2009, 36 countries fell into this category according to the UNEP Risø CDM project pipeline. Host countries with less than two CDM projects were not considered in this part of the analysis because of the small basis they offered for the analysis of the DNA's approval process in practice. An analysis grid of criteria was developed based on the GS's "sustainable development matrix", but also incorporating the GS's safeguarding principles (the same analysis grid was used for the in-depth analysis of sustainability of the selected conventional CDM projects). That is, the GS was taken as a yardstick for what constitutes robust criteria, but taking into account the results of the previous in-depth analysis of the GS.

The DNAs' sustainable development criteria were gathered via internet research. In cases where internet research did not yield a satisfactory outcome, the DNAs were contacted by e-mail. Those DNAs that had been identified as particularly interesting by the German environment ministry, (Indonesia, Brazil, Nicaragua, Panama) but did not reply to the email inquiry were contacted again by telephone. Due to the limited amount of resources available in the project, an in-depth follow-up for all DNAs that did not reply to the first email enquiry was not possible. Therefore, those countries that did not provide sufficient online information, nor responded to the email inquiry, nor were considered as particularly interesting by the German government, were not further considered.

After collecting the DNAs' sustainable development criteria, these were evaluated in a separate table for each country, contrasting the GS criteria with the criteria of each DNA. The criteria were grouped by the three commonly used pillars of sustainability: environment, social development and economic development. In addition, two additional categories (human rights and anti corruption) were used that resulted from the safeguarding principles of the CDM GS. In the grid, scores were given for each of the GS's indicators included in the DNAs' criteria for sustainable development (right column, 0="not included", 1="included"). If at least one indicator of a criterion (Environment, Social Development, Economic development including technology transfer, Human Rights, Anti-Corruption) is included in the DNA's criteria for sustainable development, the criterion was marked in the left column with 1, otherwise with 0. Hence, the sum of the right column displays the number of the DNA's indicators corresponding to the GS's indicators, while the sum of the left column shows how many of the GS's main criteria are relevant for the DNA's CDM project approval. Scores were given when the core or central parts of a GS's indicator was included in the DNAs' requirements. Annex 9 provides the analysis tables for each country. The basis for the scoring decisions are explained in the column "Remarks" in each table to provide for transparency.

Most of the DNAs' sustainable development criteria were outlined with less detail and not as strictly as the GS's sustainability criteria. Only 15 DNAs had criteria on all three core pillars of sustainability:

1. Armenia
2. Bangladesh
3. Bolivia
4. Brazil
5. Cambodia
6. India
7. Indonesia

8. Israel
9. Nepal
10. Panama
11. Philippines
12. South Africa
13. Thailand
14. Tunisia
15. Uruguay

In addition to these 15 DNAs, Nicaragua and El Salvador indirectly fulfil all three conditions, by requiring an Environmental Impact Assessment (EIA) (Nicaragua) or an Environmental Permit (El Salvador), respectively, but do not include environmental criteria explicitly within their sustainable development requirements.

Of these countries, six countries are host countries in the portfolios of project activities of carbon buyers with high sustainable development requirements as identified in chapter 3.1. We analysed at least one conventional project activity in each of the respective host countries. The six countries that appear on both lists are:

1. Brazil
2. India
3. Bolivia
4. El Salvador
5. Panama
6. Nicaragua

To evaluate the approval procedures of the selected DNAs in practice, first a short introduction is provided to the institutional organisation of each DNA, followed by an overview of the host country's sustainable development requirements (the detailed analysis grid is included in Annex 9 for each of the six DNAs). The different types of sustainable development requirements in the different countries are categorised following Sutter (2003). Sutter differentiates four different approaches to assess a CDM project's contribution to sustainable development:

- A qualitative assessment according to guidelines which describe how projects should contribute to sustainable development.

- A checklist of clearly defined questions to project developers and a set of predefined answers, also including an evaluation key to understand how answers will be judged.
- Individually negotiated measures between project owners and stakeholders regarding additional positive benefits of the CDM project for the local community or environment. Indicators for these additional benefits do not necessarily have to be directly connected to the project activity and therefore do not assess the sustainability of the project activity in itself.
- Multi-criteria methodologies define several criteria for different aspects of sustainability, which are then translated into indicators. These indicators are applied to assess the CDM project's contribution to sustainable development.

In the next step, the sustainable development criteria of each DNA are assessed in comparison to the GS requirements and evaluated. This step draws heavily on the DNA screening.

In addition to the theoretical analysis, the application of DNA criteria in practice is explored. First, the findings from the analysis of CDM projects are revisited and compared with the DNA requirements. In addition, interviews with DNA representatives and representatives of civil society were conducted to gain a better understanding and balanced view of the approval processes of DNAs in the selected countries.

Originally, it was envisaged to conduct semi-structured interviews with DNA and civil society representatives of each of the analysed countries. Establishing contact to both DNAs as well as civil society representatives in the respective countries turned out to be difficult, however. For all DNAs, different contact persons were contacted repeatedly via email and telephone. Yet not all contacts lead to interviews, partly due to work overload on the part of the DNAs, partly because contact persons did not reply and / or were not available within a given timeframe. In some cases the contact details provided on the UNFCCC CDM website turned out to be out of date, and up-to-date contact details had to be investigated. In one case the presumably correct email addresses as given on the UNFCCC website as well as letters of approval from that country were constantly rejected as not existing. Even telephone contact could not be established in this particular case. In addition, elections or government reshuffles in Panama and Bolivia lead to a restructuring of DNA (personnel) during the research period, partly explaining the lack of responsiveness. Due to these difficulties, interviews could only be conducted with representatives of the DNAs of Brazil and Nicaragua.

Concerning civil society representatives, a total of 18 people were contacted by email and telephone with a very high response rate for India, but a lower response rate for Latin American countries. A total of 5 interviews were

conducted in the end. For the smaller Latin American countries it has to be noted that few civil society organisations are engaged in CDM activities, making it difficult to find knowledgeable resource persons for this very specific topic of DNA practice.

Consequently, the analysis in this chapter had to rely on desk research for some of the countries, and deriving generally applicable conclusions was not always possible.

2.4 Analysis of the Current Status of the Negotiations

Finally, the aforementioned steps of the analysis are brought together with the current status of the negotiations under the UNFCCC on reforming the CDM. The aim of this analysis is to

- Provide the basis for assessing to what extent recommendations derived from the preceding steps of the analysis could have a chance to be agreed unter the UNFCCC, and
- Identify and take into account further options for reforming the CDM that are not related to the preceding steps of the analysis but have been proposed under the UNFCCC.

The future of the flexible mechanisms is being discussed under both the AWG-LCA and the AWG-KP. The discussions under the AWG-LCA mainly focus on “new” mechanisms, namely sectoral approaches and crediting of NAMAs. As this study focuses on the project-based CDM, these discussions are beyond the scope of this report.

Chapter 5 therefore lays out and assesses the proposals for improving the environmental integrity and contribution to sustainable development of the CDM that have been tabled under the AWG-KP. To provide a comprehensive picture of all the proposals that have been negotiated, the discussion is not only based on the draft decisions that were under discussion in the latest rounds of the negotiations in November 2009 in Barcelona (UNFCCC 2009a), but is also based on a previous version from April 2009 that contained additional proposals that are no longer present in the current text (UNFCCC 2009b). These were in particular the introduction of positive or negative lists and making achievement of co-benefits mandatory for registration under the CDM.

Proposals that do not relate to standards for environmental integrity and sustainable development, such as measures to improve the regional distribution of projects, are not discussed.

The assessment measures the proposals in the negotiation texts against the results from the preceding steps of the analysis. In addition, it takes into

account insights from the long-standing experience of the Wuppertal Institute in studying the CDM as well as findings from the relevant literature.

3 The CDM Gold Standard

3.1 Overview and Preliminary Analysis

The CDM GS is a premium label for CDM activities and, since 2006, for voluntary carbon credits. It was initiated by the NGOs WWF, SouthSouthNorth (SSN) and Helio International in 2003. A wide range of experts and stakeholders from development co-operation organisations, including for example GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit, German Technical Cooperation), and key actors of the carbon market were involved in its development.

The GS's objective is to promote investments in energy technologies and energy management techniques that mitigate climate change, promote (local) sustainable development and are directed towards a transition to non-fossil energy systems (Ecofys et al. 2008). As a market based instrument, the GS aims at obtaining a monetary value for these sustainable development benefits: CERs from GS-labelled projects are supposed to obtain a higher price than "conventional" ones. In turn, investors receive credits of certified high quality with respect to the projects' contribution to sustainable development.

3.1.1 Requirements

The GS is essentially a set of tools ('Screens') that guide project proponents through the project development process. In 2008, this set was revised in order to make the approval steps more transparent and thus attract more project developers. Since August 2008, the "Version 2.0" defines the relevant standards (Ecofys et al. 2008). This toolkit has been updated 1 June 2009 (Version 2.1).

Eligible project types

The GS only allows projects which address either **renewable energy supply** or **end-use energy efficiency improvements** (ibid.: 20). For some project types, additional eligibility criteria have been developed. See Table 7 for a detailed list. Other project types, in particular

- the destruction of gases from industrial processes (Hydrofluorocarbons (HFC), Perfluorocarbons (PFC) and Sulphur hexafluoride (SF_6));
- the usage of fossil fuels;
- afforestation and reforestation activities; and
- end-of pipe methane destruction (e.g. from landfills or agriculture)

are screened out and hence not eligible.

Table 7: Project types eligible for the Gold Standard

Project activity	Additional specific eligibility criteria
Hydro	The eligibility of project activities with an installed capacity greater than 20 MWe shall be evaluated on a case by case basis by the Gold Standard Foundation, in the light of a pre-feasibility assessment that relies on additional documentation about: • a site-visit by local stakeholders taking part in the consultation; • compliance with the latest guidelines of the World Commission on Dams (WCD; www.dams.org), validated by a DOE; and • environmental impacts of run of river projects.
Electricity and/or heat, and/or liquid biofuels from biomass resources	Project activities making use of existing biomass resources to the detriment of other existing uses (e.g. food, heating, etc.) of the same resources shall provide convincing evidence that the current users are in agreement with the new use proposed. Project activities making use of land currently in use for growing food crops must provide convincing evidence that the energy crop is part of a traditional rotational cropping. The eligibility of projects making use of palm oil and/or palm oil mill by-products or residues shall be evaluated on a case-by-case basis by the GS, in the light of a pre-feasibility assessment. The proponent has to submit a stakeholder consultation report provided as part of the documentation to be reviewed at the time of the pre-feasibility assessment and a report showing that the project activity is in compliance with the latest version of the Roundtable on Sustainable Palm Oil guidance on Principles and Criteria for Sustainable Palm Oil Production, validated by a DOE.
Landfill gas and biogas from residues	At least 65% of the volume of the biogas captured must be used to deliver energy services. For methane recovery projects in wastewater treatment plants related to palm oil production see above.
Waste gas/ waste heat recovery, cogeneration	Fossil fuels are eligible if the energy is consumed on site.
Relighting	Relighting project activities implying the substitution of incandescent light bulbs by CFLs shall provide a detailed description of the future collection and transport process and disposal or recycling plan of the CFLs, with a particular attention to mercury.
Improved distributed heating and cooking devices and distributed micro-scale electricity generation units	Project activities involving a large amount of small devices such as cook stoves using renewable energy sources shall provide the Gold Standard with a clear description of the transfer of credits ownership all along the investment chain, and with proof that end-users are aware of and willing to give up their rights on emission reductions.

Source: Ecofys et al. 2008: 94 ff.

Requirements to demonstrate additionality

The GS requires using an UNFCCC-approved additionality tool. Currently, these are the "Tool for the demonstration and assessment of additionality" (additionality tool) and the "Combined tool to identify the baseline scenario and demonstrate additionality" (combined tool) (UNFCCC 2008a and 2008b).

Both the additionality tool and the combined tool include three steps. The project proponent has to

- identify all potential alternatives to implementing the planned project,
- either conduct an investment analysis or a barrier analysis, and
- carry out a common practice analysis.

The guidance of the tools comprises a brief introduction and an overview of how to accomplish the analyses. For instance, the project developer shall identify "realistic and credible barriers". Such a barrier may be, "among others", the lack of "skilled and/or properly trained labour to operate and maintain the technology in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance". The tools specify the type of evidence to be provided for the identification of a barrier. It should include at least one of the following:

- Relevant legislation, regulatory information or industry norms;
- Relevant studies or surveys undertaken by research institutions, industry associations, companies, bilateral/multilateral institutions, etc;
- Relevant statistical data from national or international statistics;
- Documentation of relevant market data (e.g. market prices, tariffs, rules);
- Written documentation of independent expert judgments.

The GS does not provide additional guidance to the tools. The GS Toolkit simply highlights that the "chosen line of reasoning for the identification of barriers must be reproducible and supported by a sufficient amount of independent, non-company information" (Ecofys et al. 2008: 35).

As an additional requirement, the project developer must provide a statement that the planned CDM activity was not previously announced to be going ahead without the revenues from carbon credits.

Requirements for sustainable development

Project proponents have to consider **sustainable development impacts**. This key to differentiating the GS from the conventional pipeline includes three subsequent steps.

First, the project developer has to apply the UNDP safeguarding principles. These principles are derived from the MDGs, which have been pledged by the

United Nations (UN) member states to be achieved by the year 2015 (see Table 8).

Table 8: The Safeguarding Principles

Human Rights	
1	The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicity in Human Rights abuses.
2	The project does not involve and is not complicit in involuntary resettlement.
3	The project does not involve and is not complicity in the alteration, damage or removal of any critical cultural heritage.
Labour Standards	
4	The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.
5	The project does not involve and is not complicit in any form of forced or compulsory labour.
6	The project does not employ and is not complicit in any form of child labour.
7	The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.
8	The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments.
Environmental Protection	
9	The project takes a precautionary approach in regard to environmental challenges and is not complicit in practices contrary to the precautionary principle. This principle can be defined as: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically."
10	The project does not involve and is not complicit in significant conversion or degradation of critical natural habitats, including those that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value or (d) recognised as protected by traditional local communities.
Anti-Corruption	
11	The project does not involve and is not complicit in corruption.

Source: Ecofys et al. 2008: 37.

To comply with these principles, the project developer has to submit a description in how far a principle is relevant to the CDM activity, an assessment of the gravity of the risks (low/medium/high), and the corresponding mitigation measure that is planned to be undertaken. The GS Toolkit gives examples for risks and potential mitigation measures.

In a second step, the project proponent must provide a detailed impact assessment in terms of sustainable development ("sustainable development matrix"). Developers have to score their project on environmental, social and economic criteria. To allow for a scoring, twelve specific criteria are considered (see Table 9). The developer is required to select one indicator for each of the criteria given. The GS toolkit proposes a number of possible indicators as guidance (ibid.: 127ff). For example, the project developer may select NO_x as a quantitative indicator for the environmental criterion "air quality". Other air quality indicators, such as carbon monoxide (CO) and particulate matter, could be chosen as well. In order to assess the social criterion "Livelihood of the poor", the project developer could choose to assess the death rates associated with malaria or to estimate the knowledge and information dissemination regarding natural disasters. The selection depends on the design of the project.

For each parameter, a baseline situation and a project situation shall be described. Based on this description of the baseline and targeted values of the parameters, each criterion is scored "negative", "positive" or "neutral" in comparison with the baseline situation. Negative criteria can potentially be neutralised with mitigation measures.

Table 9: Sustainable Development Matrix

Environment	Social development	Economic and technological development
Air quality	Quality of employment	Quantitative employment and income generation
Water quality and quantity	Livelihood of the poor	
Soil condition	Access to affordable and clean energy services	Balance of payments and investment
Other pollutants	Human and institutional capacity	Technology transfer and technological self-reliance
Biodiversity		

Source: Ecofys et al. 2008: 127ff

Then the scores are added up. To be eligible under the GS, the project must contribute positively to at least two of the three categories (environmental, social and economic) and be neutral in the third category.

In a third step, the project developer has to submit a sustainability monitoring plan. This is used to verify if the CDM project has indeed contributed to sustainable development as assessed ex ante. All non-neutral indicators must be monitored. The monitoring includes an assessment of the current situation after implementation of the project and an estimation of the baseline situation, i.e. what would have happened without implementation. The chosen

parameters are the most important means of assessment. The GS emphasises that “it is very important to be transparent” and to make “efforts to gather data and use the most objective and reliable sources” (ibid.: 41).

Stakeholder Consultation

The GS process requires two rounds of stakeholder consultation: The local stakeholder consultation and the 'stakeholder feedback round', which may include a physical meeting although this is not mandatory. Both have to be prepared and carried out in a non-technical manner. This is to be proven by a detailed documentation. The GS requires specific agenda items to be included in the consultations, such as a discussion on monitoring sustainable development.

The local stakeholder consultation has to take place and needs to be reported based on a template for the local stakeholder consultation report within one month following the date of the meeting. To allow stakeholders to better understand the project a non-technical summary of the project has to be provided in an appropriate local language.

In the stakeholder consultation, stakeholders need to score each sustainability indicator negative, positive or neutral. If parameters are scored 'negative' by the stakeholders without them being sufficiently balanced by mitigation measures, the sustainability assessment may have to be revisited. This assessment has to be performed by an independent third party.

There are different categories of stakeholders that have to be invited to the stakeholder consultation:

- Local people impacted by the project or their official representatives
- Local policy makers and representatives of local authorities
- An official representative of the DNA/Designated Focal Point (DFP) of the host country of the project or the UNFCCC focal point if no DNA/DFP has been established (for CDM/JI projects)
- Local NGOs working on topics relevant to the project
- Local GS experts closest to the project location (recommended, but not mandatory)
- Relevant international NGOs that support the GS and have a representation in the region, and ALL national GS supporter NGOs from the host country of the project

After the meeting evaluation forms have to be filled in by the stakeholders to gain an overall perspective of stakeholder opinion on the project. Not all comments have to result in a change in the project design, but all stakeholder comments have to be taken into account. A consultation report has to be uploaded to the GS Registry within one month after the meeting in order to obtain GS applicant status.

Additional requirements

In addition to the above requirements, projects have to comply with three supplemental requirements to receive the GS label:

- As under the rules of the regular CDM, the project has to fulfil host country requirements for EIAs. For a micro-scale project, a project owner declaration is required that guarantees that the project complies with local environmental regulations.
- The project must not receive Official Development Aid (ODA) under the condition that the CERs coming out of the project are transferred to the donor country.

Most of the GS requirements have to be validated by a DOE as an independent third-party entity. The DOE is instructed to very carefully check the argumentation. Project stakeholders shall be interviewed, the project site has to be visited, and data and statements have to be checked.

Version 2 requirements compared to Version 1

Version 2 specified existing requirements and added new ones. The first version already screened out end-of-pipe technologies and only allowed renewable energy and energy efficiency projects, but the eligibility requirements for certain project types as listed in Table 7 have been added in Version 2. Furthermore, the GS specified how to apply the sustainable development matrix and added the safeguarding principles and the sustainable development monitoring.

3.1.2 Preliminary Analysis

Sustainable development requirements

The quality label uses a combination of restrictions and positive incentives to assure the quality of the projects.

First, the GS uses a positive list to screen out project types that are seen to have a limited potential to contribute to its objectives. As one major objective is to mitigate climate change, it seems consistent to only allow renewable energy and energy efficiency project activities. Furthermore it is unlikely that end-of-pipe technologies bear a large potential to positively contribute to the local environment and to foster economic or social benefits. For instance, the GS screens out HFC destruction projects. The GHG HFC is a by-product of refrigerant production. Its incineration requires a simple and relatively cheap piece of equipment called a scrubber.

However, a positive list screening out everything except renewable energy and energy efficiency projects can be considered an arbitrary definition of sustainable development. For instance, Renat Heuberger from South Pole

Carbon Asset Management points out that sustainable waste management projects are only eligible if they include energy production, even though the emission reductions mainly occur because of the methane recovery (Interview Heuberger). Michael Schlup, director of the Gold Standard Foundation, acknowledges that the list of eligible projects could be extended to allow other sustainable project activities. The strategic aim of the GS is to "be the sustainability benchmark in every carbon market" (Interview Schlup). Therefore, Mr. Schlup can imagine to introduce the GS for activities that reduce emissions from deforestation and forest degradation (REDD).

Eligible projects must demonstrate (positive) impacts by applying the "sustainable development matrix". According to the interviewees, its application is handled flexibly. In order to avoid unnecessary costs and to assure that application is feasible, the projects proponents are not required to assess criteria that will obviously not be affected. Moreover, the GS does not require to commission quantitative impact assessments but settles for doing a plausible qualitative explanation of the potential impacts.

The most important means to assure high quality is a "bottom-up review process" (Interview Schlup), meaning that the GS experts closely monitor project design and implementation. The stakeholder consultation is another means to give a feedback to the project developer. It allows local communities to improve the project design according to local conditions. Moreover, the global network of associated NGOs is expected to critically assess the project design. In conclusion, the GS allows for different understandings of sustainable development. As long as stakeholders support a certain project, it may be GS-certified.

The GS also uses a number of restrictions to assure minimisation of negative impacts. These restrictions are the additional eligibility criteria, the safeguard principles and the EIA.

The list of additional eligibility requirements (see Table 7) particularly refers to recent criticism about certain project types, such as palm oil production and run-of-river projects. The impact of a rising demand for palm oil on rain forest destruction and food supply has been proven by a number of studies (e.g. Reinhardt et al. 2007). Von Geibler (2007: 33) states that quality standards for palm oil production yield sustainability contributions, but have only a limited effectiveness if they do not refer to the supply chain as a whole. The GS indeed restricts CDM palm oil projects by requiring checking impacts on the whole supply chain before implementing the project.

The decisive point is whether the list of requirements indeed leads to (more) sustainable projects in practice. This crucially depends on the project developer. If the project developer is willing and motivated to implement a sustainable

project, then the GS's certainly provides incentives. But being a voluntary label, the GS obviously has no means to influence project developers that have little regard for sustainable development impacts.

The GS's ex post monitoring can be regarded as an innovative instrument, since it reassesses the project developer's ex ante information. It can be assumed that this requirement will make the project developer consider the impacts of the project early in the process and in as much detail as possible.

Additionality requirements

The GS relies on the official UNFCCC additionality tool and the combined tool. The original purpose of these is to improve the integrity of conventional projects. The tools were issued as a guidance document for project developers and validation & verification companies (DOEs) rather than a standard, but are already widely used. In this respect, the GS's comprehension of additionality is quite similar to that of the EB.

However, criticism remains. Critics argue that in many cases even project developers are unable to identify the make-or-break factors on which the development of a project depends. Considering also the subjectivity involved in such decisions, it may be impractical in most cases for developers to prove their own motivations, and for auditors to accurately assess these motivations (CAN 2009). Schneider (2007: 34) concludes, that "the way in which the barrier analysis is currently designed in the tools, implemented by project participants, and verified by DOEs is unlikely to result in a reasonable differentiation between additional and non-additional projects."

Since the GS relies on the tools from the CDM EB, it can be assumed that non-additionality is as much a problem for the GS as is the case for conventional projects.

3.2 Comparison of the Gold Standard to Other Standards

This chapter lays out the comparison of the GS with other standards as detailed in chapter 2.2.1. The comparison is carried out according to the following elements:

- Eligibility
- Additionality
- Contribution to sustainable development
- Stakeholder consultation
- (Ex post) monitoring, and
- Operationalisation

3.2.1 The CCB Standards

Background

In 2003, The Climate, Community & Biodiversity Alliance (CCBA) was founded as a global partnership of leading companies, NGOs and advising institutions. With the goal of promoting the development of forest protection, restoration and agroforestry projects, it has created the voluntary "CCB Standards" (Climate, Community & Biodiversity Standards) to identify high quality multiple-benefit land-based carbon projects (CCBA 2008). The CCB Standards' first edition (released in 2005) was revised in 2008. The second edition is analysed in this study. In November 2008, the CBB Standards claimed to be the "the most widely used and respected international standard for the multiple-benefits of land-based carbon projects" (ibid.: 4). As of 30 October 2008, 13 projects had completed the CCB Standards' validation process and 26 projects were undergoing validation (Website CCB Standards).

Eligibility Criteria

The CCB Standards can be applied to any land-based carbon projects that generate carbon credits for either compliance or voluntary markets by

- reducing GHG emissions through avoided deforestation and forest degradation (REDD) and
- removing carbon dioxide (CO_2) by sequestering carbon through LULUCF activities, e.g. afforestation, reforestation, revegetation, forest restoration, agroforestry and sustainable agriculture.

The CCB Standards do not allow the generation of GHG emission reductions through the use of genetically modified organisms (GMOs). The occurrence of global invasive species (non-native species that threaten ecosystems, habitats or species) must not increase as a result of the project.

With this sectoral focus, the CCB Standards differ strongly from the **GS** which currently only allows renewable energy and energy efficiency projects.

Additionality

Like the **GS,** the CCBA has so far not introduced an own methodology to demonstrate additionality. The guidelines solely state that the project proponent shall estimate the net change in carbon stocks due to the project activities using the IPCC methods for national GHG inventories or "using a more robust and detailed methodology" (CCBA 2008: 22).

Sustainable development

The CCB Standards comprise fourteen required criteria which are grouped under a "General Section", a "Climate Section", a "Community Section" and a "Biodiversity Section" as well as three optional criteria, which are grouped under the "Gold Level Section" (ibid.). To earn CCBA approval, projects must satisfy

all fourteen required criteria. Projects that provide exceptional benefits may achieve a Gold Level status by satisfying one of the three optional Gold Level criteria. Each of the CCB Standards' criteria has numerous detailed indicators which all have to be treated by the project proponent.

The **General Section** comprises five criteria starting with the requirement of a detailed description of the original conditions in the project area. This includes information on the current vegetation, biodiversity, carbon stocks, land use, customary and legal property rights as well as communities located in the project zone and conflicts. Furthermore, it has to be evaluated whether the project zone includes High Conservation Values (HCVs) such as significant concentrations of biodiversity values (e.g. protected areas, threatened or endemic species), threatened or rare and critical ecosystems and habitats as well as areas which provide critical ecosystem services (e.g. hydrological services, erosion control, fire control), are fundamental for meeting the basic needs of local communities (e.g. for essential food, fuel, fodder, medicines or building materials without readily available alternatives) or which are critical for their traditional cultural identity (e.g. areas of cultural, ecological, economic or religious significance).

Furthermore, baseline projections, project design and goals have to be described for various topics (e.g. land-use, project benefits and risks, affected communities, biodiversity, HCVs, financing). All information given in the project design has to be provided with sufficient detail as to allow an adequate external evaluation. The CCB Standards ask for best practices for project management, too. This criterion includes local capacity building, equal opportunity when filling employment positions, the coverage of the host country's worker's rights and the care for worker safety. The last of the CCB Standards' general requirements covers legal issues and property rights.

The CCB Standards' **Climate Section** requires the project to cause net positive climate impacts. Moreover, leakage has to be quantified and mitigated.

The **Community Section's** requirements include the generation of net positive impacts on the social and economic well-being of communities. Furthermore, project developers have to ensure that costs and benefits are equally shared among community groups and members during the project lifetime. Additionally, the project must maintain or enhance the HCVs that are particularly important for the local communities' well-being. Considering the well-being of Offsite Stakeholders (stakeholders living outside the project area), the project should at least follow the "do no harm" approach.

Concerning biodiversity, the CCB Standards' requirements include net positive impacts on biodiversity within the project zone and within the project lifetime compared to the baseline scenario. The project should also maintain or

enhance HCVs which are present in the project zone and of importance in conserving significant biodiversity values. Specific measures used for this purpose must be consistent with the precautionary principle.

Likely negative impacts on biodiversity outside the project zone resulting from project activities must be evaluated, mitigated and justified by the project proponents. In this context it must be demonstrated that the net effect of the project on biodiversity is positive.

There are three optional criteria, grouped under the **Gold Level Section.** By fulfilling either one of them, a project can achieve the CCB Standards' Gold Level status. The first criterion applies to projects in areas that are likely to be vulnerable to climate change that support communities and/or biodiversity significantly in adapting to the probable impacts of climate change (Climate Change Adaptation Benefits).

Projects that explicitly aim at improving the life of globally poorer communities and the poorer, more vulnerable households and individuals within them and achieve to significantly contribute to the reduction of this poverty are grouped under "Exceptional Community Benefits". This criterion also requires that the project at least follows the "do no harm" approach to poorer and more vulnerable members of the community. No member of such a group shall experience a negative net impact on his/her well-being or rights.

Projects with exceptional biodiversity benefits at sites of global significance for biodiversity conservation based on the Key Biodiversity Area (KBA) framework of vulnerability and irreplaceability can be grouped under "Exceptional Biodiversity Benefits".

For all of its criteria, the GS has defined indicators such as lead, ozone or NO_x for "air quality", number of hospitals available or proportion of population below minimum level of dietary energy consumption for "livelihood of the poor" and household income generated from the project for "quantitative employment and income generation". The use of these indicators facilitates a clear measurement of the project's environmental, social and economic impacts (positive, neutral, negative). Thus, on the one hand, the GS's indicators give explicit guidance for project proponents on which information has to be provided to prove compliance with a criterion. On the other hand, they make it easier for the GS to evaluate whether a project actually complies with a criterion. The CCB Standards' indicators, in contrast, ask a project proponent to describe, evaluate, estimate, calculate or just demonstrate a range of aspects important for the assessment of a project's impacts without specifying, in most cases, how this should be done. This makes it more difficult for the project proponents to decide which information they should provide and for the CCBA to decide in which case a criterion is fulfilled. For GS approval, the project proponent can select

one of the indicators to prove compliance with a criterion, while the CCB Standards require all of its topics to be treated.

Concerning the **environment,** the GS's criteria include air quality, water quality and quantity, soil condition, biodiversity and other pollutants. The CCB Standards treat all of these topics, too, but with a different emphasis.

Thus, only biodiversity and climate change are among its criteria while the project's impact on water and soil only have to be included in the 'without-project' reference scenario which will be used to measure the project against. The CCB Standards do not define indicators for soil and water.

Apart from a 'without-project' reference scenario, the CCB Standards define indicators for air quality to be estimated for the project's impact on climate change such as emissions from biomass burning, fossil fuel combustion, the use of synthetic fertilizers, and emissions from the decomposition of N-fixing species, thus using an approach similar to the GS's.

Owing to its sectoral focus, the CCB Standards' requirements concerning biodiversity are stronger than the GS's. For GS approval, a project may have a positive or no impact on biodiversity. Even a negative impact on biodiversity can potentially be acceptable if it can be neutralised with mitigation measures. The CCB Standards, in contrast, require a project to have a net positive impact on biodiversity. In addition to a reference scenario, an evaluation of whether the project zone includes clearly defined HCVs as well as a description of these HCVs and the current biodiversity, the project proponent has to describe threats to that biodiversity and has to maintain or enhance HCVs that are important in conserving significant biodiversity values and present in the project zone. To achieve CCB Standards' Gold Level status, a project even has to cause exceptional biodiversity benefits at sites of global significance for biodiversity conservation.

Both the GS and the CCB Standards require compliance with the precautionary principle, even though the CCB Standards only ask for it concerning biodiversity while the GS applies a broader understanding including threats of harm to human health or the environment in general.

In the category **"social development",** similarly to the GS's criterion "livelihood of the poor", the CCB Standards are concerned with the project's impact on local communities. Again, while the GS contents itself with a project having a positive, neutral or even negative impact which can be neutralised, the CCB Standards require the project to generate net positive impacts on the social and economic well-being of communities. For this purpose, projects have to maintain or enhance HCVs that are of particular importance to the communities' well-being and at least 'do no harm' to the well-being of offsite stakeholders. Impacts shall be equitably shared among community members and constituent

groups. An explicit pro-poor focus qualifies projects for CCB Standards' optional Gold Level status, which characterizes projects with exceptional benefits.

Both the GS and the CCB Standards have defined requirements on the quality of employment in the project. Equally, they comprehend job-related health and safety, workers rights and equal opportunity. Other indicators of the GS to prove compliance with this criterion are whether the jobs are highly or poorly paid, freedom of association, right to collective bargaining and no compulsory or child labour. The CCB Standards, in contrast, focus on best practice for project management which includes local stakeholder employment, a definite process for handling grievances, clear distribution of roles and responsibilities for the project's design and implementation, an assessment of the skills required and available for the successful implementation of the project and a solid legal framework. For CCB Standards approval, all of these topics have to be treated.

Regarding **economic development,** the CCB Standards do not cover the GS's criteria "balance of payments and investments" and "technology transfer". Only the CCB Standards requirement to generate net positive impacts on the economic well-being of communities can be interpreted as to be similar to the GS's third economic development criterion "quantitative employment and income generation".

Both standards are concerned with involuntary resettlement, but the CCB Standards do not share the GS's focus on Human Rights and corruption.

On the other hand, the CCB Standards have some requirements that are not needed for GS approval. Thus, the CCB Standards require the project proponent to summarize the project's major climate, community and biodiversity objectives and the contribution of each project activity to achieving these as well as measures that will be taken to maintain and enhance the project's benefits beyond the life of the project. The project proponent has to justify that project benefits would not have arisen without the project.

Moreover, the original conditions at the project area including communities, current land use, customary and legal property rights, ongoing or unresolved disputes and disputes over land tenure that were resolved during the last decade have to be described. All conflicts have to be resolved before the project starts. Furthermore, for CCB Standards approval, a range of potential 'without-project' reference scenarios has to be presented for land-use.

The CCB Standards require the project proponent to prove the project's economic viability and its respect for legal aspects. Any illegal activities in the project zone that could influence the project's impact on climate, community or biodiversity (e.g. logging) have to be identified and the project proponent has to explain its role in reducing these activities to ensure that project benefits do not

occur due to illegal activities. All information provided has to include enough detail as to allow a proper evaluation by a third-party.

All of the CCB Standards' additional Gold Level Section exceeds the GS's requirements. Adaptation benefits are not considered by the GS at all.

In summary, the CCB Standards' sustainability criteria and indicators are spelt out in much more detail. They do not cover all of the GS's criteria but include some additional ones. The CCB Standards' focus on biodiversity, property and land-use rights can be explained with its sectoral approach, as these topics are of special interest in land-use projects.

Stakeholder consultation

As the CCBA is convinced that "(e)ffective local participation in project design and implementation is key to optimizing multiple benefits, equitably and sustainably" (ibid.: 16), the CCB Standards' criteria contain a number of requirements on the consultation of and the communication with stakeholders.

First of all, the project proponent has to identify communities and other are potentially affected by the project and document the specific steps that have been taken to involve them in project design through effective consultation. This process should maintain HCVs, focus on optimizing benefits to the affected stakeholders and respect local customs and values. The CCBA stresses the importance of socially and culturally appropriate methods when engaging with stakeholders and requires consultations to be gender and inter-generationally inclusive. Also, the communities have to be able to choose the procedures to designate their representatives and locations for consultation have to be agreed on mutually. For a proper stakeholder consultation, all affected stakeholders must have an opportunity to evaluate a project's impacts, express concerns and desired outcomes. Their input on the project design must be enabled both before the project design is finalized and during implementation.

The project proponent has to actively distribute project documents to the affected communities and stakeholders and organize publicized information meetings in relevant local or regional languages. Project documents that are under CCB Standards' evaluation are publicized on www.climate-standards.org for a minimum of 30 days inviting public comments. During this so called 'CCBA public comment period', the auditor has to respond to all comments that have been received in the audit report. The description of the project design (criterion of the General Section) has to include detailed information on the ways in which the CCBA public comment period has been publicized to all relevant stakeholders and how the submission of comments to CCBA has been facilitated. Also, the monitoring plan and the results of monitoring have to be introduced to the communities and other stakeholders and made publicly available on the internet.

Furthermore, the CCB Standards ask the project management to resolve all sensible grievances stakeholders may raise. This requires the definition and the publication to stakeholders of precise steps to deal with unresolved conflicts and grievances. The project design has to formalize a clear process for the handling (hearing, responding to and resolving) of stakeholder grievances in an adequate time period. Grievances must be responded to and documented in written form within 30 days. A third party or mediator has to be in charge of grievance processes to avoid conflicts of interest.

All stakeholder dialogues have to be documented. If a project proposal has changed due to stakeholder comments, this has to be described. With the goal to facilitate adaptive management during the life of the project, CCB Standards require the project proponent to develop a plan to continue communication and consultation between project managers and stakeholders on the project and its impacts.

A look at the **GS's** stakeholder consultations shows clear differences in the definitions of the requirements. The GS focuses on defining the process of the stakeholder consultations. It clearly establishes two rounds of stakeholder consultation to be conducted: the local stakeholder consultation and the 'stakeholder feedback round'. For these consultations, as for the CCB Standards', some specifications are made regarding which stakeholders have to be invited and that a non-technical summary of the project has to be provided in an appropriate local language to facilitate stakeholders understanding of the project activities. The GS's stakeholder consultation exceeds the CCBA's by asking for evaluation forms which stakeholder have to use to evaluate the project's impacts using a scoring system.

The CCB Standards focus in more detail than the GS on the way in which stakeholder consultations have to be conducted ("engage broadly with all community groups and other stakeholders using socially and culturally appropriate methods" CCBA 2008: 17) and documented, which information has to be made available to stakeholders, and on the continuity of the consultation and communication between stakeholders and project managers. Furthermore, they define how unresolved conflicts and grievances that arise during project planning and implementation have to be treated. For CCB Standards approval, communication with and the consultation of stakeholders have to be an ongoing process.

Monitoring

The CCB Standards require an initial monitoring plan to be in place before the start of a project. Such a plan has to identify which communities and other stakeholders will be monitored. Then, changes within and outside the project

boundaries resulting from the project activities have to be quantified and documented for three different spheres:

- changes in project-related carbon pools, project emissions, and non-CO_2 GHG emissions (if appropriate),
- changes in social and economic well-being resulting for communities and other stakeholders and
- changes in biodiversity.

Furthermore, the project developer has to define a plan to monitor leakage for at least five years after all activity displacement or other leakage causing activity has taken place.

The CCB Standards suggest to use variables such as income, employment generation, health, market access, schools, food security and education to monitor the impact on stakeholders and variables such as the abundance of species, population size, range, trends and diversity, habitat area, quality and diversity, landscape connectivity and forest fragmentation to monitor a project's impact on biodiversity. Information has to be provided on the types of measurements, the sampling method and the frequency of measurement.

As long as there is an explicit commitment to develop and implement a monitoring plan within six months of the project start date or within twelve months of validation, it is acceptable that some plan details may not be fully defined at the design stage. The monitoring plan and all monitoring results have to be made publicly available.

Both the CCB Standards and the **GS** employ a similar approach to monitoring. However, while for the GS, only the non-neutral indicators in the sustainable development matrix and indicators which have been neutralised with mitigation measures have to be monitored, the CCB Standards request monitoring for the three main categories of its sustainability criteria: a project's climate, community and biodiversity impact.

Operationalisation

For CCB Standards' approval, the project proponent has to fulfil all of the 14 required criteria. To reach Gold Level status, a project has to comply with at least one of the three optional criteria. For each of the criteria, detailed information is given in the form of several indicators on how compliance has to be proved. All indicators have to be considered by the project proponent.

Conformity with the CCB Standards has to be evaluated by an independent accredited auditor at two stages: For CCB validation, the project's design is assessed against each of the CCB Standards' criteria. For this purpose, the auditor has to not only review project documentation and the public comments but also to visit the project to interview project implementers, speak with

relevant stakeholders and find evidence of conformity of questionable claims (CCBA n.d.[6]). In the CCB verification, the project's real impact on climate, community and biodiversity is compared against the project's validated design and monitoring plan. It is necessary to perform a verification at least every five years.

Concerning operationalisation, the CCB Standards differ from the **GS** in various aspects of which the most important will be highlighted in this section. As to the project's contribution to sustainable development, the CCB Standards have defined a project checklist with determined criteria which can be completed in one step, followed by monitoring, whereas the GS uses three subsequent steps (safeguarding principles, sustainable development matrix, sustainability monitoring plan). In turn, the CCB requirements are more comprehensive than the GS's. While for a GS criterion to be fulfilled, only one of the indicators has to be selected and applied, all of the CCB Standards' indicators have to be considered. Also, the stakeholder consultations have to be conducted differently for the two standards. While the GS defines two stakeholder consultations to be held, the CCB Standards' stakeholder consultation is an ongoing process.

Conclusions

Due to their different sectoral focus, the GS follows a broader understanding of sustainable development while the CCB Standards accentuate those aspects that are especially important for land-use projects: the project's impact on biodiversity, land use and property rights. Nevertheless, the analysis of the CCB Standards is of great value for the evaluation of the GS.

The CCB Standards give detailed guidance on how to achieve approval. For all criteria, a list of explicit indicators is provided. All of these indicators have to be considered by the project proponent. Thus, on the one hand, the CCB Standards' sustainability assessment leads to great transparency and expressiveness. On the other hand, the substantial information asked for may require significant financial and human resources. The GS's sustainability assessment, too, requires time and money, but the scoring system in the sustainability development matrix manages to condense topics to key elements. Furthermore, not all of the indicators have to be discussed for each of the GS's criteria but only one relevant indicator has to be selected. This enables a more economic approval process. Then again, it includes the risk that not all indicators that would be relevant for the evaluation of a criterion are considered by the project proponent.

The CCB Standards' permanent communication with and consultation of stakeholders during all of the project's lifetime clearly go far beyond the GS's

[6] No date.

approach to ensure stakeholder involvement. It has to be considered, however, whether the additional effort leads to substantially more sustainability in project activities.

3.2.2 The EBRD Standard

Background

Since the EBRD adopted its first Environmental Policy in 1991, the scope of the Policy has evolved and is now an Environmental and Social Policy. The Policy and related Performance Requirements took effect on 12 November 2008 and shall promote the environmental and social dimensions of sustainable development (EBRD 2008).

Eligibility Criteria

The EBRD does exclude project activities from financing which are involved in

- the production of or trade in any illegal product or activity (e.g. trade in wildlife; production or trade of wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 7, products containing polychlorinated biphenyls (PCBs), pharmaceuticals, pesticides/herbicides, ozone depleting substances and other hazardous substances subject to international phase-outs or bans; illegal transboundary movements of waste; trade in goods without required export or import licenses or other relevant evidence of authorization),
- illegal activities relating to the protection of biodiversity resources or cultural heritage,
- the shipment of oil or other hazardous substances in tankers which do not comply with International Maritime Organization (IMO) requirements,
- driftnet fishing in the marine environment using nets in excess of 2.5 kilometres in length and
- the production, use of or trade in unbonded asbestos fibres or asbestos-containing products.

Financial Intermediaries who want to finance specified environmentally or socially sensitive business activities (e.g. activities involving the release of GMOs into the natural environment, involuntary resettlement or land occupied by Indigenous Peoples, activities in protected or endangered areas or which may affect adversely sites of cultural or archaeological significance, activities in the nuclear fuel production cycle or which generate energy using nuclear fuels, the construction of mini-hydro cascades) have to consult the EBRD.

These restrictions represent a negative list-approach, rather than a positive list as used in the GS.

Additionality

As the EBRD does not aim at CDM projects this point is not relevant.

Sustainable development

The EBRD has defined ten detailed environmental and social criteria ("Performance Requirements") that have to be met by project proponents. The EBRD's "Environmental and Social Policy" (2008) contains an introduction, the objectives, the scope of application and requirements for each one of its criteria. Not all of the criteria apply to all project types. For some criteria, individual agreements between the EBRD and the project proponent have to be made on how relevant requirements of the criterion will be addressed.

The first of the EBRD's requirements ask the project proponent for adequate **environmental and social appraisal** (e.g. through risk assessment, auditing, impact assessments) **and management.** The EBRD clearly defines the way in which these have to be undertaken: For example, the project proponent shall describe the project, its environmental and social impacts as well as a social and environmental baseline and identify applicable laws and regulations. For some projects, additional due diligence studies or environmental and/or social impact assessments including an audit are necessary which are described in detail by the EBRD. Furthermore, mitigation and performance improvement measures shall be developed and implemented to address the identified social and environmental issues in an Environmental and Social Action Plan (ESAP). The ESAP shall include information on the project's risks, impacts and opportunities as well as on how to achieve additional environmental and social benefits and how disadvantaged or vulnerable stakeholders are treated, where appropriate. Moreover, an organisational structure with clear lines of responsibility has to be established with appropriately qualified employees responsible for social and environmental performance. Contractors have to be managed effectively as defined by the EBRD.

The second criterion **(Labour and Working Conditions)** requires that the project proponent establishes and maintains a sound worker-management relationship and adopts and maintains human resources policies appropriate to the project size and workforce. These policies have to be clear, understandable and accessible to the workers.

The working conditions and terms of employment, including entitlements to wages, hours of work, overtime arrangements and overtime compensation, and any other benefits (such as leave for illness, maternity/paternity or holiday) have to be documented and communicated to all workers. Additionally, the project proponent has to provide a grievance mechanism for workers to raise reasonable workplace concerns. Also, the project has to be compliant with national labour, social security and occupational health and safety laws, relevant EU occupational safety and health (OHS) requirements (for this purpose, an OHS management system has to be maintained; where EU OHS requirements do not exist, the project has to be compliant with relevant IFC

OHS guidelines) and certain International Labour Organization (ILO) conventions like ILO conventions 87 (freedom of association) and 98 (right to collective bargaining).

The project shall be compliant with the ILO conventions 138 (minimum age) and 182 (worst forms of child labour), so that no children will be employed in a manner that is economically exploitative, or is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development. Persons below the age of 18 years shall be subject to an appropriate risk assessment and not be employed in hazardous work. Where low labour costs are a material factor in the competitiveness of the item supplied an inquiry about the use of child labour and forced labour has to be carried out. Furthermore, the project shall be compliant with the ILO convention 29 and 105 (forced and bonded labour). This includes to refrain from the use of any work or service not voluntarily performed that is exacted from an individual under thread of force or penalty.

The project shall also promote the fair treatment, non-discrimination and equal opportunity of workers (ILO conventions 100 and 111) in all aspects of the employment relationship. In particular employment decisions (hiring, compensation, working conditions, terms of employment, access to training, promotion, termination of employment, retirement and discipline) shall not be based on personal characteristics (gender, race, nationality, ethic origin, religion, belief, disability, age or sexual orientation) unrelated to inherent job requirements.

All workers have to be provided with a safe and healthy environment, taking into account inherent risks in its particular sector and specific classes of hazards in the client's work areas. The EBRD has defined specific steps (e.g. identifying and minimising the causes of potential hazards, preventive and protective measures, appropriate protective equipment, training in health and safety procedures and protective equipment) the client has to take to prevent accidents, injury and disease arising from, associated with, or occurring in the course of work. Where accommodation for workers is provided, it has to be appropriate, clean and safe.

In the case of collective dismissals, a plan is necessary to mitigate the adverse impacts of retrenchment. This plan has to comply with national law and good industry practice. When workers are employed through a contractor, this contractor has to be a reputable and legitimate enterprise and employ the same labour standards as the project proponent with the exception of retrenchment. Reasonable steps have to be taken to inquire about the use of child labour and forced labour in the supply chain for central goods and materials for the project. Where such violations are found to exist in the supply chain, the EBRD client should only continue to purchase such goods and materials after the supplier

has proved to refrain from these violations within a reasonable time frame. The progress of this process concerning child labour has to be reported to the EBRD regularly.

For the EBRD's criterion **"Pollution Prevention and Abatement",** compliance with applicable national law and relevant EU environmental requirements or more stringent host country regulations has to be achieved. Where the latter do not exist, other good international practice has to be applied as agreed on individually for each project with the EBRD.

The application of pollution prevention and control technologies is necessary in combination with practices that are best suited to prevent or, where this is no possible, minimise adverse impacts on human health and the environment. Measures to include energy efficiency and conserve water and other resources should be taken (principles of cleaner production). In addition, the release of pollutants (due to routine, non-routine or accidental circumstances with potential local regional or transboundary impacts) and the generation and negative impacts of hazardous and non-hazardous waste materials shall be avoided or minimized. The project proponent shall reuse, recycle or recover waste, or use it as a source of energy where waste cannot be avoided. If this is not possible, waste shall be treated, destroyed and disposed of in an environmentally sound manner. For hazardous waste, commercially reasonable alternatives for an environmentally sound disposal have to be explored. The use of hazardous substances and materials has to be avoided, reduced or eliminated and the use of less hazardous substitutes has to be considered. Where avoidance is not viable, the project proponent has to consider the safety of hazardous substance uses and apply appropriate risk management measures to minimise or control the release of such substances. The manufacture, trade, and use of hazardous substances and materials subject to international bans or phase-outs have to be avoided by the project proponent. The EBRD provides detailed information on the required formulation and implementation of an integrated pest management (IPM) and/or integrated vector management (IVM) approach to promote the sustainable use of pesticides.

The EBRD requests the project proponent to be prepared to react adequately to process upsets, accidental and emergency situations as to avoid negative consequences. The project proponent has to treat negative impacts on current ambient conditions considering relevant factors such as the environment's finite assimilative capacity, land use, ecologically sensitive or protected areas, the potential for uncertain and irreversible consequences of cumulative impacts.

Furthermore, the project proponent has to expediate the reduction of project-related GHG emissions in a manner adequate for the nature and scale of the project and its impacts. Data has to be provided on the project boundaries and the occurrence of significant quantities of GHG production in accordance with

EBRD guidance. Options for the reduction of a project's carbon intensity have to be assessed.

The EBRD's fourth criterion treats **community health, safety and security.** It requires that risks and potential adverse impacts on the health and safety of the local community during the project life cycle and major-accident hazards have to first be identified and evaluated and then be avoided or minimised. Concerning identified major accidents, an appropriate management system has to be established which includes inter alia organisational structures, responsibilities, procedures, communication, training and resources necessary to respond effectively as well as an internal and an external emergency plan.

The risk of communicable diseases has to be identified and, where appropriate, avoided or minimised. The EBRD encourages project proponents to improve environmental conditions to reduce endemic diseases in the project area of influence. Material risks to or potential negative impacts on health and safety as well as prevention measures have to be cleared with affected communities and relevant authorities and reported to the EBRD. The life cycle of all structural elements or components of the project has to follow good international industry practice and consider natural hazards. Projects entailing a high-risk to the safety of communities such as dams, tailing dams or ash ponds in high-risk locations have to be reviewed externally. The EBRD requires the project proponent to prevent or minimise the exacerbation of natural hazards and negative impacts on air, soil, water, vegetation, fauna and other resources used by the affected communities.

The project proponent has to make preparations to be able to react adequately to process upsets, accidental and emergency situations on an appropriate schedule and collaborate with the community and local government agencies in this process.

Special requirements are defined for the employment of security personnel (compliance with the principles of proportionality, good international practices for employment decisions and applicable law and investigations on the suitability of the security personnel to provide security (training, no past abuses)) and the use of services of government security personnel. The use of force is only acceptable for preventive and defensive purposes. A grievance mechanism has to be established for security arrangements and any allegations of illegal or abusive acts of security personnel have to be investigated and recurrence prevented.

In its fifth criterion, the EBRD defines numerous detailed requirements concerning **land acquisition, involuntary resettlement and economic displacement** like the criterion's application to be in line with human rights and freedoms (specifically the right to adequate housing and the continuous

improvement of living conditions) and the application of the Guiding Principles on Internal Displacement in cases of displacement as a result of conflict prior to the EBRD's involvement. The EBRD requires that physical and/or economic displacement shall be avoided or at least minimised, where possible. Affected persons and communities have to be informed and included in decision-making on resettlement (see section on stakeholder consultation for details) and a grievance mechanism established. In cases where involuntary resettlement cannot be avoided, appropriate measures to mitigate adverse impacts on displaced persons and host communities should be carefully planned and implemented. For this purpose, a qualified specialist has to conduct a census and a socio-economic baseline assessment. In addition, a Resettlement Action Plan (RAP) or Livelihood Restoration Framework (LRF) has to be prepared. A RAP should be prepared when physical displacement of people is involved. It should be communicated to affected people and include, inter alia,

- information on the legal framework for land acquisition and compensation,
- information on the resettlement's objectives, impacts and unavoidability,
- a demonstration of the fact that the resettlement has been minimised,
- information on all affected people and assets and the consultation process,
- measures providing displaced people with legal assistance,
- entitlements to compensation and assistance,
- information on responsibilities, the timetable and budget for the implementation of the plan,
- a focus on poor, disadvantaged or vulnerable individuals or groups and their equal treatment (e.g. non-discrimination concerning payments and compensation issued in the names of women) and
- a documentation of all transactions to acquire land rights, compensation measures and relocation activities.

To determine that all provisions have been fulfilled, an external completion audit of the RAP may be appropriate.

In cases involving economic, but not physical displacement of people, a LRF has to be prepared to determine procedures to compensate and provide other assistance to affected persons and communities. Similarly to the RAP, the EBRD provides detailed information on how a LRF shall be conducted.

Furthermore, it specifies and defines different categories of displaced persons, the calculation of compensations (e.g. land-based compensation where livelihoods of displaced persons are land-based or where land is collectively owned) and assistance as well as the way in which a resettlement should take place. The EBRD requires the project proponent to strive to create opportunities for displaced persons and communities to gain appropriate development benefits from the project. Where land acquisition and resettlement are the

responsibility of the host government, the project proponent has to strive to achieve outcomes that are consistent with the described requirements.

Concerning **biodiversity conservation and sustainable natural resource management,** the EBRD supports a precautionary approach to the conservation, management and sustainable use of natural biodiversity resources, which shall include the concerns of relevant stakeholders. Impacts on biodiversity shall be managed consistent with the Rio Declaration and the Convention on Biological Diversity (CBD) and impact assessments shall refer to best practice guidelines on integrating biodiversity. The project proponent has to protect and conserve biodiversity, avoid adverse impacts and minimise those impacts where they cannot be avoided. Where they can neither be avoided nor minimised, measures to mitigate those impacts have to be identified (e.g. avoidance of sensitive sites or disruptive work at sensitive times like breeding seasons, translocation of species to temporary or permanent alternative sites, post-project site restoration and re-colonisation/stocking and the creation of similar habitats to offset residual impacts). Where significant residual impacts remain, the project proponent shall identify actions or projects to offset those impacts.

The project proponent shall identify and characterise the project's likely impact on biodiversity to the extent of due diligence taking into account climate change and adaptation issues and compensating affected stakeholders. Due diligence should consider modified, natural and critical habitats, protected and designated areas, invasive alien species, GMOs, sustainable management and use of living resources, natural and plantation forestry, fisheries, supply chain, biodiversity and tourism. For all of these topics, the EBRD has defined detailed requirements.

Special standards apply to projects where **indigenous peoples** are likely to be affected. In those projects, the project proponent is required to carry out a clearly defined assessment of impacts on this especially vulnerable group of stakeholders such as an Indigenous Peoples Development Plan (IPDP). Such a plan should summarize a social assessment, establish a grievance mechanism and direct all efforts towards avoiding any adverse project effects on indigenous peoples. Actions to minimise, mitigate and compensate for adverse effects that cannot be avoided as well as measure to derive benefits and/or development opportunities for the affected indigenous peoples have to be identified. The IPDP will be developed with the informed participation and consultation of affected indigenous peoples whose views regarding the project have to be considered at all times. Furthermore, the EBRD defines in detail how community engagement has to happen (e.g. understanding and respecting the culture, community heterogeneity and customary laws, involvement of indigenous peoples' representative bodies, organisations and individually

affected indigenous persons, appropriate language and time, full disclosure and documentation). In addition, a clearly defined grievance mechanism shall be provided and ethically based discrimination shall be prevented. Any conflict between the project proponent and indigenous peoples has to be reported immediately to the EBRD.

Another requirement is a precautionary approach to the management and sustainable use of **cultural heritage** consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage and the Convention for the Safeguarding of Intangible Heritage and in line with the Rio Declaration. This criterion includes the screening for risks or impacts on cultural heritage and impacts on intangible heritage. Negative impacts should be avoided. Impacts that cannot be avoided should be assessed and managed in cooperation with affected communities as defined by the EBRD. Provisions for managing chance finds (physical cultural heritage) have to be made and affected communities consulted. The cultural heritage of local communities may only be used in a project activity if the relevant communities have been informed of their rights, the scope and nature of the proposed commercial development and the potential consequences and have consented to the terms of use, which shall be beneficial for them.

The EBRD's tenth criterion **"Information Disclosure and Stakeholder Engagement"** will be discussed in the following section.

A **comparison with the GS** shows that the EBRD's requirements for sustainable development are much more detailed. The EBRD spells out exactly what they ask of project proponents including the way in which the requirements shall be met. On the other hand, the EBRD's requirements are to be adapted to the project and not all requirements apply to all projects. For GS approval, the project developer has to describe the relevance of each of the safeguarding principles for its project and adapt them to situation and context, as well, but has to consider all of the sustainable development matrix' fixed set of criteria for approval. To prove compliance with a criterion, the project proponent can select one of the GS's indicators. The GS's sustainable development matrix allows for a project to score positively, neutral or negatively for each criterion and then mitigate negative impacts so as to reach at least a positive score in two of the three GS's categories for sustainable development (environmental, social, economic) and contribute neutrally to the third. The EBRD's sustainability requirements generally ask a project proponent to avoid negative impacts and to minimise adverse impacts that cannot be prevented, a well. However, the EBRD does not ask for a specified level of positive contribution to sustainability.

Following the GS's structure of sustainability criteria, the GS's **environmental criteria** air quality, water quality and quantity, soil condition, biodiversity and

other pollutants all match those of the EBRD. Especially concerning biodiversity, however, the EBRD's requirements are much more explicit. The EBRD exceeds the GS in defining the way in which waste shall be handled – an issue not relevant for GS approval.

Though the EBRD encourages project proponents to benefit the community, the GS's general requirements concerning **social development** are much stronger. Thus, the GS has defined criteria on the livelihood of the poor, the project's impacts on the access to affordable and clean energy services, human and institutional capacity and the quality of employment. None of these criteria is treated explicitly by the EBRD. The two standards both attach importance to labour standards and working conditions, which the EBRD spells out in detail and the GS contains in the safeguarding principles.

Also, none of the GS's **economic development** criteria (quantitative employment and income generation, balance of payments and investments, technology transfer and technological self-reliance) is mentioned by the EBRD.

On the other hand, the EBRD exceeds the GS in the detailed definition of its social appraisal and management requirements, the treatment of hazardous substances and materials, pest and vector management, risk management and requirements concerning the employment of security personnel.

Furthermore, the EBRD has defined detailed criteria with numerous requirements concerning

- land acquisition, involuntary resettlement and economic displacement
- indigenous peoples and
- cultural heritage.

These topics are treated by the GS using the **safeguarding principles**, which solely state that the project shall not be involved in involuntary resettlement and the alteration, damage or removal of any critical cultural heritage and respect the uniqueness of indigenous people. No further guidance specifying these issues is provided by the GS.

Also, the EBRD asks for the establishment of a grievance mechanism, which the GS does not include.

Both standards support a **precautionary approach.**

Stakeholder consultation

For the EBRD, stakeholder engagement is essential for improving the quality of projects and the management of risks and impacts on affected communities. It supports the United Nations Economic Commission for Europe (UNECE) Aarhus Convention's affirmation of the environment being a public good which the public has a right to be informed about, consulted and be heard on.

For the EBRD's stakeholder consultation, the project proponent has to first identify all people or communities that are or could be affected directly or indirectly by the project activities and other interested parties, pointing out differentially or disproportionately affected individuals and groups (disadvantaged or vulnerable stakeholders) and the project's potential, actual or perceived impacts. All relevant stakeholders have to be included in an engagement plan that shall provide for sufficient information (nature, scale, duration, risks and potential impacts of the project, consultation process) and consultation as to ensure the stakeholders' appropriate engagement on environmental and social issues they might be affected by. An adequate level of information on the project and its impacts depending on the project category (see "operationalisation" below) and its impacts has to be provided. Stakeholders have to be informed and meaningfully consulted on an ongoing basis during all of the project's lifetime. Furthermore, a grievance mechanism has to be established providing stakeholders with the opportunity to utter concerns about the project. All relevant complaints have to be addressed promptly and effectively. A separate process for engagement should be determined for the different groups of stakeholders (workers, affected communities, disadvantaged or vulnerable groups of stakeholders).

The EBRD requires stakeholder engagement to be documented. It shall respect relevant law, be inclusive, free of manipulation, interference, coercion, and intimidation and consider cultural aspects. Stakeholders have to be provided with timely, relevant, understandable and accessible information in local language(s).

The EBRD has defined special requirements for stakeholder engagement for multi-site operations in receipt of general corporate finance, working capital or equity financing.

The most obvious difference between the EBRD's and the **GS's** requirements for stakeholder consultations concerns the stakeholder consultation process. While the GS asks for two rounds of stakeholder consultation to be held, the EBRD requires ongoing stakeholder involvement. The EBRD's explains in much more detail what project proponent should consider concerning stakeholder consultations in specific cases such as which information have to be provided for which type of project and expected project impact as well as explicit definitions of what meaningful consultation requires (e.g. disclosure of relevant and adequate information including draft documents and plan, where appropriate and relevant, when options are still open).

Monitoring

The EBRD monitors projects it has a financial interest in continuously. On a project-to-project basis, the EBRD and the project proponent define a

monitoring programme which uses the results of due diligence, public consultations and the framework of legal agreements concluded with the project proponent to specify the appropriate monitoring tools. The monitoring mechanism has to include a review of periodic reports submitted by the project proponent on the implementation of the environmental and social requirements, monitoring missions by the EBRD's environmental and social specialists to projects with significant social or environmental impacts and periodic third party monitoring which is conducted, for example, by independent specialists or representatives of the local communities.

The extent of monitoring depends on the project issues, impacts and compliance requirements and the ability of project proponents and/or local authorities to adequately monitor the project.

In case relevant circumstances have changed since appraisal or a previous monitoring, a plan has to be devised so that possible adverse social or environmental impacts can be addressed.

While the EBRD adapts monitoring to each single project, the **GS** asks for all indicators that are non-neutral or neutralized in the sustainable development matrix to be monitored.

Operationalisation

The EBRD requires project appraisal to be appropriate to the nature and scale of the project as well as to the level of environmental and social risks and impacts the project implies. Also, the project proponent’s capacity and commitment and the role of third parties for compliance are considered. Thus, the EBRD categorises proposed projects (A, B, C, FI) to customise requirements.

All EBRD-financed projects’ environmental and social performance is evaluated by the Bank’s Evaluation Department (EvD) along the lines with the relevant Environmental Policy, Country and Sector. The EvD reports directly to the Bank’s Board of Directors and sets out evaluation criteria and process in its own procedures, which are approved by the Board.

Changes that have significant environmental or social implications have to be reported to and approved by the EBRD, if appropriate.

Conclusions

The EBRD Environmental and Social Policy serves as guideline for a broad range of activities. As regards sustainable development criteria, both the GS and the EBRD demand a precautionary approach, but the operationalisation of this approach is different. The GS demands negative effects to be mitigated in such a way that it they are neutralised, whereas the EBRD demands negative effects to be “avoided” and “considered”, but still permits them. Thus, negative

impacts that cannot be avoided or mitigated prevent a project to get GS approval while the EBRD may approve it. Furthermore, the GS claims that a project should positively contribute to sustainable development, whereas the EBRD takes a no-harm approach. On the other hand, the amount of detail of the EBRD's criteria which spell out exactly the requirements for approval as well as the ongoing stakeholder involvement which accompanies a project during all of its lifetime account for the quality of the EBRD's requirements. However, the GS's method appears to provide for a clearer measurement of a project's sustainability impact and seems to be less time and cost intensive. Both the GS and the EBRD demand extensive documentation and monitoring in order to assure an appropriate assessment.

3.2.3 The IFC Standards

Background

The IFC of the WB Group aims to finance projects that have a positive development outcome in emerging markets and a commitment to social and environmental sustainability.

The predecessor of the IFC Standards, the Environmental and Social Safeguard Policies and Disclosure Policy, was adopted in 1998. In 2006 the process of updating the standards was completed. The "Standard on Social and Environmental Sustainability" comprises eight sustainability criteria (Performance Standards) which are described in the IFC Guidance Notes. The Guidance Notes currently in place have been updated in July 2007 and are to support project proponents to comply with the IFC Standards.

Eligibility Criteria

The IFC applies its standards to projects in its private sector financing in eligible member countries. It suggests that other financial institutions may apply them to projects in emerging markets, too. According to the IFC Exclusion List (Website IFC), the IFC does not finance the following projects:

- Production or trade in any product or activity illegal under host country laws or regulations or international conventions and agreements, or subject to international bans (e.g. pharmaceuticals, pesticides/herbicides, ozone depleting substances, PCBs, wildlife or products regulated under CITES),
- Project sponsors who are substantially involved in the production or trade in weapons, munitions, alcoholic beverages (excluding beer and wine), tobacco, gambling, casinos and equivalent enterprises,
- Production or trade in radioactive materials other than the purchase of medical equipment, quality control (measurement) equipment and any

equipment where IFC considers the radioactive source to be trivial and/or adequately shielded,

- Production or trade in unbonded asbestos fibres other than the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%,
- Drift net fishing in the marine environment using nets in excess of 2.5 km in length.

When the activities of the project company would have a significant development impact but circumstances of the country require adjustment to the Exclusion List, a reasonableness test will be applied.

For financial intermediaries, the IFC has defined additional exclusions:

Financial intermediaries investing in trade finance projects will not finance production or activities involving harmful or exploitative forms of forced labour or harmful child labour.

Financial intermediaries who invest in microfinance activities will not finance

- Production or activities involving harmful or exploitative forms of forced labour or harmful child labour,
- Production, trade, storage, or transport of significant volumes of hazardous chemicals, or commercial scale usage of hazardous chemicals (e.g. gasoline, kerosene, and other petroleum products),
- Production or activities that impinge on the lands owned, or claimed under adjudication, by Indigenous Peoples, without full documented consent of such peoples.
- All other financial intermediaries will not finance
- Commercial logging operations for use in primary tropical moist forest.
- Production or trade in wood or other forestry products other than from sustainably managed forests.

For the **GS,** in comparison, only renewable energy and energy efficiency projects are eligible.

Additionality

As the IFC does not aim at CDM projects this point is not relevant.

Sustainable development

The IFC's sustainable development requirements are grouped under eight criteria ("Performance Standards"). For each criterion, an introduction, the objectives and the scope of application are explained by the IFC before the requirements are determined in detail. Whether a criterion applies to a project

has to be determined individually and depends on the social or environmental risks and impacts a project bears. The IFC's Guidance Notes provide extensive instructions to dealing with these criteria including reference materials and good sustainability practices. Moreover, the IFC has prepared a glossary which contains detailed definitions of terms relevant for an assessment of a project's impact on sustainable development such as adequate housing, biodiversity, bonded labour and cleaner production. The IFC Standards are quite similar to the EBRD Standard in their approach as well as regarding their requirements.

The IFC's first performance standard requires the establishment of a **social and environmental assessment and management system.** Such a system has to contain a social and environmental assessment which determines whether a criterion applies to a specific project, a management programme, the organisational capacity, training, community engagement (see section "stakeholder consultation" below), monitoring and reporting, all of which are defined in detail by the IFC.

Performance Standards 2 through 8 describe potential social and environmental impacts and establish requirements to avoid, reduce, mitigate or compensate for impacts on people and the environment, and to improve conditions where appropriate using the project's social and environmental management system.

The IFC Standard on **Labour and Working Conditions** has been in part guided by ILO and UN conventions. Requirements include the adoption of an appropriate clear and understandable human resources policy under which the project proponent shall inform employees about their rights under national labour and employment law. The working conditions and terms of employment shall be documented and communicated to all employees. Workers shall not be discouraged from forming or joining a workers' union and the right to form and join worker's organisation where recognized in national law shall be respected as well as collective bargaining agreements with workers' organisations. In the absence of such agreements, working conditions and terms of employment have to be reasonable and comply with national law. Where workers' organisations are restricted substantially by national law, alternative means for workers to express their grievances and protect their rights concerning working conditions and terms of employment shall be provided.

Employment decisions shall be based on the principle of equal opportunity and fair treatment, and shall not discriminate (ILO 100, 111). Furthermore, a clearly defined grievance mechanism shall be provided for and be made accessible to workers to raise reasonable workplace concerns (ILO 87, 98). For the case of retrenchment, a plan has to be developed to mitigate adverse impacts on employees. Such a plan shall not discriminate and will reflect the project proponent's consultation with employees, their organisations and, where appropriate, the government.

Furthermore, the IFC Standards prohibit the economically exploitative or hazardous employment of children. Child labour may not interfere with the child's education, or be harmful to the child's health or physical, mental, spiritual, moral, or social development. Children below the age of 18 years shall not be employed in dangerous work (ILO 138, 182; UN Convention on the Rights of the Child, 32.1). There shall be no employment of forced labour (ILO 29, 105).

The IFC asks project proponents to provide for a safe and healthy work environment, considering inherent risks in particular sectors and specific classes of hazards. In line with good international industry practice, the project proponent has to identify potential hazards to workers, provide preventive and protective measures (including modification, substitution, or elimination of hazardous conditions or substances to avoid accidents, injuries and diseases), train workers, document and report occupational accidents, diseases, and incidents and make arrangement for emergency prevention, preparedness and response. The IFC set standards concerning labour and working conditions for workers that are directly or indirectly contracted by the project proponent and perform essential work for core functions and for the supply chain, as well.

The IFC's third criterion treats **Pollution Prevention and Abatement.** During the whole project life-cycle, the project proponent has to apply appropriate technologies and practices as contained in the Environment, Health and Safety (EHS) Guidelines that are best suited to avoid or, where avoidance is not feasible, minimize or reduce negative impacts on human health and the environment without overstretching economic possibilities.

The project proponent has to deal with negative project impacts considering important environmental and social factors such as the finite assimilative capacity of the environment, existing and future land use, existing ambient conditions, the project's proximity to ecologically sensitive or protected areas, and the potential for cumulative impacts with uncertain and irreversible consequences.

Depending on the operational risks, the project proponent has to include a plan (inter alia on training, resources, responsibilities, communication, procedures) to be prepared to respond to process upset, accidental, and emergency situations.

Furthermore, the IFC defines clear requirements on how to deal with project-related GHG emissions. For example, during the development/operation of projects that are expected to or currently produce significant quantities of GHG, the project proponent has to quantify direct emissions from the facilities and indirect emissions associated with the off-site production of power used by the project.

Pest management activities shall be formulated and implemented through an IPM and/or IVM approach for pest management activities. The IFC includes requirements on the selection of pesticides (e.g. they have to be low in human toxicity, known to be effective against the target species, and have minimal effects on non-target species and the environment, be packaged in safe containers), their application and handling. The use of extremely, highly or moderately hazardous products as defined by the World Health Organization (WHO) is forbidden if the host country lacks restrictions on their distribution and use or if they are likely to be accessible to untrained and equipped personnel.

The IFC's criterion **"Community Health, Safety and Security"** addresses the project proponent's responsibility to avoid or minimize the project-related risks and impacts to community health, safety and security. It includes detailed requirements on

- infrastructure and equipment safety,
- hazardous materials safety,
- the avoidance or minimization of the exacerbation of impacts caused by natural hazards and of adverse project impacts on soil, water, and other natural resources in use by the affected communities,
- community exposure to disease,
- emergency preparedness and response and
- security personnel.

The Performance Standard defines detailed requirements on **Land Acquisition and Involuntary Resettlement**. Thus, for example, involuntary resettlement (physical or economic displacement) should be avoided or at least minimized by exploring alternative project designs. Adverse social and economic impacts from land acquisition or restrictions on affected persons' use of land shall be mitigated. The livelihoods and the standards of living of displaced persons have to improve or at least be restored and a grievance mechanism has to be established. Resettlement planning and implementation are clearly defined for a number of different cases, as are private sector responsibilities under government-managed resettlement.

Concerning **Biodiversity Conservation and Sustainable Natural Resource Management,** the requirements reflect the objectives of the CBD to conserve biological diversity and promote use of renewable natural resources in a sustainable manner. Project proponents have to avoid or mitigate threats to biodiversity arising from their operations as well as sustainably manage natural resources.

Relevant topics concerning the protection and conservation of biodiversity or the management and use of renewable natural resources treated by the IFC include

- modified, natural and critical habitat,
- legally protected areas,
- invasive alien species,
- natural and plantation forests and
- freshwater and marine systems.

Furthermore, the IFC Standards contain detailed requirements concerning **indigenous peoples.** All communities of indigenous peoples who may be affected by the project have to be identified, as well as the nature and degree of the expected social, cultural, and environmental impacts on them, and adverse impacts shall be avoided whenever feasible. Where avoidance is not feasible, the project proponent has to minimize, mitigate or compensate for these impacts in a culturally appropriate manner including impacts on traditional or customary lands under use, relocation of indigenous peoples from traditional or customary lands and the use of cultural resources. The client shall also seek to identify opportunities for culturally appropriate development benefits, through the process of free, prior, and informed consultation with the informed participation of the affected communities.

The last of the eight criteria deals with **cultural heritage.** The IFC defines in detail the ways in which it has to be protected from adverse impacts of project activities (project design and execution) and its preservation has to be supported. The equitable sharing of benefits from the use of cultural heritage in business activities has to be promoted, as well.

In addition to the IFC Standards, project proponents have to comply with applicable national laws, including those laws implementing host country obligations under international law.

Comparing the IFC Standards to the **GS,** the IFC Standards are much more detailed. The IFC standards match many the GS's criteria. Thus, the IFC requirement to prevent and abate pollution touches all of the GS's **environmental criteria** (air quality, water quality and quantity, soil condition, biodiversity, other pollutants). Biodiversity is treated by the IFC in detail in its sixth criterion. Furthermore, the IFC has set standards concerning waste, a topic that is not treated by the GS.

Some of the GS's **social development criteria** are relevant for the IFC, as well. The IFC deals with the GS's "human and institutional capacity" and labour standards, but does not consider access to affordable and clean energy

services. Improving the livelihood of the poor is encouraged by the IFC and considered for GS approval.

For IFC approval, neither of the GS's **economic development criteria** (quantitative employment and income generation, balance of payments and investments, technology transfer and technological self-reliance) is relevant.

The IFC Standards do not mention the precautionary principle. The GS safeguarding principles generally match the IFC requirements on land acquisition, involuntary resettlement and economic displacement, indigenous peoples and cultural heritage. IFC requirements are much more detailed in this area.

In addition, the IFC Standards include the requirements to

- establish a social and environmental assessment and management system,
- establish a system to prevent and abate pollution (inter alia concerning hazardous materials),
- incorporate resource conservation and energy efficiency measures (cleaner production),
- establish a grievance mechanism,
- establish a system for risk management,
- establish an IPM and/or IVM and
- control risks resulting from the employment of security personnel.

Stakeholder consultation

Requirements for Stakeholder Consultation are described in the IFC's first criterion and include the disclosure of information, consultation with affected communities and the establishment of a grievance mechanism as a responsibility of the project proponent during the life of a project.

The aim of community engagement is to establish and maintain a constructive relationship with affected communities over the life of the project, so that the community's views, interests and concerns can be taken into account in project decisions and creation of development benefits.

The IFC Standards require the project proponent to identify potential stakeholders (individuals, groups or local communities that may be affected by the project or be able to influence the outcome of the project as well as legitimate stakeholder representatives). Special effort is required to identify those who are directly affected, disadvantaged or vulnerable (e.g. due to an individual's or group's race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status).

Stakeholder engagement is an on-going process and varies in its degrees of interaction between the project proponent and the affected communities (depending on the nature of the project, its risks and potential impacts, the size

and characteristics of the affected communities, and the stage of the project cycle). A Stakeholder Engagement Plan shall provide additional information about community engagement.

The project's Action Plan must be disclosed to affected communities and stakeholders in advance of project implementation. Updates that must include feedback from the affected communities have to be provided throughout the life of the project.

Engagement should be based on early dissemination of relevant project information (e.g. on the purpose, nature, scale, duration and risks of projects that have adverse impacts on communities), including the social and environmental impacts and risks of the project identified in the Social and Environmental Assessment and proposed mitigation measures, in languages and methods preferred by the affected communities. Furthermore, it is necessary that all information is accessible and understandable to all members of the affected communities. Community engagement is required to be based on timely, relevant, understandable and accessible information and be free of external manipulation, interference, coercion and intimidation.

Inclusive and culturally appropriate consultations with the local communities shall be included in the engagement process when projects may affect them adversely or put them at risk. Affected communities have to be provided with opportunities to express their views on the project's risks, impacts and mitigation measures. The project proponent has to hear and respond to these views.

The IFC also encourages a consultation process, which is to provide opportunities for the project proponent to learn from the experience, knowledge, and concerns of the affected communities. In addition, consultation is to help to manage community expectations by clarifying the extent of its responsibilities and resources and avoid misunderstandings and unrealistic demands. However, there may be some projects that may not require a process of consultation, unless community members seek to engage on disclosed project information or raise grievances. The Grievance Mechanism should be communicated and be appropriate to respond to community concerns about risks and potential adverse impacts of the project. A procedure should be established for receiving, addressing, and recording/documenting complaints. Concerns should be addressed promptly in a culturally appropriate and readily accessible way at no cost and without retribution. The mechanism should be understandable and transparent and not impede access to judicial or administrative remedies.

Special rules apply for projects with significant potential adverse impacts. In such cases the project proponent's consultation process has to guarantee their

free, prior and informed consultation and informed participation involving organized and iterative consultation. This process has to result in the incorporation of the views of the affected communities on matters that affect them directly (e.g. proposed mitigation measures, the sharing of development benefits and opportunities, implementation issues) and be documented.

In high-risk projects the project proponent is encouraged to engage with stakeholders that are not affected by the project (e.g. local government officials, community leaders), but may play an important role during the project.

The IFC Standards' requirements regarding stakeholder engagement differ strongly from the **GS's.** The IFC asks for an on-going process of communication with and consultation of relevant stakeholders without further explaining the process this should follow while the GS explicitly requires two rounds of stakeholder consultations. The IFC explains in more detail the way in which stakeholder engagement shall be practiced, defining special requirements for different project types and cases (e.g. projects with significant adverse impacts).

Monitoring

Monitoring Requirements are defined in the IFC's first requirement and have to be an element of a project's management system. In general, the client must establish monitoring procedures to measure the effectiveness of the management program. The system should

- address the key impacts of the project on workers, communities and the natural environment identified by the Assessment,
- comply with law and all relevant regulations and
- progress with the implementation of the management program.

The extent of the monitoring is not defined by the IFC as it depends on the potential impacts and risks of the project. The IFC supports project proponents to establish, track and measure key indicators and other performance measures over time if it helps to improve project performance. Inspections and audits should be included in monitoring to verify compliance and progress, where relevant. Qualified and experienced external experts have to be employed for projects with significant diverse, irreversible or unprecedented impacts.

It is also considered appropriate to establish social monitoring programmes to enhance the effective follow-up of social issues identified in the Assessment. One possibility to improve the performance on social issues is the establishment of key social development measurements and indicators as well as quantitative or qualitative measures of success or community engagement practices, which are included in the Action Plan.

Environmental monitoring shall consider engineering estimates, environmental modelling, pollutant source, noise, ambient water and air and workplace

contaminant measurements. The focus and extent of environmental monitoring should depend on the risk of the pollutant releases, related to the sensitivity of surrounding areas. Other factors, such as the affected community's perception of project risks to their health and the environment should be taken into account. In the context of environmental monitoring it is important to ensure the reliability of data (e.g. calibration of instruments, test equipment) through appropriate processes and special environmental monitoring measures that define the parameters to be measured, methods to be used, sampling locations etc.

All monitoring results need to be documented. If necessary, corrective and preventive actions have to be identified, implemented and followed-up. Also, it can be appropriate to adjust or upgrade the monitoring plan so that changes in social or environmental risks can be properly addressed.

The IFC customizes monitoring to each project. The **GS,** in contrast, requires the monitoring of all indicators that are not neutral in the sustainable development matrix and of those that have been neutralized.

Operationalisation

All of the criteria that are adopted for one project have to be fulfilled by the project proponent. It is required that the project proponent establishes performance indicators to ensure the project's compliance with the IFC Standards. The guidelines comprise a number of suggested performance indicators.

For the **GS,** in contrast, all criteria have to be considered by the project proponent and one selected indicator has to be used to prove conformance with a criterion. While the IFC Standards are applied in one step, the GS's sustainability assessment contains three subsequent steps (safeguarding principles, sustainable development matrix, sustainability monitoring plan).

Conclusions

The IFC Standards have almost the same requirements as the EBRD Standard. Differences in comparison to the GS lie in the sustainability criteria, because the IFC Standards are less strict than the GS. Again, the GS allows negative impacts only if appropriate mitigation measures are used while under the IFC Standards projects are also eligible if one of the indicators is negative and the effect is only minimised. The IFC Standards' requirements are explained in much greater detail than the GS's. Not all parts of all of the IFC's requirements apply to all projects.

In requirements on Stakeholder Consultation and Monitoring, both standards have provided extensive details on how consultation and monitoring have to

take place, which differ only marginally. Only the GS, however, clearly defines the process stakeholder engagement has to follow.

3.2.4 Social Carbon Methodology

Background

The Social Carbon Methodology was developed by the Ecologica Institute in order to deliver high-quality projects to the voluntary carbon market by monitoring a project's co-benefits. Six sustainability aspects of a project are individually measured using the "Social Carbon hexagon": carbon, biodiversity (or technological), social, financial, human and natural resources. The hexagon serves as a visualisation of a project's benefits, with a scale of zero to six, where the centre represents zero access to a resource (Ecologica Institute 2009).

Eligibility

The Social Carbon Methodology does not have eligibility requirements. However, a project proponent has to evaluate his/her project idea against a set of indicators (see section "operationalisation" below). So far, sustainability indicators and guidance how to apply these have only been elaborated for the ceramic sector, afforstation/reforestation, landfills and hydropower plants. In case a certain project activity presents specific characteristics which are not contemplated by the approved indicators, new indicators may be elaborated by an accredited organisation and must be submitted to approval by the Social Carbon Team.

The **GS,** in contrast, restrains eligible projects to renewable energy and energy efficiency projects.

Additionality

The Social Carbon Guidelines do not establish additionality monitoring methodologies but require project developers to choose an internationally recognized carbon standard (e.g. CDM, VCS (Voluntary Carbon Standard)) which is subject to audition by an independent third party.

Sustainable development

The Social Carbon methodology defines indicators for the degree of use of the following six sustainability resources: Human, Social, Natural, Biodiversity (or Technological), Financial and Carbon Resources. The indicators identify the communities' degree of satisfaction of basic needs concerning the use of these resources and their number can be customized depending on the importance of a resource in a scenario of use of resources. The use of resources is visualised in the form of a hexagon. This method is designed to seek continuous

improvements of processes relevant for the assessed indicators. There are no absolute requirements for the performance of indicators.

The Social Carbon Methodology clearly defines the resources it focuses on. **Biodiversity Resource** is the balance of the natural physical environment (combination of species, ecosystems and genes which form the biological diversity). Concerning Biodiversity Resource, a project proponent has to consider:

- the integrity of natural communities,
- the way people use and interact with biodiversity,
- the state of conservation, pressures and threats imposed on native species, and
- the existence of overriding areas for conservation.

The conditions of access to technological assets, including the innovation of equipments and processes with a focus on their contribution to economic, social and environmental development are the **Technological Resource.**

By **Natural Resource,** the stock of natural resources such as soil, water, air and genetic resources as well as environmental services such as soil protection, maintenance of hydrological cycles, absorption of pollution, pest control, pollination are meant.

The **Financial Resource** includes the basic capital (in the form of cash, credit/debt and other economic goods) available or potentially available to people as well as the physical and technological structures which enable the financial giro.

Human Resources are the all skills, knowledge and capacities for work and life which people possess, in addition to good health.

Social Resource represents the community and its organisms. It contains the working networks, the social demands, social relations, relationships of trust, associations in social organisations and the social apparatus (e.g. schools, hospitals, and community centres).

The **Carbon Resource** refers to the type of carbon project developed, encompassing the methodologies utilized, project performance and the involvement of stakeholders.

Apart from the evaluation of these resources, the Social Carbon requires the project to comply with environmental and working legislation.

The Social Carbon Methodology differs substantially from the **GS's.** While the GS assesses a static situation in which it aims to determine a project's sustainability following clear criteria and standards, the Social Carbon's

objective is to provide incentives and guidance to continuously improve a project's environmental and social performance on a project-to- project basis.

Both focus on similar aspects of sustainable development, however. Thus, the GS's **environmental criteria** (air quality, water quality and quantity, soil condition, biodiversity, other pollutants) are included in the Social Carbon Methodology's Biodiversity and Natural Resources. Furthermore, most of the GS's **social development criteria** are relevant for the Social Carbon, too. The Social Carbon's social resource treats topics relevant for the GS's criterion "Livelihood of the poor", human resource relates to the GS's "Human and institutional capacity". Also, both ask for the compliance with labour standards. As for the GS's **economic development criteria,** its criterion "quantitative employment and income generation" is partly included in the Social Carbon's financial resource and technology transfer is treated in the technological resource.

The Social Carbon Methodology does not explicitly address the aspects contained in the GS's safeguarding principles and the precautionary principle, nor the quality of employment, the access to affordable and clean energy services and the balance of payments and investment.

Stakeholder consultation

Each project proposal has to be evaluated against a set of indicators. The data basis of these indicators is the local stakeholders. Data has to be gathered via:

- Participative meetings with representatives of the organisation and/or community involved in the project (working groups). A responsible professional has to coordinate the meeting orienting the participants in the discussion of the content of the indicators.
- Semi-structured interviews with key informants and
- Questionnaires applied by responsible professionals to the community involved and to key informants, where appropriate.

Furthermore, the carbon section of the sustainability assessment comprises, regardless of the project type, an indicator that evaluates the communication and acceptation of the project by the communities, public authorities, employees, and other affected people.

This process of stakeholder engagement differs strongly from the **Gold Standard's**, which asks for two rounds of stakeholder consultations.

Monitoring

For monitoring, each of the indicators has to be applied by periodically using the Social Carbon Methodology in a transparent and participative manner to allow a visualization of changes over time.

GS monitoring is only concerned with non-neutral indicators in the sustainable development matrix.

Operationalisation

An Accredited Organisation has to apply the Social Carbon Methodology to allow for emission reductions to be certified. For application, certain steps have to be followed: First of all, groups of people have to be selected for the collection of information. Information gathering includes discussions of the indicators' content with representatives of the organisation and/or community involved in the project as well as interviews with key informant and questionnaires for the community involved and key informants of the organisation, where appropriate. Based on the information gathered, a "Zero Point" assessment is carried out to provide for a initial point of comparison for future developments. Objectives will be developed in an action plan.

Depending on the project or the community involved, indicators have to be customized as described by the Social Carbon Methodology. Six possible scenarios have to be adopted for each indicator with the first scenario being the most precarious and the sixth scenario representing the most sustainable situation of use of resources.

Each of the sustainability resources has to be evaluated against a set of indicators. The guidelines for the ceramic sector contain 42 indicators, for afforestation and reforestation there are 31 indicators, landfill projects are evaluated by 29 indicators, and the guidelines for hydropower plant projects contain 43 indicators. The indicators are evaluated according to quantitative and qualitative elements and are then assigned a score between "1" (very negative) to "6" (very positive).

For instance, "social inclusion" serves as an indicator under the social sustainability resource in the guidelines for the ceramic sector, and it will be assigned the score "1", if the entrepreneur avoids the hiring of women and handicapped persons. Potential sources of information are internal questionnaires, register books or annual reports.

Validation and periodic verification of the Social Carbon Report have to be conducted by a Certifying Entity and include local visits to collect information and evidence. For verification, the project has to demonstrate possible improvement and that these are being developed at least to a small extent. The same resource may not decrease two consecutive times.

As the Social Carbon Methodology's main objectives and methods vary considerably from the **GS's,** so does its operationalisation. While the GS has defined specific criteria that apply to all projects, indicators have to be customized on a project to project basis for the Social Carbon Methodology. The Social Carbon asks for different scenarios for these indicators, the

performance of which shall improve over time. The GS, on the other hand, uses indicators to measure a project's performance regarding specific criteria to determine its sustainability statically.

Conclusions

Whereas the understanding of sustainable development of the Social Carbon Methodology seems to be quite similar to the GS's understanding, the operationalisation is quite different. This results from the Social Carbon Methodology aiming at performance improvements instead of measuring a project's sustainability at specific points of time as does the GS. The Social Carbon Methodology has a complex evaluation procedure aiming at elaborating lists of indicators that fit the conditions of certain project types. In so doing, the project proponent will on the one hand provide a detailed analysis of his/her project's impact both ex ante and ex post. On the other hand, the customised approach requires substantial resources.

3.2.5 Conclusions

In conclusion, the GS appears to be much more tailored towards user-friendliness than the other standards, in particular regarding the assessment of projects' contribution to sustainable development. The GS has developed a standardised matrix and safeguards. By contrast, the other standards go into much more detail and require customised approaches on the basis of the characteristics of the individual project. In addition, the matrix approach with specified indicators provides for a relatively easy accessibility compared to the other standards.

In terms of scope, all of the standards consider very similar environmental, social and economic aspects. The GS, CCBA and Social Carbon Methodology contain elements that are additional to the EBRD and IFC standards, such as provision of clean energy services or community benefits. This is a reflection of the differences in the standards' basic approaches, whereby the GS, CCBA and Social Carbon require positive impacts, whereas EBRD and IFC mainly follow a "do no harm" approach.

The GS requirements for monitoring are also more flexible than the others. While the GS only requires monitoring of those criteria that were scored non-neutral in the ex ante assessment, the requirements of the other standards are more comprehensive. In particular, the CCBA standard and the Social Carbon Methodology require monitoring of all indicators.

As regards stakeholder consultations, the GS is the only standard that specifies a mandatory process with two rounds of consultations. On the other hand, the other standards contain significantly more detail on who should be involved and the modalities of involvement. In particular, in contrast to the GS all other

standards require a continuous stakeholder involvement over the whole lifetime of the project.

By contrast, the GS is the most restrictive standard in terms of eligibility. While it takes a positive list approach that admits only renewable energy and end-use energy efficiency measures, the other standards have a negative list approach screening out undesired project types.

In terms of additionality, all of the three standards that are geared towards the CDM mainly rely on the tools developed by the EB.

In conclusion, the GS is therefore well in line with other standards in the carbon market as well as standards of multilateral development banks. The GS covers all key elements that are covered by other standards but at the same time is significantly more flexible in its application. On this basis a preliminary conclusion can be made that the GS is a robust tool for the assessment of projects' contribution to sustainable development and its application should be altogether feasible for project participants. This preliminary conclusion will be further examined through the in-depth assessment of five GS projects in the following section.

Table 10 provides an overview of the comparison.

Table 10: Comparison of the Gold Standard to other Quality Standards

Criterion	Gold Standard	CCB Standards	EBRD	IFC	Social Carbon Methodology
Eligibility	Renewable energies Energy Efficiency	LULUCF and REDD projects, except projects using GMOs or increasing invasive alien species	Environmental and social exclusion list	Environmental and social exclusion list	Sectors for which indicators are already elaborated
Additio-nality	CDM EB approved tool	IPCC methods or "a more robust and detailed methodology"	n.a.[7]	n.a.	Internationally recognized carbon standard including to audition by an independent third party
Sustain-able deve-lopment	Environmental, human rights, labour and anti-corruption safeguards Sustainability matrix with environmental, social and economic criteria and specific indicators	Fourteen required criteria on environmental and social benefits with focus on biodiversity, but mostly without specific indicators Labour standards	Detailed environmental and social standards Scope generally matches the GS criteria Minimisation of negative impacts	Detailed environmental and social Performance Standards Scope generally matches the GS criteria Minimisation of negative impacts	Definition of indicators for environmental and social resources with aim of continuous improvement Scope generally matches the GS criteria

[7] Not applicable.

Stake-holder consul-tation	Two mandatory rounds with specified procedural requirements	Mandatory with specified procedural requirements and timelines as to who to involve by which means Ongoing during lifetime of project Establishment of a grievance mechanism	Mandatory ongoing process Detailed procedural requirements Establishment of a grievance mechanism	Mandatory ongoing process Detailed procedural requirements Establishment of a grievance mechanism	Group work and interviews Local stakeholders continuously evaluate a project
Moni-toring	Required for non-neutral indicators	Required for impacts on climate, communities and biodiversity	EBRD and project proponent define a monitoring programme based on ex-ante assessment and consultations	Customised monitoring of impacts on workers, com-munities and environment based on ex-ante assessment	Periodic evaluation of sustainability indicators
Opera-tional-isation	Criteria must be convincingly discussed using qualitative or quantitative data based on available information, no need for explicit studies to gather additional information Validation and Verification by DOE	Detailed analysis to be provided Evaluation by accredited independent auditor	Requirements customised according to project size and level of impacts Evaluation by Bank's Evaluation Department (EvD)	Project proponent establishes performance indicators	Different scenarios with a detailed list of indicators for different project types Assessment by accredited organisation

Source: Own compilation

3.3 The Gold Standard Pipeline

The GS was originally conceived of by the NGO community attending COP discussions and subsequently designed to provide an additional level of scrutiny to conventional CDM projects, to ensure that projects yield a development dividend while ensuring their additionality. But in its first years of existence it failed to initiate the desired market pull towards more sustainable projects, with only five GS project activities in the pipeline for a long time.

There were two main reasons for this lack of uptake. First, the NGOs that had initiated the GS lacked the capacity to advertise it widely. Second, there was very little demand from buyers to begin with. During the conference “Climate Protection as a Development Opportunity” at the Hamburg Institute of International Economics, a number of representatives from purchase programmes and carbon funds openly declared that they were not interested in the GS since their overarching objective was to purchase cheap credits (Michaelowa 2004).

In the last two years, the GS has been able to significantly intensify advertisement. As a result, the pipeline of projects has been growing noticeably. As of May 2009, the GS website lists 102 projects that are at least at the validation stage. The database lists a total of 20 different project developers.

Table 11 illustrates the different host countries and project types of the GS CDM activities. Annex 2 provides a detailed list of all projects.

Table 11: Gold Standard CDM projects

Host countries	Project types	Size
37 China 20 Thailand 18 India 9 Honduras 3 Indonesia 2 Brazil 2 Mexico 2 South Africa 1 Cambodia 1 Chile 1 Colombia 1 Kenya 1 Nigeria 1 Nicaragua 1 Philippines 1 Tanzania 1 Vietnam	34 Wind 25 Biogas - Electricity 8 (Liquid) Biomass – Electricity 8 Small Hydro 7 Biogas - Heat 5 Energy Efficiency – Industrial 4 Biogas - Cogeneration 3 Energy Efficiency - Domestic 3 (Liquid) Biomass - Cogeneration 2 (Liquid) Biomass - Heat 1 Photovoltaic 1 Solar Thermal - Heat 1 hydraulic ram	51 small 51 large

Source: Website Gold Standard Foundation

The director of the Gold Standard Foundation, Michael Schlup, states that the strategic aim of the GS is to achieve a market share of 20% of all projects post-2012 (Interview Schlup). Currently, ten out of 1626 registered CDM projects are GS projects, representing a market share of 0.6% (Websites Gold Standard and UNFCCC).

The GS does not maintain an archive with respect to activities that are denied approval. According to Michael Schlup, roughly ¾ of all projects that are interested in the quality label do not successfully complete the GS project cycle. Most of the project developers revise their decision to follow the GS requirements at a very early stage of project implementation (Interview Schlup).

3.4 Analysis of Project Activities

3.4.1 La Esperanza Hydroelectric Project Honduras

Project description

La Esperanza is a small-scale run-of-river hydropower project activity. The project was originally developed by CISA (Consorcio de Inversiones S.A.), a private power producing company of Canadian origin, in the late 1990s. It uses an abandoned dam in the river Intibuca near the city of La Esperanza,

Honduras. CISA partially rebuilt the dam and makes use of the adjacent regulation reservoir. Power is generated by three powerhouses located in a cascade below the dam; all in all, the project has a capacity of 12.8 MW, which qualifies it as a Small Scale CDM (SSC) project activity.

CISA was founded exclusively for running this project. It was initially designed as a conventional CDM project in close cooperation with the local community (see below). Project development was supported by the WB's Community Development Carbon Fund.

La Esperanza was registered by the CDM EB on 19 August 2005. CERs were issued for the period 1 June-3 May 2005; the project expects to generate 37,032 CERs/year (Gold Standard PDD Annexes La Esperanza Hydroelectric Project 2008). It is applying for a seven year renewable crediting period.

Atmosfair GmbH developed La Esperanza into a GS project retroactively. Atmosfair was convinced that the project yields high co-benefits for the region and that all the GS requirements were met from the beginning on even if the GS did not exist at the time the project was developed (Interview atmosfair La Esperanza). This view was supported by the GS Validation performed by TÜV (Technischer Überwachungs-Verein, Technical Inspection Association) NORD (Validation Report La Esperanza Hydroelectric Project 2008).

Baseline and emission reduction

Baseline and emission reduction are established on the basis of methodology AMS-I.D. ver. 4 - Renewable electricity generation for a grid.

Since La Esperanza is a SSC project, no description of alternatives was required in the standard PDD but for the GS. For the GS, two alternatives are described plausibly and in detail:

- Project implemented without the CDM.
- Continuation of the current situation, where electricity would continue to be delivered to the region from the national grid, which has a large share of diesel power plants.

The PDD explains that establishment of a conventional plant was not a viable alternative, since CISA was built with the explicit goal of building hydro plants.

The PDD contains a detailed description of the present situation of power generation in Honduras and applicable laws. However, the PDD quotes no documentation. In particular, the claim that all fossil fuel fired generating units in the grid use diesel or fuel oil is not substantiated. The validation report explains that this claim was verified by the DOE during validation.

The emission reduction results from the displacement of diesel-based generation in the national grid.

As per the methodology, baseline emissions are calculated by multiplication of the annual electricity generated times an emission coefficient for a modern diesel generating unit of the relevant capacity operating at optimal load. The PDD uses a default emission coefficient (0.8 t CO_2/MWh) provided in the methodology. Expected electricity generation was 46,289.55 MWh/year, which yields baseline emission of 37,031.64 t CO_2/year

Project emissions are zero. Hence, the amount of expected emission reductions is equal to the baseline emissions.

It bears noting that the default coefficient used is less conservative than the coefficient determined using the approximate operating margin (OM) and the build margin (BM) (0.74 t CO_2/MWh). Accordingly, only CERs generated using the more conservative coefficient will be labelled as GS.

Additionality

To demonstrate additionality, the project participants have conducted a barrier analysis. The following barriers are identified:

Investment barriers:

- Barriers relating to the weak local economy, as a result of which local banks charge very high interest rates and foreign banks generally are not willing to lend into the country.
- The Central American Bank of Economic Integration (CABEI) is the only available lender for small-scale hydro projects in Honduras.
- Normal expectation for return on investment would be at least 15%.

Technological barrier:

- Lack of knowledge and confidence in small hydro, which currently accounts for well below 1% of all hydro capacity
- Prevailing practice
- Privately financed, built and operated small hydro plants are not common practice in Honduras

"Bureaucratic" barrier:

- As a foreign company, CISA faced high bureaucratic hurdles, such as sudden and unsubstantiated changes to the legal process

The PDD claims that the CDM helped to overcome these barriers as the hard currency revenue was critical for securing a loan from CABEI. Also, part of the revenue was received upfront, which was critical for completing construction. Finally, being a CDM project with WB involvement helped to overcome bureaucratic hurdles. Using the WB Emission Reductions Purchase Agreement (ERPA) as collateral also helped with securing a further loan with the national bank that had to be negotiated unexpectedly.

For the common practice analysis, the PDD states that two small hydro projects were constructed in the last ten years and that several are in the pipeline. The PDD claims that one of the earlier plants was established by a developer using other assets as collateral and that all small hydro plants currently in the pipeline are CDM projects.

None of the barriers or claims in the common practice analysis are substantiated from independent sources in the standard PDD. The claims regarding the importance of the CDM for the negotiation of loans are substantiated with several letters. During validation, the DOE determined that indeed local banks charge high interest rates, that private hydro power plants are not common practice, that small hydro plants account for only 1% of hydro capacity, that in the last 10 years only two small hydro plants have been built, that all small hydro projects in the pipeline are CDM projects, and that CER revenues were a prerequisite for CABEI funding the project.

Sustainable development

In order to assess the project's possible contribution to sustainable development, the project developer refers to an EIA, which had been carried out according to Honduran legislation. The sustainable development assessment also draws on the project's extensive consultations of local stakeholders. These were conducted due to the "spirit" of the project (Gold Standard PDD Annexes La Esperanza Hydroelectric Project 2008) and also because of the CDCF's involvement in the project.

The local government was contacted by CISA right from the beginning, in 1999. In an initial feedback, the municipality underlined that they expected positive impacts on the region. In 2001, 235 regional residents were interviewed (as part of the EIA) and meetings were held with representatives of the nearby communities. A major insight was that nobody in fact used the water of the river due to its pollution from sewage (stemming from the community La Esperanza) and that nobody expected the rehabilitation of the dam to influence his/her life (see Gold Standard PDD Annexes La Esperanza Hydroelectric Project 2008). Furthermore, several meetings were scheduled with representatives of the surrounding communities; again, these yielded positive feedback. Benefits by the project expected by the local population include improvement of the electricity supply, electrification of nearby communities without electricity supply, the creation of jobs as well as the accompanying reforestation program.

Further stakeholder meetings were held in accordance with the CDCF requirements. In the course of the main stakeholder consultation according to UNFCCC rules the NGO International Rivers questioned the additionality of the project; however, the questions were answered convincingly. A complaint by a mayor of the surrounding villages appears to have been a misunderstanding

(Validation Report La Esperanza Hydroelectric Project 2005, Interview atmosfair).

In the second stakeholder consultation for GS, three out of six NGOs sent exclusively positive feedback to the GS matrix, they agree with the scores in the matrix. Two NGOs sent back the sustainable development matrix with few comments; however, the content of these comments in not explained in the GS PDD. 16 stakeholders came to the meeting on CISA's invitation; results were positive overall.

The meetings are documented comprehensively (Validation Report La Esperanza Hydroelectric Project 2005). Further, a WB report for CDCF underlines the huge benefits the project yields to stakeholders; the CDCF reports on complaints which had been made by neighbouring NGOs and communities. However, the WB thinks these were made up "because the distribution of benefits can never be perfectly homogeneous" (Gold Standard PDD Annexes La Esperanza Hydroelectric Project 2008).

Sustainable development matrix

The ex-ante application of the sustainable development matrix resulted in a score of "+10". As for the different sub-categories, environment scored "+1" due to the reduction of NO_X etc. from the replaced diesel-run electricity generation. All other environment criteria scored "zero". Social sustainability and development scored "five", mainly because of the electrification of two communities, but also due to the creation of employment, the accompanying social programme (road repairing, donation of school equipment). The sub-category economic and technological development scored 4, with an expected number of 129 local employees scoring "+2" weighing the most.

TÜV NORD, which assessed and validated the retroactive GS registration, confirmed the scoring. It also approved of the stakeholder consultation process and confirmed the positive feedback of the people involved. According to the ERPA signed with the WB, a number of sustainable development indicators were chosen which will be monitored during the crediting period. TÜV NORD also found the EIA to have been correctly carried out.

No verification report is yet available.

Sustainable development impacts according to stakeholders

Fundación MDL (Mecanismo de Desarrollo Limpio, Clean Development Mechansim) de Honduras has been accompanying the development of the La Esperanza project since 2001 (Interview Fundación MDL). It is convinced that all CDM projects in Honduras are additional and sufficiently sustainable as to be able to qualify for GS. The mere fact that the projects introduce renewable energy and energy efficiency technology to the country, which was formerly

unknown and would – according Fundación MDL de Honduras– not be financed without the CDM, serves it as prove for additionality, additionality in terms of additional for the community. It emphasises that the projects provide an opportunity for a low-carbon development, have positive effects on the environment, electrify rural areas and capacitate the population leading to the reduction of poverty. Thus, people living in the project area benefit from the projects and neither they nor Fundación MDL de Honduras have doubts about the projects´ sustainability. Fundación MDL de Honduras is satisfied with both the stakeholder consultations in particular and the GS, apart from the Standard's narrow interpretation of sustainable development, following the MDGs rather than the plan of Johannesburg. Furthermore, it criticises the lack of financing from industrialised countries and opposes stronger requirements for additionality and GS as being unnecessary. Instead, it suggests including projects aiming at the recuperation of degraded areas and plantations for energy crops for the production of biofuels to be eligible for GS.

Applicability in practice

Robert Müller of Atmosfair did the retroactive development of the La Esperanza into a GS project activity. He estimated the following figures as regards the additional effort and transaction costs it has taken to meet the GS requirements compared to the "normal" CDM:

Table 12: Transaction Costs for the La Esperanza CDM GS Project

Transaction Costs		Additional Efforts (in time and/or money)
Pre-implementation costs	PDD-Costs	6,000 €
	Validation Costs	~4,000 €
	Registration Costs	GS: ~300 €
Implementation costs	Monitoring Costs	~2,000 €/year
	Verification and Certification Costs	~5,000 € (DOE)/year 2,000 € (PP)/year
Total over 7 years		73,300 €

Source: Interview Müller

Müller estimates that the additional revenue received from using the GS is about three Euro per tonne CO_2-eq. This translates into an additional CER

revenue of 111.094,92 €/year. That is, the revenue from the GS exceeds the additional costs by far.

Conclusions

The sustainable development components of the project are quite convincing. This is revealed by the documentation as well as in the statement of Fundacion MDL Honduras. As the area where the project is located is uninhabited and the river was previously not used for fishing, the absence of negative effects on the local population is obvious. To the contrary, the communities benefit not only from electrification and the creation of jobs, but also from the road maintenance and the accompanying reforestation programme.

The project is thus a good example of a well-conducted and sustainable development-orientated approach, especially when considering that the GS did not even exist when the project was initiated.

The demonstration of additionality in the PDD is not done so convincingly. Especially noteworthy is the lack of external evidence to substantiate the barriers. However, the existence of the barriers was substantiated by the DOE during validation. On this basis, it appears that the project faced several financial bottlenecks during its development and the CDM revenue, especially upfront payments from the CDCF, helped to overcome these barriers.

3.4.2 Malavalli 4.5 MW Low-density Biomass Residue Power Plant (India)

Project description

The Malavalli Power Plant Pvt Ltd (MPPL) utilises low-density crop residues (cane trash/coconut fronds) and other biomass fuels available in the region for the generation of power. The 4.5 MW power plant was commissioned in August 2001 by project developer Kolluru Krishan who is involved in several other projects as well and has been exporting electricity to the state grid ever since. Right from the beginning, the project's main goals were energy security and electrification of rural India to contribute to sustainable economic growth (Interview Krishan), thus fostering the work of Grameena Abhivrudhi Mandali, its sister company. Climate change seems to play a subordinate role in the project's motivation. Using contacts with MyClimate, the project was registered as a CDM project in 2006, then as a GS CDM project, with the crediting period dating back to 2001.

The low density crop residues MPPL uses are not commonly used for power generation due to their low energy density and relative high moisture content, but are otherwise burnt on the fields (leading to high particulate emissions) or allowed to decompose (leading to methane release). After an intensive period

of desk and field research (from 1997 to 2000) MPPL constructed the 4.5 MW power plant as a pilot project to showcase an innovative way to convert seemingly worthless biomass residues into a valuable energy source that contributes to sustainable development in rural areas by creating additional revenue streams for local farmers. The plant design does not have any coal handling equipment such as coal bunkers, coal mills, coal conveyers etc. Hence this plant can be operated only using biomass, with over 70% of the fuel being low-density crop residues (primarily cane trash/coconut fronds). In case of non-availability of biomass, particularly during heavy rains, the plant is shut down (PDD Malavalli Power Plant Pvt Ltd 2006).

The plant location was kept at Kirugaval village in Malavalli Taluka of Mandya District, Karnataka, because there was adequate availability of cane trash/coconut fronds in the vicinity and because of its location, which is only 35 km from the city of Mysore and 125 km from the city of Bangalore, facilitating the creation of engineering resources and operation and maintenance (O&M) organisation (with the required technical skills) to undertake a pioneering project (ibd.).

Baseline and emission reduction

For this project activity, methodology AMS-I-D, “Renewable electricity generation for a grid”, Version 7, applies for PDD Malavalli Power Plant Pvt Ltd 2006 and “Grid connected renewable electricity generation”, Version 13, for PDD Malavalli Power Plant Pvt Ltd 2008, which requests renewal of the crediting period).

Since Malavalli is a SSC project, no description of alternatives was required in the standard PDD. The standard PDD points out that the users "would otherwise draw power from the grid" (PDD Malavalli Power Plant Pvt Ltd 2006 and PDD Malavalli Power Plant Pvt Ltd 2008), but potential other options are not discussed. As the Gold Standard Version 2.0 requires to use the additionality tool for SSC projects, the PDD consultant South Pole Carbon Asset Management has added potential alternative scenarios in the GS PDD (PDD Malavalli Power Plant Pvt Ltd 2008):

- The proposed activity without CDM incentives;
- an 8 MW standard biomass power plant firing mill residues (rice husks, bagasse) or wood and
- electricity delivered from the state grid.

The GS PDD shows that the identified barriers (see below) would not prevent the implementation of at least one of the alternatives by shortly discussing each of the barriers with regard to the alternatives.

Whereas the estimated annual emission reductions in the PDD as of 2006 are as high as 22,847 tonnes CO_2-eq. in the period 2006 to 2008, the PDD as of 2008 estimates the emission reductions to be 20,000 tonnes CO_2-eq./year. This is mainly due to less (biomass-based) power produced and consequently less CO_2 saved.

The two PDDs use a different approach to calculate baseline emissions. In the first crediting period, the project developer chose to use the weighted average emissions of the current generation mix as baseline due to lack of data. In the PDD that requests to renew the crediting period, the "combined margin" approach has been used, as data from the Indian Central Electricity Authority had been made available. It was decided to adopt an ex-ante baseline emission factor and to fix it for the entire crediting period "considering the scale of the project activity and monitoring required".

Additionality

The 2006 PDD highlights investment barriers, technological barriers and barriers due to prevailing practice.

One key argument to prove additionality is that "the project pioneered the utilization of low density crop residues, which otherwise are burnt in the fields causing environmental pollution (and not contributing to any economic activity). In view of the pioneering nature the project was sized as 4.5 MW as against the more standard rating (for Biomass Power Plants in India of 7.5 to 8 MW). This results in higher cost of generation" (PDD Malavalli Power Plant Pvt Ltd 2006).

During the public commenting period, Axel Michaelowa, Hamburg Institute of International Economics, called this barrier unconvincing. In his comment from 09-20-2005, he argued that "at the time of construction, 4-5 MW was the standard size. Larger sizes became relevant only at later points in time." In response to this comment, the project developer provided comparison data with the standard 8 MW biomass based power plant. According to the validation report of the DOE DNV (Det Norske Veritas), this data shows that "an 8 MW rice husk/bagasse/wood cum coal fired power plant would have been an economically more attractive alternative for the project developers than the proposed project activity" (Validation Report Malavalli Power Plant Pvt Ltd 2006).

However, it remains unclear why the option to construct an 8 MW power plant that fires both coal and biomass was not chosen as baseline scenario. Even the GS PDD does not list this as a possible option.

Contribution to sustainable development

With project developer Krishan´s motif for the realisation of MPPL being sustainable development (Interview Krishan), Malavalli not only reduces GHG

emissions and has positive effects on air, water and soil quality but concentrates on rural development providing for electrification, jobs and additional income for farmers.

Sustainable development impacts according to stakeholders

The views and the participation of the local community and administrative authorities are ensured through the creation of “Grameena Abhivrudhi Mandali” which is a representative body of the local community and facilitates the self-coordination of local farmers. There are monthly meetings with local community and Government of Karnataka officials to ensure that there is an ongoing process of receiving feedback as well as corrective actions (PDD Malavalli Power Plant Pvt Ltd 2006).

The initial stakeholder consultation was held on the premises of the MPPL on 11 November 2005. It was attended by community representatives from the power plant management, staff and labour, biomass suppliers, consumers of electricity from industry and households and local government representatives. While the PDD states that concerns related to environmental pollution, ground water extraction, and employment of locals were expressed and adequately addressed, the GS PDD Annex claims the initial stakeholder consultation did not show any significant environmental and/or social impact. The overall response to the project was very positive with the local community stressing the importance of electrification for rural development as well as the project’s benefits concerning job and income creation. (ibd.) Additional stakeholder meetings as required for by the GS were held in 2005. In total, 5200 people were interviewed on the project (Interview Krishan).

Sustainable development matrix

Malavalli’s sustainable development assessment is mainly based on data from a study conducted by Sutter (2003) and was approved by South Pole. The project reaches an overall score of +17 in the GS sustainable development matrix, resulting from positive effects on the environment (+5), social sustainability and development (+7) and economic and technological development (+5) (see Annex 3 for details).

As Malavalli is a renewable energy biomass based power project, an EIA was not required by the Ministry of Environment and Forest of the Government of India. Furthermore, the public consultation also demonstrated that there is no need to conduct an EIA of the Project. (Gold Standard PDD Annexes Malavalli Power Plant Pvt Ltd n.d.) The validation report confirmed the absence of environmentally adverse effects as a result of the project. The project’s positive scores on environmental impacts stem from the avoidance of air, water and soil pollution by the project through reducing the uncontrolled burning of biomass residues on the fields and providing organic fertilizer.

An important aspect for the score for economic and technological development is that Malavalli led to the creation of 650 direct jobs (in the crop residues supply chain and in the Power Plant and Organic Fertiliser O&M) and to the facilitation of further secondary jobs (by providing support structures for rural entrepreneurs as well as electrification) (PDD Malavalli Power Plant Pvt Ltd 2006. Moreover, the project is identified to showcase an innovative way to use low-density crop residues and to foster technology transfer (Gold Standard PDD Annexes Malavalli Power Plant Pvt Ltd n.d.). This finding is confirmed in the verification report, stating that technology and knowledge innovation has been enabled primarily through the organisational structures provided by Grameena Abhivrudhi Mandali, the implementation of a 100% ash utilization scheme and the training of skilled labour to operate and maintain the power plant with emphasis on avoiding slagging and corrosion problems caused by the fuel properties of low-density crop residues in the boiler.

The positive effect on social sustainability and development can be traced back to the additional income and electricity available in the region as well as to the jobs´ quality and training provided.

Applicability in practice

Mr. Kolluru Krishan, project proponent, points out that additional transaction costs result from the multiple stakeholder consultations. They did not have other significant costs as the non-profit organisation Grameena Abhivrudhi Mandali is working in the villages anyway. According to Mr. Krishan, “in a country like India, where manpower’s cost is not dramatic, it costs no more than about 5000 €. It’s basically the stakeholder consultation, the reports, the photographs” (Interview Krishan). Mr. Krishan stresses that it was very difficult to estimate how much additional revenue was received from using the GS as Malavalli generated the first GS CERs. According to him, buyers have paid between 20 to 23 € per CER and were rather voluntary than compliance buyers. See Table 13 for details.

Table 13: Transaction Costs for the Malavalli CDM GS Project

Transaction Costs		Additional Efforts (in time and/or money)
Pre-implementation costs	PDD-Costs	5000 € for stakeholder consultation, approx. 20 days for PDD consultant
	Validation Costs	20 days for PDD consultant and DOE
	Registration Costs	Not specified
Implementation costs	Monitoring Costs	Not specified
	Verification and Certification Costs	Verification: 0-3000 € (in general)
Total		n.a.

Source: Interviews Krishan and Heuberger

Conclusions

While MPPL does contribute to sustainable development, it leaves open some questions regarding additionality. The plant started operation in 2001, but the project was registered as a CDM project in 2006. Obviously, the project developers assumed the risk not to be registered. Whereas the project developers argue they decided to use a 4.5 MW power plant because of the pioneering approach to use sustainable biomass, Axel Michaelowa calls it a standard technology for this time. Moreover, the baseline scenario is unconvincing. Whereas the barrier analysis comes to the conclusion that an 8 MW power plant would have been the financially more attractive decision, the baseline assumes that the users would have drawn electricity from the grid in the absence of the project. Although the GS PDD demands to apply the additionality tool, this alternative project option is not discussed.

In conclusion, the demonstration of additionality is not convincing.

3.4.3 Solar Steam for Cooking and Other Applications (India)

Project description

To offset 5500 t CO_2 emitted by a conference in 2004, the BMU ordered the GTZ to scout for a suitable GS-CDM project. Using contacts established for years, Solar Steam was suggested for this purpose (press release PDD Solar Steam for Cooking and Other Applications 2006). The project had been designed with the essential features of a CDM project before but was realized

only after the GTZ's request (Interview Liptow) and after checking its suitability to become a GS-project (Interview Gadhia). Solar Steam started on 1 March 2005 with the first crediting period's duration reaching from 1 September 2006 to 30 August 2013. After the initial project stage, the project applied for GS registration (Gold Standard Validation Report Solar Steam for Cooking and Other Applications 2007) with submission of the GS Validation Report on 17 January 2007.

The project Solar Steam for Cooking and Other Applications bundles the implementation and operation of solar community kitchens and similar solar steam applications at 18 sites in different regions in India. For the preparation of food and warm drinks for more than 28.000 people in these kitchens, parabolic concentrators gather solar energy with a total capacity of 0.885 MW. Thus, the projects lead to the substitution of diesel, which is normally used for such applications. After the second stakeholder consultation, a change in methodology (exclusion of non-renewable biomass under AMS-1.C) resulted in the exclusion of two originally included project sites and the inclusion of new sites (Gold Standard Validation Report Solar Steam for Cooking and Other Applications 2007).

Baseline and emission reduction

For this project activity, methodology AMS 1 C: "Thermal energy for the user", Version 7, applies. The PDD estimates the annual GHG emission reductions at 1,117 tonnes CO_2-eq.

The project proponent identified three alternatives to the project:

- The proposed project activity not undertaken as a CDM project activity;
- The proposed project activity undertaken without Indian subsidies and not undertaken as a CDM project activity;
- Continuation of the current situation (no project activity or other alternatives undertaken).

The latter alternative was set as baseline. Costs for steam generation during the whole project lifetime had been calculated for the CDM project activity as well as for the three alternatives (see section on additionality). Emission reductions are thus achieved by the substitution of diesel and unsustainably harvested firewood based steam generation through emission free steam generation by solar energy. At most project sites the project activity will substitute diesel. In the absence of the proposed CDM project activity the community kitchens would install, or continue to use, steam generators fired by diesel or unsustainably harvested fuelwood.

The description of the baseline is plausible but could be more detailed, as there is no explanation of what is considered "unsustainable harvested fuelwood".

Additionality

Additionality is proven by an investment analysis. The Net Present Value (NPV) for generating the steam requirements during the project lifetime has been identified as sensible financial indicator. As a justification, the PDD states that it is "an indicator for the costs of steam production that the institution has to bear and can easily be used for comparing the different alternatives" (PDD Solar Steam for Cooking and Other Applications 2006).

The investment analysis accounts for project life (15 years), inflation rate, discount rate, investments, loans, financial contributions and fuel prices. In order to transparently justify the discount rate chosen, the project developer has defined five different risk classes and each class is assigned a "risk-adjusted discount rate". The project activity is then assigned to a certain risk class. However, the PDD neither substantiates why the project falls in the respective risk class, nor does it explain the assigned discount rates.

In a sensitivity analysis, the project developer alters the key parameters: diesel price, discount rate and solar steam generation by +-20%.

Sustainable development matrix

The methodology for the sustainable development assessment of Solar Steam stems from work of Helio International and members of the SSN network. The project reaches an overall score of +9 in the GS sustainable development matrix. This result consists of positive impacts the project has on the environment (+2), on social sustainability and development (+3) and on economic and technological development (+4). With no indicator scoring -2 and none of the components' sub-total score being negative, Solar Steam qualifies for GS certification.

The positive score on environmental impacts results from the reduction of local air pollution by the project, which releases zero emissions during operation as opposed to the baseline case where fuels are burnt. Regarding economic and technological development, Solar Steam's positive impact is based on the creation of 31 additional fulltime jobs and the substitution of fossil fuels such as diesel oil, reducing oil imports and improving the balance of payment. The project is evaluated to contribute positively to social sustainability and development as the jobs created require higher technical skills. This leads to education of the workforce and the alleviation of poverty (See Annex 3 for details).

There was no further EIA conducted as Solar Steam does not fall into the project category requiring such a document in India, nor did the initial stakeholder consultation detect the project to have significant negative environmental or social impacts (PDD Solar Steam for Cooking and Other Applications 2006).

Sustainable development impacts according to stakeholders

All relevant stakeholders were invited by e-mail, fax and via newspaper (Gold Standard Validation Report Solar Steam for Cooking and Other Applications 2007) to comment on the initial project idea on 18 April 2005 and to comment on the draft PDD on 9 May 2005. While the PDD states that both an environmental and a social impacts checklist was included in the initial stakeholder consultation, the GS-Validation Report only identifies the environmental checklist to have been completed.

The public stakeholder consultation meeting was held on 10 June 2005 in association with an independent representative of the local community, Mr. Srirama Raju from the Society for Energy and Environmental Development (SEED), an NGO based in Hyderabad, and was attended by 16 stakeholders. Information about the project and both stakeholder consultation were made publicly available online. Despite the exchange of some project sites after the second stakeholder consultation, the GS-Validation Report states that all affected stakeholders were included because the invited stakeholders covered "all affected and interested stakeholder groups for this project type all over India" (Gold Standard Validation Report Solar Steam for Cooking and Other Applications 2007). There were no concerns mentioned regarding the project activity.

Applicability in practice

The Swiss company Factor conducted the development of Solar Steam as a GS-project. Thus, project developer Deepak Navalkumar Gadhia states not to be able to quantify the extra amount of time and money spent for GS. He indicates that the project did not change and that, apart from passing on the information requested by Factor, no additional effort had to be made to be able to pass GS validation. Holger Liptow (GTZ) who was involved in the development of Solar Steam estimates the costs to be at less than 10.000 € and the extra time necessary to be between seven and 14 additional days.

Table 14: Transaction Costs for the Solar Steam CDM GS Project

Transaction Costs		Additional Efforts (in time and/or money)
Pre-implementation costs	PDD-Costs	
	Validation Costs	
	Registration Costs	
Implementation costs	Monitoring Costs	
	Verification and Certification Costs	
Total		< 10.000 €, 7 to 14 days (in general)

Source: Interview Liptow

The project developer points out that without external help, it would have been demanding to understand some of the GS requirements and how different tools should be applied. Furthermore, he states that the answers given to the safeguarding principles' questions were a matter of interpretation. Hence, he suggests to simplify CDM and GS procedures. With the project's sites being located in various regions of India, Gadhia indicates the difficulty to include all relevant stakeholders and doubts that the stakeholder consultations were able to enable a "real" participation of the people. He welcomes the possibility given by the new version of the GS to include projects retroactively.

With the BMU being interested in the purchase of GS-CERs only, the only possibility for the realisation of Solar Steam was as a GS-project. It is therefore not possible to determine what level of premium the project was able to achieve compared to a situation without using the GS. The BMU has agreed to pay 11,50 €/CER. (Interview Gadhia, Interview Liptow)

Conclusions

Set out to improve living conditions and environmental quality, Solar Steam clearly contributes substantially to sustainable development and has the support of the local communities. The project not only provides the opportunity to prepare food without causing GHG emissions, but also alleviates dependency on the import of fossil fuels and creates quality jobs thus reducing poverty.

Additionality has been demonstrated by an investment analysis. On the whole, the selection of the parameters for the investment analysis has been conducted

in a transparent way. However, their selection remains subjective, as there does not exist any general acknowledged benchmark.

3.4.4 Fujian Zhangpu Liuao 45MW Wind Power Project (China)

Project description

The Fujian Zhangpu Liuao 45 MW Wind Power Project is located in Liu'ao town, Zhangpu County, Fujian Province in the east of the Liu'ao peninsula on China's east coast. It is the second phase of a larger development, the first of which was developed as conventional CDM project.

36 turbines, each with a rated output of 1250kW, were installed starting 28 December 2006, providing a total capacity of 45MW. The turbine manufacturer is Suzlon. The height of the wheel hub of this turbine model (64/1250) is 65m.

The first set of wind turbines started operation on 25 June 2007. The electricity generated from the project is fed to the East China Power Grid (ECPG) via the Changjiaoying substation. Within the first monitoring period (21 January 2008 – 27 May 2008), the net electricity delivered to the grid was 29,502,748 kWh, resulting in emission reductions of 25,962 t CO_2-eq.

Project participant is Datang Zhangzhou Wind Power Co. Ltd.

The project was the first GS project to be developed in China, at a time when only very few GS projects had been registered. To set an example and gain publicity was the main motivation of the project developer to design this project as a GS project – they wanted to be the first in China.

Baseline and emission reductions

Baseline and emission reductions are established on the basis of methodology ACM0002, "Consolidated methodology for grid-connected electricity generation from renewable sources", Version 06, 19 May 2006.

The PDD identifies the following possible alternatives to the CDM project:

- The proposed project itself, but not undertaken as a CDM project activity
- Construction of a coal-fired power plant with equivalent installed capacity or annual electricity generation.
- Construction of a power plant using other renewable energy with equivalent installed capacity or annual electricity generation.
- Equivalent electricity service provided by the East China Grid.

The PDD finds that coal-fired power plants of less than 135MW are prohibited for construction in the areas covered by large grids. Hence, alternative b) is not viable. Furthermore, the PDD states that the option of other renewable energy basically refers to hydro energy, which is not viable in Fujian province. The PDD thus finds that the baseline is provision of equivalent electricity services by the

East China Grid, which is heavily dominated by coal-based production (PDD Fujian Zhangpu Liuao 2007).

However, the PDD does not explain why the alternative of additional fossil fuel capacity is restricted to coal. Similarly, the PDD does not explain why the alternative of other renewable energy sources is restricted to hydro. Further alternatives could be fossil fuels other than coal or renewables other than hydro. Step 1 of the additionality tool is therefore not completed in a convincing manner. In addition, there is no comprehensive accounting of relevant national and/or sectoral policies and circumstances. Only some individual policies and circumstances are used in several places to back up argumentation.

ACM0002 requires to estimate the OM and BM emission factor ex-ante, and then establish the Combined Margin baseline emission factor of the East China Grid through the weighted average of OM and BM. In this case, the baseline emission factor is calculated to be 0.880 t CO_2-eq./MWh. The net electricity to be generated was estimated ex ante at approximately 95,602MWh. Baseline emissions are calculated as electricity generated times the baseline emission factor, which yields baseline emissions of 84,130t CO_2-eq./year.

Project emissions are zero. Hence, the amount of expected emission reductions is equal to the baseline emissions.

Additionality

To demonstrate additionality, the project participants have conducted both an investment and a barrier analysis.

The benchmark for the investment analysis is set as an internal rate of return (IRR) of 8%, derived from the "Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects" issued by the former State Power Corporation of China, taking into account economic assessments of hydropower projects, fossil fuel fired projects, transmission and substation projects, especially the interest rate of commercial loans over five years. The project IRR is shown to lie below this benchmark without CER revenues. The project is hence considered to not be financially attractive. This assessment is not changed by the sensitivity analysis, whereby central parameters are changed by -/+10%.

In general, the investment analysis is conducted transparently and in accordance with the methodology. However, no explanation is given for setting the discount rate at 8%.

In addition, the project participants conduct a barrier analysis. The following barriers are identified:

Investment barriers:

- Investment costs for wind power are 40%/kW higher than for coal-fired plants
- Operating hours are 1/3 of those of coal-fired plants
- Provision of soft loans and financial support by the government has decreased

Technology barrier:

- Wind technology needs to be imported and substantial training of staff is necessary

The first two barriers are substantiated from an independent source, however, no independent sources are cited for the other two barriers.

The common practice analysis cites three other wind projects being implemented in Fujian province. One of the other wind farms is another CDM project. The PDD claims that the other two were able to be implemented without CDM since they started operating prior to the reform of the Chinese power market in 2002 that led to a decrease of feed-in tariffs. However, it may be questionable whether taking Fujian province as the geographical frame of reference is appropriate. Taking a broader region or even China as a whole might be more appropriate. In the PDD, no reason is given why consideration is restricted to Fujian province.

In our interview, the project developer argued that very different investment environments and energy mixes exist in each province in China and that it was therefore most reasonable to chose the province as reference. Furthermore, it would be basically impossible for a project developer to compare its own project to all existing wind farm projects in China, since there are too many and circumstances are always different.

Sustainable Development

Apart from the reduction of GHG emissions the project strives to contribute to sustainable development in the region by reducing pollution, creating employment opportunities, promoting the local tourism industry and improving the livelihoods of local people, inter alia through securing formerly unstable electricity supply in the rural area. Moreover, the project shall assist China in stimulating and accelerating the commercialization of grid-connected renewable energy technologies.

Ex ante documentation:

The sustainable development assessment for the Zhangpu Liuau 45 MW Wind Farm is mainly based on the EIA report required by Chinese law and the initial stakeholder consultation, as well as positive experiences with the earlier phase

of the wind farm project in the vicinity (based on discussions of the PDD consultant with the project owner).

Sustainable development matrix:

The assessment of the sustainable development effects resulted in an overall score of +10 for the project activity, with environment scoring +1 due to positive effects on air quality, social sustainability and development scoring +6 and economic and technological development scoring +3 (see Annex 3 for a detailed analysis).

This assessment was approved in the GS validation report by TÜV SÜD. Since no significant environmental impacts were identified during the initial stakeholder consultation and an EIA had already been conducted, no additional GS EIA and no monitoring of environmental impacts were required.

Sustainable development impacts according to stakeholders:

The initial stakeholder consultation, carried out in December 2006, showed overwhelmingly positive responses by the invited stakeholders. The invitees included local policy makers (8 people), from local governments, the Bureaus of Construction, Environmental Protection, Finance, Tourism and the Development and Reform Commission, as well as villagers from affected villages (15).

Local villagers appreciated that the project would alleviate power shortages, improve road access and enhance job opportunities, while local government officials emphasized that the project would stimulate tourism and improve the local economy. The great majority of participants were male (91.3%). The largest concern raised by participants was noise disturbance, but overall environmental impacts were not considered significant, while economic impacts were largely assessed as very positive. In the end all participants supported the project activity.

For the second stakeholder consultation questionnaires considering the comments from the initial stakeholder consultation were submitted to all the relevant stakeholders. In addition, GS supporter NGOs, such as WWF, Greenpeace and Renewable Energy & Energy Efficiency Partnership (REEEP), were invited to participate. The response letters from the NGOs were all generally supportive of the project, but none of the NGOs studied the project activity in detail.

The initial stakeholder consultation only lasted for two hours, during which stakeholders received a non-technical summary and answered a questionnaire. It is unclear whether stakeholders also received information on the project prior to the two-hour stakeholder meeting. It is questionable whether this leaves

stakeholders enough time to make a well-informed decision. Nevertheless, the socio-economic benefits of the project to the local community are convincing.

Ex post documentation:

In the verification report by SGS United Kingdom, quality and quantity of employment were the only two sustainable development indicators that were monitored, as per the PDD and GS validation report no potential mitigation/compensation measures needed to be monitored and no indicators were raised during the public consultation that needed to be monitored either (Verification Report Fujian Zhangpu Liuao 2008).

In terms of quality of employment, verification revealed that the salary of the newly created jobs was above the average rate. In terms of quantitative employment and income generation, verification showed that 7 permanent jobs and 66 temporary jobs had been created by the activity. These numbers are significantly lower than what was expected in the GS PDD Annex: 300 job opportunities and 12 permanent jobs for O&M (Gold Standard PDD Annexes Fujian Zhangpu Liuao). According to SGS, this was a misunderstanding and the numbers in the PDD referred to the 3 phases of the Zhangpu Liaoau Wind Farm of which this project activity is only the 2nd phase. Taking this misunderstanding and the generated amount of jobs into account it was verified that the initial sustainable development assessment was not significantly affected by this.

Our own analysis, however, showed that the assessment of quantitative employment and income generation is not consistent in terms of the applied baseline scenario. Whereas “air quality” improvements are assessed compared to coal-dominated power generation, which corresponds to the baseline in the PDD, “quantitative employment and income generation” is compared against a “zero alternative”, i.e. as if no other project would have taken place. This is clearly inconsistent and raises questions of the general coherence of GS assessments in terms of baseline assumptions (further discussed below) and therefore of sustainable development impacts. It is also remarkable that this issue was not raised in the GS validation and verification reports.

It also remains unclear why not other social, economic or technology criteria, such as improved road access and increased tourism have been assessed in the verification report.

Since the project was registered under Gold Standard version 1, no ex post monitoring of sustainable development impacts is required, so no information is available on the longer term sustainable development impacts. Since environmental effects were also found to be insignificant, no environmental monitoring was required either.

An interview with the project developer revealed, however, that tourism for instance did indeed increase in the area, as the wind farm was added to the local tourist sites and is being advertised by the local tourism board.

Applicability in practice

As mentioned before, Zhangpu Liuao Wind Farm project was the first GS Project to be developed in China. This also means that this was a trial project for the applicability of the GS for this developer.

Ms Xia Xiaoshu of China National Water Resources & Electric Power Materials & Equipment Co. Ltd (CWEME) of China Datang Corporation acted as the PDD consultant for Datang Zhangzhou Wind Power Co. Ltd. As this project was the first GS project to be developed in China, this was done in close consultation with the Gold Standard Foundation to clarify requirements, such as concerning stakeholder consultations etc.

Overall the additional effort to develop this project as GS was estimated as follows:

Table 15: Transaction Costs for the Fujian CDM GS project

Transaction Costs		**Additional Effort (in time and/or money)**
Pre-implementation costs	PDD-Costs	30%-50% extra in terms of time (mainly for stakeholder consultation)
	Validation Costs	50% extra
	Registration Costs	Very small at that time, no registration fee for GS
Implementation costs	Monitoring costs	0
	Verification and certification costs	20% extra to DOE
Total		Not including labour, all extra cost goes to the DOE

Source: Interview Xiaoshu

The additional revenue gained due to the GS (as compared to the phase I conventional CDM project activity) was between 10% and 20%.

The sustainable development matrix was rather easy to apply, mainly because no negative impacts were expected. The most difficult and time-consuming part was to organize the stakeholder discussion. At that time Xia Xiaoshu wrote a lot

of emails to Michael Schlup from the GS to clarify her questions, but thinks that the guidance has improved in version 2 of the GS.

Overall, the developer found it worthwhile to develop the project as GS because of the good publicity gained through it. In monetary terms it was more or less a zero-sum game. Despite this assessment, no further GS projects were developed by Datang Corporation, simply because of the extra human resources it takes, they do not have the capacity to develop all their CDM projects under the GS.

Conclusions

Some inconsistencies remain in the sustainability assessment. Most worrying seems that this inconsistency was not noticed or not mentioned by any of the DOEs responsible for validation and verification.

Considering that the initial stakeholder consultation took place in December 2006 and the construction started on 28 December 2006, it is questionable whether stakeholders were really involved “at the earliest opportunity” as required by the GS. Nevertheless, the benefits of the project activity in terms of providing clean energy to a rural community formerly suffering from electricity black-outs appear credible. This impression was also gained from the interviews conducted. Overall, there seems to be very little opposition to wind farms in China.

In the end, however, the benefits of this GS project activity do not seem any different to the benefits of the 1st phase of this wind farm, which was developed as conventional CDM project.

The analysis of additionality has also revealed some gaps. The PDD does not explain why the alternative of additional fossil fuel capacity is restricted to coal and why the alternative of other renewable energy sources is restricted to hydro. Step 1 of the additionality tool is therefore not completed in a convincing manner.

Moreover, the scope of the common practice analysis is restricted to Fujian province. The project developer argues that circumstances in other provinces are not comparable. This would need to be substantiated and validated.

However, the investment analysis is conducted transparently and comes to the conclusion that the project would not be economically attractive without the CDM.

3.4.5 Energéticos Jaremar (Honduras)

Project description

This CDM project involves the capture and energetic use of biogas. The biogas is produced by the palm oil mill effluent ponds at a palm oil mill located in Honduras. The project activity consists of covering two open anaerobic ponds, recovering the biogas and using it on site for the production of heat and electricity. Using biogas replaces the use of residual fuel oil as well as electricity consumption from the national grid.

The project takes place at the Agrotor production facility in the San Alejo Village, Atlantida Departament, Honduras. It is managed by Energéticos Jaremar, a company belonging to Jaremar S.A., a major manufacturer of palm oil in Honduras.

The project was registered 8 March 2008 with the first crediting period covering seven years.

Baseline and emission reductions

The PDD highlights that Honduran laws and legislation do not dictate requirements on the capture of biogas. It considers two available options to the project proponent (PDD Energéticos Jaremar 2006):

1. Continuation of the current waste water treatment system with the open lagoons, or
2. Covering the open lagoons.

As the first alternative did not involve any investment, had a low operational risk and was common practice for wastewater treatment for the Palm Oil mill industry in Honduras, it is considered the baseline. The PDD furthermore argues that both thermal energy and electricity could not be produced by biogas without the implementation of the methane recovery project. In the baseline situation, heat required by the refinery would have been generated by the use of bunker and the current cogeneration systems and the national grid of Honduras would have supplied electricity required.

The annual average emission reductions are estimated to be 30,646 tonnes CO_2-eq. over the first crediting period, mainly accruing from the methane recovery.

Additionality

For the demonstration of additionality, a barrier analysis has been conducted. The project proponent claims the existence of barriers due to prevailing practice and technological barriers.

The project proponent demonstrates the lack of prevailing practice by providing a list of existing wastewater treatment systems at palm oil mills in Honduras. None of them utilises a wastewater treatment system. It would have been interesting to analyse other wastewater treatment systems in Honduras/the whole region and to point to significant distinctions.

The technological barrier claimed is quite similar. As no Honduran company could supply a biogas recovery and utilisation system for the Agrotor palm oil mill, the company relied on the Colombian technology supplier Biotec. This entailed significant risks since the operation of the palm oil mill and refinery required a continuous deliverance of heat and electricity. According to the PDD, the CER revenues allow Energéticos Jaremar to establish a permanent partnership with Biotec. Here it would have been interesting to have a more detailed description why Biotec could not guarantee permanent maintenance of the system without the CDM and in how far personnel had to be trained for this project.

Sustainable Development

An Environmental Impact Diagnostic was carried out. The successful completion of this assessment led to receiving an environmental license from the Ministry of the Environment. The document claims that apart from reducing GHG emissions, wastewater treatment is improved, odour reduced as well as technology transfer initiated. Further, fossil fuel dependency is reduced, contributions to several not specified social projects are initiated as well new jobs created (GS-PDD Energéticos Jaremar 2006). The PDD claims that a total of ten permanent jobs for the maintenance and operation of the facility will be created (PDD Energéticos Jaremar 2006).

Stakeholder consultation

The initial stakeholder consultation was held on 21 March 2007 and was attended by 70 people who were invited by personal invitation and newspaper advertisements. Attendants represented local residents, NGOs, government officials as well as other stakeholders. One week after the meeting stakeholders were invited to comment on the project and the provided documents. No negative comments were received, a few minor questions of the co-benefits and on environmental aspects could be convincingly answered by the project proponent.

During the main UNFCCC stakeholder consultation process no comments were received.

The main stakeholder consultation in July 2007 comprised a question and answer session as well as a site visit by engineers from the main technology supplier. Again, no negative comments were received. Comprehensive documentation on paper and video was made available to the DOE.

Sustainable development matrix

The sustainability assessment resulted in an overall score of +11. The environment part yielded +3, mainly due to the positive effects on the wastewater, improved air quality and the recycling of the treated sludge. In the social sustainability and development section, the capture of hazardous gases along with improved access to energy services and know-how transfer to local technicians leads to a score of +3 while economic and technical development indicators aggregate to a score of +5. Here, the creation of work during the construction phase, ten full-time positions for the maintenance of the installation as well as knowledge transfer scored most. See Annex 3 for details.

The GS-validator, TÜV SÜD, confirmed these results. The validation report stresses that none of the indicators has a negative score. Therefore, an EIA would not have been needed according to neither the GS nor Honduran law. The results of the environmental diagnostic, which was nevertheless carried out, provided convincing results according to the validation. Moreover, TÜV SÜD addressed the issue of palm oil production in general. According to the validation report the proposed CDM project does not increase the current plant capacity. The report states that pressure on primary forests in Honduras results from banana plantations but not palm oil production.

The validating DOE also judged the requirements for stakeholder consultations to have been totally fulfilled.

No verification report was available at the time of writing.

Sustainable development impacts according to stakeholders

The interviewed NGO Fundación MDL de Honduras claims to be the only NGO working on the evaluation of CDM projects in Latin America and is capacitating other NGOs on climate change. Fundación MDL is convinced that all CDM projects in Honduras are additional and sufficiently sustainable as to be able to qualify for GS. The mere fact that the projects introduce renewable energy and energy efficiency technology to the country, which was formerly unknown and would – as Fundación MDL de Honduras stresses – not be financed without the CDM, serves to it as prove for additionality, additionality in terms of additional for the community. It emphasises that the projects provide an opportunity for a low-carbon development, have positive effects on the environment, electrify rural areas and capacitate the population leading to the reduction of poverty. Thus, people living in the project area benefit from the projects and neither they nor Fundación MDL de Honduras have doubts about the projects´ sustainability. Fundación MDL de Honduras is satisfied with both the stakeholder consultations in particular and the GS, apart from its narrow interpretation of sustainable development, following the MDGs rather that the plan of Johannesburg. Furthermore, it criticises the lack of financing from industrialised

countries and opposes stronger requirements for additionality and GS to be unnecessary. Instead, it suggests to include projects aiming at the recuperation of degraded areas and plantations for energy crops for the production of biofuels to be eligible for GS. As for the sustainability of the production process of palm oil, Fundación MDL points out that Jaremar produces oil for the local market and export but not for the production of biofuels. Otherwise, Fundación MDL de Honduras would not support the projects.

Applicability in practice

The sister companies Ecofys and OneCarbon supported the project proponent in developing the PDD. According to interviews with several people from these enterprises, the following figures apply as for the additional effort caused by the GS:

Table 16: Transaction Costs for the Energéticos Jaremar CDM GS project

Transaction Costs		**Additional Effort (in time and/or money)**
Pre-implementation costs	PDD-Costs (GS Passport acc. to GS version 2)	15 %
	Validation Costs	appr. 25 %
	Registration Costs	5 cent per CER
Implementation costs	Monitoring costs	appr. 0-20 %
	Verification and certification costs	appr. 25 %
Total		15 % of normal carbon development costs

Source: Interview Dalenoord/Eickhold

Edwin Dalenoord of Ecofys who wrote the PDD, estimates the additional revenue received form using the GS is about three Euro per tonne (Interview Dalenoord/Eickhold). Thus, the additional revenue from the GS amounts to about 92,000 €/year.

Conclusions

All the GS requirements regarding sustainability are convincingly fulfilled. This was confirmed by both the validator and Fundacion MDL. At a general level, the fact that the project activity takes place at a palm oil producing facility raises questions regarding issues of forest conservation and biodiversity. The GS has

special eligibility criteria for this kind of project, however, these are included in the GS 2.0 only, which was not in operation at the time of implementation of the project. Yet the interviews with the respective NGO as well as the project owner OneCarbon revealed that the operation of the factory complies with the sustainability criteria required by GS 2.0.

It seems that the identified barriers to demonstrate additionality are credible. However, the project proponent would have worked more credibly if he/she had provided additional independent and more comprehensive information.

3.5 Market Situation

Credit prices generally depend very much on the specific project, especially its status of development. Projects where CERs have already been issued pose no delivery risk for buyers and can therefore fetch relatively high prices. The less mature a project is, the higher is the delivery risk for the buyer, leading to correspondingly lower prices. Current CER prices range between 5-7 € for medium-risk forwards, 8-9 € for low-risk forwards, and 10-11 € for registered projects (GTZ 2009).

Trends on the voluntary market are much less being followed by observers than trends on the compliance market, but prices can be said to be generally lower than on the compliance market. In 2008, primary CDM prices stood at about 16.75 US-$ on average (about 11.4 € at the average 2008 exchange rate) while prices on the voluntary market were on average 7.35 US-$ (5 €) per tonne (Capoor and Ambrosi 2009). Evidently, the willingness to pay voluntarily for offsetting emissions has its limits.

While occupying only a small niche on the compliance market so far, the Gold Standard has held a notable position on the voluntary market. In 2008, it held a market share of 12%, which put it in second place after the VCS (48%) (Hamilton et al. 2009).

To survey the current market situation of the GS in terms of demand and prices, we conducted a survey among 55 emission reduction credit buyers.

The following questions were posed:

1. Has the buyer purchased GS-labelled CERs or would be interested in doing so?
2. If yes: What level of premium on the normal CER price has been paid or would the buyer be willing to pay in relative and absolute terms?

Results for research question 1

Out of 55 enquiries, 19 answers, that is from one third of those contacted, were received and evaluated.

Table 17: Number of buyers interested in GS-CERs

Answer	Number of answers
Yes (registered or under evaluation)	6 (32%)
No	11 (58%)
Not specified	2 (11%)

Source: Own survey

Six buyers affirmed the first question – either they bought GS certificates or they have projects under evaluation to obtain GS CERs for their portfolio.

Nevertheless, it became apparent that it is mainly the voluntary sector that is interested in GS CERs. Buyers who are interested in credits for compliance purposes only indicated little interest in GS credits and several respondents argued: “A Gold Standard CER has no more compliance value than any other CER” and “there is no difference, when cancelling emission rights, between regular CERs and Gold Standard CERs”.

Renat Heuberger, one of the interviewed GS project developers, confirms that only few compliance buyers are interested in GS CERs. His company does not have any compliance customer. Heuberger adds a possible motivation not to include GS projects into a portfolio: In case a fund offered GS CERs, compliance buyer might wonder why other projects in the portfolio are not GS. In case no project is GS, the customer does not question the portfolio’s contribution to sustainable development at all.

In several responses the existing UNFCCC rules were marked as sufficient regarding contribution to sustainable development and environmental integrity.

Furthermore, one buyer recommended “a broader approach than using the Gold Standard as point of departure when analysing how the sustainable development benefits of a future CDM could be optimised”.

Another buyer problematised the limited number of “projects that have achieved Gold Standard accreditation”.

Two times the buyers mentioned that they were interested in contracting early stage primary CERs or are involved in the project activity preparation from the beginning and “do not usually purchase CERs from project activities that are in

very advanced stages of CDM preparation (and could have therefore e.g. applied the Gold Standard)."

Buyers who are organised in larger funds usually do not have an interest in special CERs; "the decision to pay a premium would be associated with the separate policy and budget of an individual company".

Results for research question 2

Among those buyers who responded to our survey and are interested in GS CERs, the willingness to pay a premium price as well as the estimation regarding what level of premium is paid in relative and absolute terms varied widely; estimations range between one and seven Euro (for an overview of the replies, see Table 18). Only few respondents provided information on the premium and provided concrete figures – not least because this information was in some cases considered confidential.

Several buyers highlighted that the premium depends on the project size and the project type. One buyer mentioned that the prices in some cases are remarkably above those of the normal CER price, but that the specific figures are confidential. Another buyer, a CDM consultant and trader, mentioned that the problem with anticipating a price for GS CERs "is the lack of projects that have achieved Gold Standard accreditation and have had GS CERs issued".

One respondent specified the difficulty regarding project type and project location. To a high degree, the premium depends on the marketability of the GS project, e.g. "there are few customers for large industry projects. So a waste heat recovery project, which qualifies under the GS, would not hold much market value." Another one compared an efficient cook stoves project in Uganda and a wind farm project in China – and assumed that the willingness to pay a premium is higher in the first project case.

More precise answers were received in the personal interviews; according to Michael Schlup, a premium of 5-25% for GS CERS is possible. The higher premium occurs when specific buyers are interested in smaller projects. The relative premium for GS VERs is distinctly higher – about 70-100%, but the absolute price is beneath the CER price due to the lower requirements.

Robert Müller, another project developer, pointed out that the premium can be even higher: According to him, it is usually about three Euro compared to a normal CER, but for a certain very sustainable SSC project a premium of 15 € per CER had been paid.

Table 18: List of Responses on Premium for GS CERs

Premium on GS Certificates – List of Estimations by Buyers in Absolute and Relative Terms
Response 1: CERs: ca. 1 € or 8% premium
Response 2: CERs: premium between 1- 2 € for larger projects, 5 € for small volumes
Response 3: CERs: premium of around 2 €; VERs: premium of around 4 €
Response 4: CERs: 3 € or 25% premium
Response 5: CERs: 3-7 €

Source: Own survey

Conclusions

It appears that the GS mainly attracts the voluntary sector. The compliance sector was mentioned several times as being mostly not interested in paying a premium for a CER.

Buyers who have articulated their preference for GS CERs often have "extra requirements rather than just a need for a quantity GS CERs at a certain price".

The tendency to pay a premium exists. However, the exact premium varies widely. The premium buyers are willing to pay is very project specific. "Attractiveness of a project in the voluntary sector is linked as much to the type of the project, location of project, social and local community benefits, as it is to the standard that was used to verify the emission reductions." Taking into consideration that the price heavily depends on the project, statements seem to be of limited general reliability.

3.6 Summary Assessment of the CDM Gold Standard

3.6.1 Positive List

The GS only allows renewable energy and end-use energy efficiency projects. The aim of this list is to focus efforts on projects that are seen as most important for climate change mitigation and most likely to contribute to sustainable development, screening out project types that are seen to have a limited potential to contribute to these objectives.

However, a positive list screening out everything except renewable energy and end-use energy efficiency can be considered an arbitrary definition of sustainable development. There are certainly other project types that also contribute to sustainable development, such as transport or sustainable waste management practices. This is also acknowledged by the members of the GS

Foundation. The main reason for the restriction to renewable energy and efficiency was to achieve a consensus among the NGO supporters of the GS.

3.6.2 Safeguarding Principles

Starting with version 2 of the GS, the project developer has to apply the UNDP safeguarding principles. These principles are derived from the MDGs. To comply with these principles, the project developer has to submit a description in how far a principle is relevant to the CDM activity, an assessment of the gravity of the risks (low/medium/high), and the corresponding mitigation measure that is planned to be undertaken. The GS Toolkit gives examples for risks and potential mitigation measures.

In general, it appears sensible to clear criteria to ensure that projects at a minimum do not cause harm such as human rights violations. Unfortunately, all of the GS projects analysed in this study were developed according to version 1 of the standard, which did not include the safeguarding principles (projects based on GS version 2 were not yet sufficiently advanced in the project cycle to be useful for inclusion in the analysis). Therefore, no practical experiences could be assessed.

3.6.3 Sustainable Development Matrix

To be eligible for the GS, projects must demonstrate (positive) sustainable development impacts by applying the “sustainable development matrix”. Project developers need to assess their projects against a list of criteria of environmental, social and economic impacts. Its application is handled flexibly. In order to avoid unnecessary costs and to assure that application is feasible, the projects proponents are not required to assess criteria that will obviously not be affected. Moreover, the GS does not require to commission quantitative impact assessments, but settles for doing a plausible qualitative explanation of the potential impacts. The most important means to assure high quality is a “bottom-up review process”, meaning that the GS experts closely monitor project design and implementation (Interview Schlup).

On this basis, it is clear that there is a certain degree of subjectivity involved in the matrix assessment. This was also confirmed by the interviews. But there is obviously a trade-off between objectivity and transaction costs, especially for a voluntary standard like the GS. Requiring detailed quantitative analysis of project impacts would substantially increase implementation costs and thus make use of the GS increasingly unattractive.

The value of the matrix can therefore be seen in making project participants think about how their projects impact local conditions with regard to aspects that are seen as key, such as water quality, employment etc. It also serves to make

the assessment transparent by requiring presentation in an easily accessible scoring format and thereby addresses some of the key shortcomings of conventional CDM projects as described in chapter 4.

3.6.4 Stakeholder Consultation

The GS demands a comprehensive stakeholder consultation. This includes at least two meetings, both of which have to be prepared and carried out in a non-technical manner. This is to be proven by a detailed documentation. The GS requires specific agenda items to be included in the consultations, such as a discussion on monitoring sustainable development. In addition, the global network of GS supporter NGOs is expected to critically assess the project design.

The analysis of the implementation of the stakeholder consultations in practice has yielded a mixed result. According to our own analysis and the interviews we conducted, in some cases the lack of a discussion culture is a problem. Stakeholders sometimes think that they are tested on their knowledge of the projects and answer questions so as to show that they have learned something about the project instead of discussing projects critically. Moreover, in case of more controversial projects, local residents may be intimidated and not voice all their concerns if the stakeholder consultation takes place in the presence of government officials. Nevertheless, one interview with a project developer (Interview Xia) revealed that the GS requirements for stakeholder consultation can result in more ambitious consultations and can thereby improve overall practice and raise awareness. The final outcome of the consultation, will, however, largely depend on the local situation and discussion culture.

The GS supporter NGOs are not really able to fulfil their quality assurance function: They usually do not have the capacity to look into specific projects, not even internationally organised NGOs such as Greenpeace.

Transparency of stakeholder consultation could be improved by making sure that a third party also participates, either a DOE or an NGO.

3.6.5 Additionality Requirements

As regards the demonstration of additionality, the GS relies on the official UNFCCC additionality tool and the combined tool and is hence vulnerable to the same weaknesses. Given that analysts consider a significant proportion of the CDM project portfolio to be actually non-additional, it is very likely that the GS is similarly affected.

The assessment of the GS projects in this study shows that indeed GS projects are not necessarily best practice examples for the demonstration of

additionality. While some projects are partially very strong in terms of clarity and transparency, in all projects there are elements that are not convincing due to insufficient specificity of statements, insufficient transparency and lack of independent sources. While additionality seems likely for the majority of the projects, none of them could be showcased as fully convincing best practice examples for the demonstration of additionality.

3.6.6 Sustainability Monitoring

In addition to the ex ante assessment, the GS project developer has to submit a sustainability monitoring plan. This is used to verify ex post if the CDM project has indeed contributed to sustainable development as assessed ex ante. All non-neutral indicators must be monitored. The monitoring includes an assessment of the current situation after implementation of the project and an estimation of the baseline situation, i.e. what would have happened without implementation.

The GS's ex post monitoring can be regarded as an innovative instrument since it reassesses the project developer's ex ante information. It can be assumed that this requirement makes the project developer consider the impacts of the project early in the process and in as much detail as possible.

However, the requirement to only monitor indicators where the ex-ante assessment yielded a non-neutral score creates an incentive to keep the ex-ante analysis brief in order to minimise the monitoring requirements. In addition, if an indicator is assessed to be neutral ex ante, but ex post it emerges that there actually is an impact, this could be very relevant for the evaluation of the overall project.

Since the GS projects in this analysis were all based on version 1 of the GS (projects based on GS version 2 were not yet sufficiently advanced in the project cycle to be useful for inclusion in the analysis), sustainability monitoring was not yet required, so no practical experiences could be assessed.

3.6.7 Costs and Benefits

From our analysis it can be concluded that the GS does not impose an undue burden on project participants. All interviewees responded that the GS requirements are manageable and can be met with a reasonable amount of additional work. In some cases like Fujian project developers reported that the additional costs and revenues were more or less balanced. In other cases like La Esperanza the additional revenues appear to exceed the additional costs by several multiples.

However, the additional investment does not always pay off. On the voluntary market, there is a tendency for a price premium. It is project specific and varies between 1 and 15 € vis-à-vis a conventional CERs. However, according to our market survey, interest for GS credits does indeed not go much beyond the voluntary market. Compliance buyers have so far shown very little interest in the GS since it legally makes no difference whether they use conventional or GS credits. And it appears that the higher price can act as a disincentive for buyers. In the case of a GS project in Nicaragua, due to the higher price the project proponents have not been able to sell the CERs yet although they have been generating energy for more than five months (Interview Ruiz and Madriz Callejas).

Even where the extra effort is at least compensated by higher prices, project developers do not always have the capacity to put in the extra amount of time to develop GS projects as long as the additional profit remains minimal (Interview Xia).

3.6.8 Gold Standard Conclusions

In conclusion, our analysis shows the GS to be a tool that can be applied by project participants without too many problems. They generally consider the additional effort required to be manageable.

In part, this is certainly due to the flexible approach of the GS, which allows for different understandings of sustainable development. The sustainable development matrix mainly serves to make sure that all aspects that may be important are considered for each project and to provide transparency. It is not applied as a strict tool requiring a detailed quantification of all criteria. The most important means to assure high quality is, according to the GS Foundation, the close co-operation of project developers with independent institutions and local stakeholders. As long as the stakeholders support a certain project, it may be GS-certified.

The stakeholder consultation requirements with their demands for at least two rounds of consultations and making project information easily available appear robust. Weaknesses that appeared in the analysis are largely due to general lack of capacity within civil society in developing countries. Obviously, the GS can only provide tools to improve the situation within the project, but not solve more fundamental problems not connected to the projects as such.

The GS does not seem to have the means to make CDM projects more sustainable than they would otherwise have been. Rather, only projects that are sustainable anyhow seem to seek registration with the GS. Many projects drop out of the registration process at some point (Interview Schlup). Presumably,

they drop out when it emerges that the GS requirements are somewhat difficult to meet in their case.

Several of the projects had even already started implementation before they started to consider using the GS. Or rather, before they were made aware of the possibility to use the GS by buyers and intermediaries on the voluntary market who were looking for projects. In the case of some projects the GS rather looks like a business for European organisations to search for sustainable activities in developing countries in order to retroactively develop GS projects out of these.

However, these deficits are largely due to the GS's character as a voluntary label. By definition, voluntary labels essentially depend on the goodwill of buyers and sellers. Since their use increases the necessary initial investment, they necessarily only attract those who are motivated to promote sustainable development anyway. If everybody was motivated to strongly promote sustainable development, instruments like the GS would probably not be necessary.

Given its voluntary character, it would probably be too much to ask to expect that the GS makes non-sustainable projects sustainable. Rather, its function should be seen in showcasing sustainable projects, to demonstrate that sustainable approaches are possible and can be verified, and to thus exert an upward pressure on the market as a whole.

4 Conventional CDM project activities

This chapter contains an analysis of ten CDM project activities of the conventional pipeline as well as an analysis of the approval process of six DNAs. As explained in chapter 2.3, the aim of this analysis is to identify best practice examples for the demonstration of additionality, baseline setting and contribution to sustainable development that might be suitable for general adoption under the CDM.

4.1 Analysis of Conventional Projects

4.1.1 Rio Taquesi Hydroelectric Power Project (Bolivia)

Project description

This project activity comprises two run-of-river power plants delivering energy to the Bolivian National Grid. Total installed capacity is 89.5 MW. The project involves two small reservoirs with the corresponding weirs, penstocks and single turbine-generators.

A renewable 7-year crediting period applies, starting on 01 July 2002, the expected lifetime is 35 years (counted from the starting date, 28 January 2000).

The project activity is phase II of a project begun as a project under the Activities Implemented Jointly (AIJ) pilot phase.

Baseline and emission reduction

The PDD considers the following alternatives to the CDM project activity:

1. The proposed project not undertaken as a CDM project activity.
2. Addition of electric generation capacity in the form of natural gas fired combustion turbines connected to the same Bolivian grid system.
3. No project activity or other alternatives are undertaken.

The first potential alternative to the CDM project activity is not further considered due to the demonstration of additionality. The project proponent considers the second alternative as “a credible alternative because other developers have installed this type of electric generation capacity in Bolivia over the last five years” (PDD Rio Taquesi Hydroelectric Power Project 2006).

As per the ACM0002 methodology, the baseline scenario considered is the following: electricity delivered to the grid by the project would have otherwise

been generated by the operation of grid-connected power plants and by the addition of new generation sources.

Emission reductions are estimated at 141,691 CO_2-eq. over the first crediting period.

Additionality

The demonstration of additionality includes both an investment and a barrier analysis. The PDD concludes that the benchmark analysis is the most appropriate methodology for the investment analysis. It was chosen because it was the evaluation criterion that was used by the project principals in their decision as to whether or not to invest in the project. The simple cost analysis is not considered appropriate because the project will derive economic benefits other than CDM-related income, including among other items a revenue stream for the capacity and energy produced by the project.

An investment comparison was also not considered appropriate because the project was not compared to other projects in Bolivia by the shareholders. The opportunity to invest in the project was brought to the attention of the shareholders by the initial developers of the project. In their decision of whether or not to invest in the project, the shareholders evaluated the project's structure, the Bolivian electricity market, Bolivian regulation and the economics of the project, the feasibility and advantages of participating in a scheme such as the CDM as well as other criteria against the benchmarks that had been established for projects of this type located in South America, not a comparison against similar projects in Bolivia.

The project uses internal benchmarks, but these are not cross-checked with other external benchmarks. For instance the primary economic benchmark used by the company Tenaska Bolivia Holdings SRL (TBH) in its decision whether or not to participate in a project is an IRR after tax of as high as 20% in a third world country. This threshold is applied consistently and third party documents evidencing this benchmark have been made available to the DOE.

Another internal benchmark is the project's lifetime. It was assumed 35 years and this lifetime was not cross-checked externally either.

In the barrier analysis, the PDD lists many barriers: investment barriers (debt funding not available and no access to international capital markets) political and economic turmoil ("Bolivian country risk has always figured prominently in any merit evaluation for financing infrastructure in the country"), limited land access to the project site due to significant altitude change, engineering challenges ("Gradients are extreme, slopes are unstable"), schedule problems ("a complex project like the Rio Taquesi Hydroelectric Power Project imposes barriers not faced by alternative generation projects in Bolivia"), variations in precipitation and associated water flow in the watershed, transmission

distances (“radial transmission lines are by definition single points of interconnection and impose added risk”), regulatory risks (Bolivia reimburses generators through a marginal cost dispatch mechanism). This mechanism “effectively under-values capacity for more capital intensive investment projects” like Rio Taquesi and a non-recourse risk (“it is common for project lenders to establish a security interest”) (PDD Rio Taquesi Hydroelectric Power Project 2006).

The barrier description is a narrative explanation that does not use any relevant data. Moreover, the barriers are not discussed with regard to the different alternative scenarios.

In the common practice analysis, the PDD points out that from 1995 to 1999, "when the investment decision on the project was taken", nine new power plants were constructed in Bolivia (ibid.). The new additions to the electricity system are in two cases thermal energy plants and in seven cases hydroelectric plants. However, the PDD defines common practice by the capacity (MW) added and not the number of power plants and states that more than 75% of the new capacity additions were natural gas plants. The validation report of the DOE does not even mention that in the period between 1995 and 1999 seven out of nine new power plants were hydropower. However, it is obvious that hydroenergy is in fact common practice in Bolivia.

In conclusion, the demonstration of additionality in this case is based on a variety of subjective and/or intransparent arguments, of which none has been cross-checked or validated externally.

Sustainable development

With an effective capacity of 89.5 megawatts this project exceeds the **GS eligibility** threshold for hydropower projects, even when considering that the project activity consists of two separate plants. The GS requires an installed capacity of less than or equal to 20 MWe only. However, on a case-by-case basis, the GS does make exemptions from this rule. As a run-of-river project, this project might pass the GS test, see also the analysis of the comparable project La Esperanza in chapter 3.4.1 of this report.

As regards the ‘do no harm’ safeguards and the sustainability assessment, the project fulfils quite a number of the GS requirements:

Concerning **environmental issues,** an EIA was conducted although not required by the host country. According to the summary of the EIA included in the PDD, most impacts are “of low magnitude, reversible, recoverable and temporary. During construction, main impacts came from the removal of vegetation cover when constructing or improving the access roads and other infrastructure.” (The PDD contains a short summary of the EIA, the full documentation is not available.) As a run-of-river project, only small reservoirs

are required and water is stored only for short periods of time, limiting the impacts on the watershed and water balance. As for biodiversity aspects, the project participants established a foundation to contribute, inter alia, to conservation of cultural and archaeological resources as well as the environmental quality of the area.

Regarding **precautionary principles** and the **protection of natural habitats**, only limited information was available. Concerning the latter, the project's impact is probably negligible.

On **quality of employment** and **labour standards** the PDD expects "an increase in the demand for workers, supplies, and services" and that "construction wages provided a significant monetary boost to a region that has long depended on a non-cash economy". Further labour standards, such as freedom of association and no forced labour, are not mentioned. Yet the indicator "no discrimination based on gender, race … or any other basis" is to be monitored in a "SD Variables Follow Up". However, reports of this extra monitoring will be provided to the DNA only. On the **quantitative side of employment** and income generation, no information was available. The additional sustainable development monitoring lists the indicator "number of employees trained"; however, figures for this indicator remain intransparent.

Human and institutional capacity as well as **living conditions of the poor** is improved by the modern health care facility which the project participants envisage to set up in the PDD. This facility is to be staffed and run in cooperation with the local authorities. According to the validator, **no relocation** of landowners took place.

The PDD claims that there was "strong **stakeholder involvement**" from an early point. However, documentation of the stakeholder consultation is rather poor. The PDD states "meetings have been held in each of the communities within the project area", while not stating the number of meetings or the number of attendants nor describing what documentation was made available to the stakeholders. Further, it is claimed that the stakeholders made comments in "several cases" which led to alterations and adjustments of the project. Yet for only two such cases the concrete corrective action is described. If and where the minutes of these meetings were stored is not explained. Moreover, the PDD states that landowners along the transmission line were compensated. Even though the PDD claims the prefecture of La Paz supervised the relevant process, the validating entity asked for an update of this process. Whether or not this update was given is not clear from the validation report.

Conclusions

This project appears to have quite a convincing environmental record: according to the PDD, it has only minor impacts on the environment of the

project site and the project activity is the first private-run renewable energy project in Bolivia. Moreover, there are a number of sustainable development benefits laid out in the PDD. These comprise socio-economic benefits such as the health care facility and the conservation efforts. Yet these initiatives are difficult to verify as these aspects were not checked by the validator. The compensation of landowners (see stakeholder consultation) remains unclear. The proposed additional monitoring of sustainable development aspects makes the project exemplary but documentation is intransparent.

All in all, the project would possibly pass the GS assessment provided the information provided in the PDD is an accurate reflection of the situation and that the stakeholder consultation was indeed conducted at the earliest stage (as claimed in the PDD).

As regards additionality, the reasoning in the PDD is very questionable, because it is founded on very subjective statements. In particular, the parameters of the investment analysis are not justified convincingly, the claimed barriers are not substantiated from independent sources, and the PDD finds the project activity to be no common practice even though seven out of nine recent power projects in Bolivia were hydroenergy projects.

4.1.2 Colombo Bagasse Cogeneration Project (Brazil)

Project description

The Colombo Bagasse Cogeneration Project (CBCP) is located in the municipality of Ariranha in the State of São Paulo in Brazil and increases the efficiency of the burning of bagasse (residue from sugarcane processing) at Usina Colombo S/A - Açúcar e Álcool (Colombo), a Brazilian sugar mill. In two phases, the project expands the production of surplus steam, which is used for electricity production. After the second phase, CBCP is predicted to have nearly 86 MW to exploit for commercialisation. The electricity sold to the national grid leads to the substitution of fossil fuels and generates additional income. The project activity started on 1 July 2003, as did the first crediting period, which will last until 30 June 2010.

Baseline and emission reduction

By dispatching renewable electricity to the grid, electricity that would otherwise be produced using (grid-connected) fossil fuel is displaced. The PDD identifies two alternatives to the CDM project activity: one is to continue the current situation of the sugar mill, focusing only on the production of sugar and alcohol and thus investing to enhance the efficiency and increasing the scale of its core business. The other option is the project activity undertaken without CDM, which is not further considered due to the demonstration of additionality. Average CO_2-eq.-reductions are estimated to be as high as 28,018 t/year.

Additionality

The project proponent demonstrates additionality with a barrier analysis. The PDD lists:

- Technological barriers: the cogeneration units operate with low efficiency and are not competitive comparing to other generation options. Due to this, there is a "delicate issue about technology and economic value for such technology" (PDD Colombo Bagasse Cogeneration Project 2005). Although this technology is "well developed", the economic value for its application is not present for projects on the scale similar to the sugar mills in Brazil.
- Institutional and political barriers: From the electricity sector point of view, acquiring electricity other than hydroelectric is not a priority, since bagasse based electricity is generated only during the harvest season and thus not reliable. From the sugar mill point of view, the great majority of sugar mills do not consider investments in cogeneration (for electricity sale) as a priority. Moreover, at the time the project started there were no institutional incentives to be considered. Therefore, the company's decision to sign a long-term power purchase agreement (PPA) with the local distributor "undoubtedly" represented a significant risk that the mill was willing to take, "partially" thanks to the expected CDM revenue.
- Economic and investment barriers: Main difficulties are small sizes of projects and installation costs, the availability of long-term financing, lack of guarantees and lack of local funding.
- Cultural barriers: Due to the nature of the business in the sugar industry the marketing approach is "narrowly focused on commodity type of transaction".

These barriers are substantiated by citing three independent sources (universities) from the period 1994 to 1999. For instance, one economic barrier is mentioned in a report from 1997: "From the point of view of the economic agents, the excessive level of guarantees required to finance the projects is a common barrier to achieving a financial feasibility stage" (ibid.). However, as the documents which the PDD refers to date back to the 1990s, the information used could be outdated. Moreover, the PDD does not cite any numbers (e.g. about unitary costs and installation costs), but just gives a qualitative discussion by using general statements.

In the common practice analysis, the PDD finds that similar projects in the sugar industry in Brazil are found in approximately 10% of the sugar industry. The PDD does not compare similar activities with the project activity. It only states that these "are few examples in a universe of about 320 sugar mills" (ibid.).

Sustainable development

CBCP is a CDM project that would in principle be eligible for the GS. Concerning sustainable development and the "do no harm" safeguards, the project complies with some of the GS requirements:

In respect of **environmental sustainability,** a Preliminary Environmental Report was approved after submission to the State Secretariat of the Environment (Secretaria de Estado do Meio Ambiente) and CETESB (Companhia de Tecnologia de Saneamento Ambiental, State Secretariat of the Environment). CBCP's impact on the environment stemming from cane crushing and bagasse burning are considered to be insignificant and to have existed before the project activity already. The project not only avoids the emission of GHG by substituting fossil fuels, but also has an Environmental Management System and supports local environmental organisations via partnerships and donations.

The project's impact on **natural habitats** and concerning the **precautionary principles** probably depend to a big extent on whether the project increases biomass input. For an evaluation of the impact further information would be required.

CBCP fulfils some of the GS criteria on **social development**. It is certified under ISO 9002 guaranteeing a high quality standard system. Furthermore, it claims to foster measures (e.g. donations) to improve the quality of life in the municipalities nearby the mill and offers environmental education. With the baseload for the utilities in Brazil being supported mainly with hydro-generation, the advantage of CBCP supplying electricity during the dry season is stressed. However, the PDD offers no information regarding labour standards.

As regards CBCP's impact on **economic and technological development,** the generation of employment in the realisation, maintenance and operating phase is the only indicator mentioned. The PDD states that CBCP directly employed 3.829 and enabled approximately 4.000 job positions to be maintained during the 2002/2003 crop season. The long-term effect on employment and income is not evaluated in the PDD.

Stakeholders were invited to comment on CBCP on the UNFCCC website and TÜV SÜD website during the normal UNFCCC commenting period of 30 days (Validation Report Colombo Bagasse Cogeneration Project 2005). Furthermore, letters were sent to stakeholders and three announcements in newspapers called for comments on the new 40 MW generator to be sent to the Department of Environmental Impact Assessment (Departamento de Avaliação de Impacto Ambiental, DAIA) at the State Secretary of Environment. However, no comments were received.

Conclusions

The demonstration of additionality is done through a barrier analysis on the basis of independent sources. This can be considered transparent. However, the sources used are relatively old and the statements stay too general to really evaluate whether the barriers are real or not.

CBCP appears to have no negative effects on the environment, social, economic or technological sustainability. Instead, with its engagement in social and environmental organisations and the creation of jobs, it would score positively in some indicators in all of the GS categories. Thus, the main obstacle for GS registration for CBCP would be the stakeholder consultations as required by GS. This evaluation, however, is mainly based on limited information given in the PDD as no comments were received for the project and aspects concerning sustainable development are not investigated any further by the validator.

4.1.3 Power Generation (20MW) by utilizing Coke Oven Gas of China Coal and Coke Jiuxin Limited in Lingshi, Shanxi (China)

Project description

This project uses excess coke oven gas (COG) for power generation, replacing the electricity from the North China Power Grid. The generated electric power will be used to fulfil the in-house requirement of China Coal and Coke Jiuxin Coke Plant.

The project is located in Lingshi county of Jinzhong city, which is in the middle area of Shanxi province of the People's Republic of China. The total installed capacity of the project will be 20MW (40x500kW).

Baseline and emission reduction

The PDD identifies five alternatives to the above described project activity. These are:

- The project activity not undertaken as a CDM project activity;
- Equivalent electricity import from the grid with flaring of COG;
- New coal/diesel/natural gas/hydro/wind based captive power generation with flaring of COG;
- A mix of alternatives 2 and 3;
- Other uses of the waste COG.

The PDD does not further consider the third alternative, as it did not comply with legal and regulatory requirements (PDD Coke Oven Gas for power generation 2008). These requirements are not specified. While it is indeed prohibited in China to install thermal power plants with installed capacity of 135 MW or below in areas covered by large power grids, this requirement does not apply to renewable power plants. Thus, the installation of a renewable power plant would have been a viable option and should have been taken into account.

The project developer expects to reduce 675,990 tonnes of CO_2 in a 10-year crediting period (on average 67,599 CERs/year).

Additionality

The additionality of the project is established by an investment analysis. The value of equity IRR for the fuel-fired power plants (equity, after income tax) is chosen to be 13% in accordance with "Economic Evaluation Method and Parameters for Construction Projects/Version 03", an official Chinese document. Moreover, the PDD lists a number of critical assumptions, such as equity, annual O&M costs and the expected CER price. However, these internal data are not cross-checked with other sources.

In the sensitivity analysis, the four factors: annual power supply, electricity tariff, annual O&M costs and static total investment have been changed by +-10%. Furthermore, the outcome of the calculations and their likely occurrence in reality are discussed. This raises the credibility of the analysis.

The common practice analysis calls the project "first of its kind". The PDD provides the following reasons:

- There was no case of power generation with COG in Shanxi province before 2002 based on the data provided in "China Energy Statistics Yearbook".
- The COG used for power generation only accounted for 3.34% of the total recovered COG of Shanxi province in 2002.
- Between the years 2003-2006, nine power generation projects with COG using the Internal Combustion Engine have been constructed in Shanxi province. But there are only two projects (including the project activity) with installed capacity above 10MW. The project activity is the only one with an installed capacity above 15MW.

In other words, the project participants present their proposal as an innovative project by defining boundaries that appear to be rather artificial (Shanxi province, technology used is a combustion engine, installed capacity is above 10 MW).

Sustainable development

Being a fuel switch project this project would **not qualify for the GS**.

When looking at sustainable development aspects of the project, only a few aspects can be attributed to the project:

On **environment** issues, the project expects to reduce sulphur dioxide (SO_2), NO_X and TSPs (Total Suspended Particulates) from the operation of the coal-fired power plants. The project expects to avoid 515 tonnes of SO_2, 266 tonnes of NO_x and 15 tonnes of TSPs. Further, thermal pollution caused by direct COG flare will be avoided through the project. An EIA has been carried out according to Chinese law, which underlines that the project activity is in line with the national regulations and legal requirements. It states that the project site is located far away from the surrounding villages. Therefore, there are no noise issues, nor have any resettlements taken place. Measures were taken to keep the impact on the ecological environment as low as possible, such as re-planting after the construction period and "dumping trash carefully", as the PDD explains. An enclosed water cycle will be adopted for the cooling of the generation system. A zero discharge can be attained according to the PDD.

On the **protection of natural habitats** and **precautionary safeguards**, no information is available. The same applies to **social development indicators and labour standards.**

Regarding **economic and technological development**, the PDD states that 50 permanent staff will be employed for the O&M of the project. As the project is located in an abandoned river-basin, no resettlements took place, and no damage of critical cultural heritage was induced; further information on **human rights aspects** are not available.

The documentation of the **stakeholder consultation** process explains that comments were sought through three different ways: discussions with local authorities, an open public meeting and by a questionnaire to local villagers. However, how the meeting was announced and who participated remains unclear. No documentation is available. The questionnaire was sent to 30 local residents, all of whom returned the document. The results are given in the PDD. All of them supported the project.

Conclusions

From the PDD, the project appears to yield little co-benefits for the local population. On the positive side, the local stakeholders appear to have been actively involved. The creation of 50 permanent staff to operate the COG facility is a benefit, but it is not clear whether or not members of the local population were chosen for these jobs.

As regards the determination of the baseline scenario, it appears that the project proponent did not take all possible alternatives into account. Additionality has been tested using data from official Chinese documents. Although not every parameter has been validated externally, this approach is comparatively convincing. However, the common practice analysis was not conducted in a convincing manner as the differentiation from other projects of this kind seems rather arbitrary. Therefore, additionality remains questionable.

4.1.4 Yuliangwan small hydroelectric project, Hunan (China)

Project description

Yuliangwan is a Small Scale Hydropower Project on the Wushui River in Central China with a capacity of 8 MW. The low head hydropower plant is expected to generate 32,819.1 MWh/year with an average annual emission reduction of 31,999 tonnes of CO_2. The generated electricity is delivered to the regional power grid. The CDM EB registered the project on 06 Jan 2008; it has a 7-years crediting period, which is renewable.

Baseline and emission reduction

The PDD lists four alternative options to the CDM project activity (PDD Yuliangwan Small Hydroelectric Project 2007):

1. The project activity not undertaken as CDM project activity.
2. Construct a fossil fuel-fired power plant with equivalent annual electricity generation
3. Construct an alternative renewable power plant with equivalent annual electricity generation
4. Equivalent annual generated electricity supplied by the Central China Power Grid (CCPG) (continuation of current practice)

The PDD claims that only option 4 is a reasonable alternative. Option 1 is ruled out by the investment analysis. As for option 2, according to the current laws and regulations in China, thermal power plants with installed capacity of 135 MW or below are prohibited from construction in areas covered by large power grids. As for option 3, the PDD claims that available alternative renewable energy resources in the area are not sufficient and their use would not be financially attractive. However, these claims are not substantiated with specific data.

Additionality

The project is considered additional based on the results of an investment analysis. The project proponent conducts a benchmark analysis, as the first alternative to conduct a simple cost analysis is only applicable if the project

activity produces no economic benefits other than CDM related income and as the second alternative, an investment comparison analysis, can be only used if the alternatives to the project are similar investment projects. However, this latter option is not applicable to the project because the alternative to the proposed project activity is equivalent annual electricity supplied by CCPG. As indicated above, the exclusion of such potential alternatives from the baseline consideration is not entirely convincing.

Within the investment analysis, the financial benchmark rate of return (after tax) was set at 10%. This benchmark was chosen due to the Chinese "Economic Evaluation Code for Small Hydropower Projects". A number of parameters (installed capacity, total investment, current funds, net electricity generation and taxes) were derived from a "Feasibility Study Report", which seems to be an internal assessment. Other parameters, such as expected CER price, are not mentioned.

In the sensitivity analysis, the three factors: total investment, electricity tariff and annual O&M costs were changed by +-10%.

Sustainable development

Being a small-scale hydropower project, Yuliangwan would qualify for the GS in terms of eligibility.

As for the sustainable development screens, the following aspects are worth considering:

On the **environment** side, the PDD claims that the main impacts are occurring during construction. An EIA is quoted, which was conducted according to Chinese law, recommending some precautionary measures to be taken during the construction phase in order to avoid, inter alia, contamination of the river. According to the EIA, neither endangered species nor precious plants are known in the area; therefore, it concludes, biodiversity is not affected. Other impacts of the operation of the plant on the river are not discussed. Planting of trees and restoring the vegetation of the construction site is recommended. The validator acknowledges that the PDD describes measures to prevent harmful impacts on the environment during the construction period; however, the fulfilment of these criteria remains unclear.

Some of the **precautionary principles** can be regarded as covered by the above-mentioned measures, such as the question whether hazardous waste is produced. Most of the issues, however, remain unaddressed. The **protection of natural habitats** is partly mentioned, see above.

On **social development**, the PDD notes that "the project activity can increase temporary and permanent employment opportunities for local residents during construction and operation of the project, which will increase income of the local

residents." (PDD Yuliangwan Small Hydroelectric Project 2007) This statement is not qualified in any way apart from the announcement that "all the relative staffs before operation of generators" will be trained by the project owner. The quantitative and qualitative aspects of employment impacts remain unclear. No reference to labour standards is made.

The PDD raises some general expectations how the project could improve the living conditions of the local residents; these include promoting "local industry development and agriculture production" as well as the development of a "tourism industry" after the completion of the project. The Hongjiang District, where the project activity is carried out, is a tourist destination. The project developer had to change the weir site in order "to be compatible with the development of tourism" (PDD Yuliangwan Small Hydroelectric Project 2007). An issue that is likely to ease the local residents' life is the design of the dam, which will also serve as a (highway) bridge. This also holds for the roads built during the project construction phase. However, no technology transfer is foreseen.

During the stakeholder consultation, the project participant agreed to build a wharf on the reservoir as well as a drinking well for the local residents, which if implemented will certainly improve living standards of the local population.

On **human rights**, the PDD states that there are no resettlements involved. Given the size of the reservoir, this seems to be credible. Yet this was not checked during validation. The PDD mentions increased land compensation standards, which were introduced by the national government, leading to additional investment.

The documentation of the **stakeholder consultation process** comprises 1.5 pages in the PDD. Yet how the project proponent facilitated the participation of the local communities and how the invitation of the stakeholders was carried out remains unclear. One stakeholder meeting took place, which was attended by 30 people. The validator confirms that all participants said they were in favour of the project. Yet it is unclear whether there was a non-technical summary for the attendees. Further, given the fact that the meeting was held in the office of Hongjiang District Government, local residents might have been afraid to speak openly and raise serious concerns.

In reaction to issues raised by the attendees, the project owner promised to construct a wharf on the weir to facilitate the local residents' daily life – the original suggestion had been to build a wharf and install a ferry boat service. The project owner further promised to construct drinking water wells voluntarily for local villagers. The validation reports notes on this: "SGS assessor checked records of this meeting, and concluded that the proposed project received support from local stakeholders." (Validation Report Yuliangwan Small

Hydroelectric Project 2007). During its own stakeholder consultation during validation the DOE did not receive any comments.

Conclusions

The project's impact on sustainable development is questionable. Only a few possible positive impacts can be deduced from the PDD, such as the construction of a wharf. Yet it remains unclear whether the mentioned ferry boat service was installed. Further, it is not clear whether the construction of the dams as a highway bridge indeed means any benefit for the local population. While the impact of the small reservoir of the project activity on the tourism industry is unclear, it is striking that the project proponent is not able to qualify the impact on the employment situation. The stakeholder consultation process does not fulfil the GS requirements.

The sustainable development screening would probably have resulted in no negative scores; yet what a further investigation into the outstanding issues would have resulted in is unclear.

It appears that for the determination of the baseline scenario the project proponent did not consider all possible alternatives. Additionality was demonstrated by an investment analysis. Some of the parameters used were taken from internal documents, which were not crosschecked. Other parameters were not discussed at all.

4.1.5 BRT Bogotá, Colombia: TransMilenio Phase II to IV (Colombia)

Project description

TransMilenio establishes a mass urban transport system based on a Bus Rapid Transit (BRT) system. The general idea of BRT is to create a mass transit system using exclusive right of way lanes that mimic the rapidity and performance of metro systems but utilises bus technology rather than rail vehicle technology. It is supposed to improve vehicle efficiency and to lead to modal shifts. As of March 2005, the system in Bogota features 58 km of bus ways and 309 km of feeder routes, moving over 800 000 passengers per day. Bogota's BRT is also complemented by new cycleways, pedestrian upgrades and car-free events (which are not part of the CDM activity).

Baseline and emission reduction

TransMilenio uses the "Baseline Methodology for Bus Rapid Transit Projects" (AM031). The PDD identifies four alternatives to the proposed CDM project activity for the future operation of Bogota's public transport system (PDD BRT Bogotá 2006):

1. Establishment of a rail-based public transport system.
2. Complete operational restructuring of the public transport system.
3. Continuation of the current system including improvements based on national, regional or local policies. The continuation of the current system includes the continuation of TransMilenio phase I.
4. Implementing the project (TransMilenio phase II and following) without CDM.

The PDD dedicates two paragraphs to each alternative and narratively explains why only the continuation of the current situation (alternative 3) is "clearly a realistic and attractive alternative" (PDD BRT Bogotá 2006). The annual average emission reduction over the first is estimated at 246,563 t CO_2-eq.

A functioning transport system is a matter of public interest, but a municipality has only a limited budget available. Because of the trade-off between political priorities and the available budget, other baseline alternatives are principally possible. For instance the city could decide to reallocate its funding from public transport to other fields and in return give priority to individual transport measures.

Additionality

Additionality is demonstrated by a barrier analysis. According to the PDD, two important barriers exist for the implementation of the second and further phases of TransMilenio:

- Investment barrier: Costs per kilometre are significantly higher than anticipated and significantly higher than in Phase I. The District of Bogotá must bear much higher investments for phase II and following than originally anticipated. The District of Bogotá is forced to identify alternative finance sources to continue with phase II as resources from the surtax on gasoline established for this purpose are limited. The main barrier is thus the much higher than anticipated investment which limits the ability and reduces the willingness of the administration to further invest in TransMilenio.
- Resistance of the existing transport sector. This resistance has grown relative to phase I as formerly only a limited part of the city was affected while phases II to V encompass a large part of the city. Bus owners thus fear to loose income and especially the informal transport sector resists changing to a formal transport system for a variety of reasons.

The PDD cites three independent sources to substantiate available financial public resources and to demonstrate the actual and projected costs of trunk roads to be built (the WB, the Instituto de Desarrollo Urbano, and the Republic of Columbia). The resistance by the existing transport sector is not substantiated by independent sources.

In addition, and as demanded by the methodology, the project proponent conducts a common practice analysis. In the PDD, six Latin American cities with BRT systems are identified, but three of these six cities are not described at all. For the remaining three cities, it remains disputable whether the distinctions are essential. For instance the example of the Brazilian city of Curitiba is mentioned, but not considered common practice, as it is already three decades old.

In the literature, the BRT system of Bogota is very often mentioned as a best practice example for cheap and at the same time very sustainable urban transport. Bogota's success with public transport modes is due to a long tradition of highly synergistic implementation of car-restriction measures. The city benefited from a highly charismatic mayor who made public space and transport a priority. Over 1000 city officials from approximately 50 countries have visited Bogota in the past few years (Wright and Fulton 2005). It can be assumed that the BRT system was implemented because of the long record of pro-active local support of public and non-motorised transport.

Sustainable development

Being a transport project, Transmileneo would not be **eligible** for the GS, as it does not belong to any of the **project types** listed in Annex C of the GS manual.

As for the contribution to sustainable development, the following issues are touched upon in the PDD:

On **environmental impacts**, significant improvements on air quality are envisaged in the PDD, mainly particle matter NO_X and SO_X. These effects are exactly quantified in the PDD. While no effects on water quality and soil condition are expected, less noise production through better vehicles and consolidated bus routes as well as improved traffic fluidity are mentioned. An EIA and an Environmental Management Plan (EMP) were conducted; moreover, for each bus depot station, the EMP has to be updated every semester. The validation confirms that environmental impacts have been sufficiently addressed and controls are in place.

Natural habitats are most likely not affected by the project activity, as it mainly touches upon inner-city land. This also applies to further environmental issues like the production of chemicals or hazardous waste, use of GMOs or mono-cultural plantations or the involvement of invasive species.

Regarding **social development**, the PDD claims that more than 1,500 temporary construction jobs for unskilled workers of the surrounding communities were created. No information on labour standards is available. Furthermore, less time lost in congestion, less respiratory diseases due to reduced particle matter pollution, less noise pollution and fewer accidents per

passenger transported do contribute to improving living conditions of everyone, including the poor (as required by the GS).

On **human rights aspects**, no information was available. While there are probably no indigenous people involved, it is unclear whether there were resettlements or alteration of any critical cultural heritage due to the construction of a dedicated bus lane. These aspects are neither covered by the conventional CDM validation process, therefore the validation report does not touch upon these issues.

For the **stakeholder consultation process**, the project proponent used the feedback channels of TransMilenio Phase I to get bus users involved. There are monthly customer surveys on behalf of TransMilenio, an evaluation of which is consolidated in a general service index. There are dialogue meetings with involved stakeholders e.g. on an increase of bus frequency, improved maintenance etc. Outcomes of meetings are posted on the website of TransMilenio, www.transmilenio.gov.co. Further, for people living near construction sites, focal points were established were the local community could deposit their concerns. Five roundtable meetings with stakeholders of phase II and III of TransMilenio were organised. These meetings are continued (in a weekly manner) to determine acceptable solutions for Phase III. All relevant associations and groups of individual bus-owners take part in these round-tables (Validation Report). Owners and drivers of buses replaced by the project activity were given the opportunity to bid for the license to operate TransMilenio bus lines; further, a scrappage programme gave financial incentives to bus owners for their vehicles.

The validating entity did not receive any comments on the PDD during the UNFCCC public comment period.

Conclusions

It is very disputable whether the project is really additional. Bogota has a long tradition of implementing sustainable transport policies and measures and the TransMileno Phases II-IV can be considered in line with these.

The sustainable development assessment yielded a number of positive impacts while no major negative influence on the environment was apparent. Improvements in air quality and noise pollution are clearly laid out and quantified in the PDD. Therefore, the balance of the sustainable development screening would definitively be positive. The stakeholder consultation process is exemplary and would probably qualify for the GS.

However, the unclear additionality of the project casts some shadow over the otherwise highly beneficial project.

4.1.6 LaGeo, S.A. de C.V., Berlin Geothermal Project, Phase 2 (El Salvador)

Project description

The project will increase the power generation capacity at the existing Berlin Geothermal Power Plant through the drilling of additional geothermal wells and the installation of a new condensation power unit. The generated electricity is fed to the grid.

Baseline and emission reduction

Baseline and emission reduction are established on the basis of methodology ACM0002 ver. 4 – "Consolidated methodology for grid-connected electricity generation from renewable sources".

In the PDD, two alternatives to the project are described plausibly (PDD LaGeo 2006):

1. Continuation of the current situation, where electricity would continue to be delivered from the national grid.
2. Project implementation without the CDM

The PDD contains a very detailed description of the present situation of power generation in El Salvador and applicable laws. However, the PDD quotes only little external documentation in this section.

The emission reduction results from the displacement of fossil-based generation in the national grid.

As per the methodology, baseline emissions are calculated by multiplication of the annual electricity generated times a baseline emission factor. The baseline emission factor is calculated as the combined margin of OM and BM and amounts to 0.612 t CO_2/MWh. The relevant data have been obtained from the national dispatch centre, Unidad the Transacciones. Expected electricity generation is calculated on the basis of an installed capacity of 42 MW and a capacity factor of 85%, which yields baseline emission of 191,610 t CO_2/year.

Project emissions amount to 8,776 t CO_2-eq. from fugitive emissions of CO_2 and methane in the geothermal electricity generation process. Hence, expected emission reductions amount to 183,341 t CO_2-eq./year.

Additionality

To demonstrate additionality, the project participants have conducted a barrier analysis. The following barriers are identified:

Technical barriers:

- Lack of information about renewable energy potential, leading to uncertainty about availability and quality of resources.
- Geothermal plants are not recognized as elements of regulation of voltage and reduction of losses.

Investment barriers:

- Economics of geothermal energy are highly variable and upfront capital costs are 50% higher than for diesel-powered generation.
- Volatility of electricity prices is high.
- Renewable energy projects have high relative transaction costs as they have to complete the same procedures as large plants although they are much smaller.

Regulatory barriers:

- Lack of regulatory certainty.
- Lack of long-term PPAs, they are usually concluded for one year only.
- Lack of specific incentives for renewable energy projects.

Institutional barrier:

- Power authorities see only higher costs of renewables, not the positive externalities.

Other barriers:

- Concerns in the population about groundwater contamination, gas releases etc.

The barriers of higher upfront capital costs and electricity price volatility are substantiated from independent sources, the others are not. Moreover, the project is an expansion of an already existing facility at the same site. It may be assumed that the establishment of the original facility faced similar barriers and was nevertheless able to overcome them without use of the CDM. In particular, it is not clear why sufficient information about geothermal potential at the site was not available from the original development.

The case for additionality therefore solely rests on the fact that the original development was state funded, whereas the new project is privately funded. The PDD claims that the CDM helped to overcome the identified barriers as the long-term financial flow from the CDM compensates the higher costs and the lack of a long-term PPA.

While it is credible that a state-financed project is much less susceptible to the identified barriers than a private sector initiative and that the project is hence indeed additional, a more detailed discussion of why the original installation was able to go forward without the CDM whereas the new one would not have been able to would have been appropriate. Also, many of the barriers which the CDM

is claimed to help overcome, such as the lack of long-term PPAs, are not substantiated from external sources.

Sustainable development

Being a renewable energy generation project, La Geo is amongst the **eligible** project types under the **GS.**

The La Geo project also fulfils quite a number of the GS requirements in terms of sustainable development indicators:

Concerning **environmental indicators,** a detailed record of several environmental licenses and related environmental analyses is presented in the PDD (PDD LaGeo 2006). A complete EIA had been conducted for the first exploration phase of Berlin Geothermal Power Plant in 1994, followed by an ex-post environmental diagnosis in 2000, which was submitted to the MARN (Ministerio de Ambiente y Recursos Naturales), the Ministry for the Environment and Natural Resources of El Salvador. On the basis of the environmental diagnosis, the MARN requested an earmarked budget for environmental impacts mitigation measures, a system for the canalization and re-injection of condensate, the inclusion of activities listed in management and monitoring plans in a so-called compliance environmental programme, as well as updated financial data on the environmental plan before providing the final environmental permit for plant operation. On this basis and because of the low potential of environmental impacts caused by the expansion of power generation capacity, La Geo was exempted from acquiring new environmental licenses for the additional drilling by the MARN (PDD LaGeo 2006).

In 2003, La Geo submitted an EMP that was approved by the MARN, envisaging precautionary measures for environmental, social, safety and occupational health issues (no detailed account of measures is provided in the PDD), as well as a financial warranty as a guarantee for the environmental mitigation measures. Between 2003 and 2004, La Geo also undertook an impact study for the drilling of wells, as well as several environmental analyses of complementary drilling, geothermal fluid transportation pipelines connection and power plant expansion. Finally, La Geo was exempted from conducting an official EIA for its CDM project activity.

The EIA conducted for the first phase of La Geo identified erosion, risk of water contamination and the modification of surface water stream as the main impacts (Validation Report LaGeo 2006). Corresponding mitigation measures are summarised in the EMP approved by the MARN. They include:

- The protection of aquifers during the drilling and reservoir production process.

- A permanent groundwater monitoring plan that surveys areas near operations through periodic sampling and analyses (this survey includes wells, aquifers, and point sources of water supply).
- A conservation and reforestation programme in areas surrounding the plant.

Regarding the **protection of natural habitats,** the La Geo project includes a biodiversity inventory research project done by the National University of El Salvador in addition to the conservation and reforestation programme mentioned above. Based on the documentation in the PDD, the project activity therefore took a **precautionary approach** towards the mitigation of environmental impacts.

The project activity has a strong focus on **social development** in the area. What stands out in particular is the **Community Engagement Programme** (PACO, Programa de Atención Comunitaria) of the La Geo project that potentially improves the **livelihood of the poor**. The PACO aims to "create a balanced and constructive environment with neighbouring municipalities of Berlin. The fundamental elements of the program, used to maximize benefits to the community, are the generation of local employment opportunities, social investment activities, development of sustainable small businesses, and protection of the local environment" (PDD LaGeo 2006).

The PDD also mentions a **better income distribution** in the region due to reduced expenditure (presumably on external fuel sources) and more income in local municipalities. "The additional regional income may be used for providing the population with better services, which would improve the coverage of basic needs" (PDD LaGeo 2006 p. 2). However, it is not substantiated in the PDD how increased revenue would result in a better income distribution, apart from mentioning the community engagement programme. Also, the PDD lacks references to any external documentation of the community engagement programme. Nevertheless, the programme has been validated by DNV (Validation Report LaGeo 2006).

Surrounding communities would also indirectly benefit form the construction and maintenance of road infrastructure that ensures communication and commercial activities in the surroundings of the project site (PDD LaGeo 2006).

Concerning **access to affordable and clean energy services** "economical and/or strategic benefits include the decrease in dependence on fossil fuels, an exogenous and environmentally unsustainable source of energy" (PDD LaGeo 2006 p. 2-3).

Through the PACO, the La Geo project also addresses some aspects of **human and institutional capacity**, such as empowerment through better income distribution. Furthermore, an educational programme to enhance people's understanding of the benefits of geothermal resources has been implemented.

The programme also includes activities such as school cleaning and maintenance practices or reforestation (PDD LaGeo 2006).

Quality of employment and labour standards are not discussed. Neither are human rights. The discussion of **economic and technological development** is limited to emphasising the reliance on indigenous energy sources and mentioning the generation of local employment opportunities as part of the community engagement programme, but no further quantifications or explanations are given.

To ensure **stakeholder involvement,** three public hearings were conducted in 2002, resulting in a letter of approval by the mayor of the city of Berlin, El Salvador, expressing the agreement of the administration and its communities to the project activity. In order to obtain operation licenses, sponsors also developed education and communication programmes for local communities regarding environmental aspects, projects impacts and benefits. Stakeholder involvement in the La Geo project is managed through the Community Engagement Program mentioned above.

Additional comments were invited via three invitations in a national newspaper in 2004, but only two comments were received and not considered relevant by the MARN.

No further information is provided in the PDD on the number of stakeholders participating in the hearings or their backgrounds. According to the PDD all relevant comments received were incorporated into the implementation. No summary of those comments is provided, but some of the concrete actions that were taken include:

- A publication on Underground Water Management communicated via talks and seminars to allow the public to understand how the company is safeguarding the water supplies. The publication provides detailed information on site underground conditions and best management practices. The document also explains how aquifers are protected during the drilling and reservoir production process.
- Water monitoring through periodic sampling and analyses.

The project also operates a public affairs office at the site, which receives stakeholders and provides up-to-date information on environmental and social aspects related to the project activity, this includes a telephone hotline, newsletters, and public service announcements.

Whether the project changed based on the stakeholder consultation cannot be judged based on the documentation available. It is possible that some of the educational activities would not have been undertaken without the stakeholder consultation, but this cannot be said for sure. The project activity in itself does not seem to have been adjusted after consultation.

Conclusions

While it is credible that a state financed project is much less susceptible to the identified barriers than a private sector initiative and that the project is hence indeed additional, a more detailed discussion of why the original installation was able to go forward without the CDM whereas the new one would not have been able to would have been appropriate. Also, many of the barriers which the CDM is claimed to help overcome, such as the lack of long-term PPAs, are not substantiated from external sources. The additionality of the project can therefore not be considered to have been demonstrated without doubt.

In regard to its sustainability, a more detailed account of the contents of the listed environmental analyses and management plan that were produced would have greatly improved the transparency. Nevertheless, from the available information, mitigation measures against potential impacts such as erosion have been put in place and additional measures, such as conducting a biodiversity inventory research project, were also taken. What is particularly remarkable is the Community Engagement Programme, ensuring close stakeholder involvement. The Community Engagement Programme with its Environmental Education Programme also seems to be answering to the national DNA requirements, which ask for a contribution to the improvement of quality of life of local communities and the society in general. If transparency in regard to environmental assessments and stakeholder participation was improved, the La Geo project could probably qualify for the GS without much additional effort.

4.1.7 Switching of fuel from naphtha to natural gas in the captive power plant (CPP) at Dahej complex of Gujarat Alkalies and Chemicals Limited (India)

Project description

The project consists of fuel switching from naphtha to natural gas in the existing 90MW CCP for generation of electricity at the Gujarat Alkalies and Chemicals Limited plant (from here on referred to as Dahej-Gujarat project).

Baseline and emission reduction

Baseline and emission reduction are established on the basis of methodology AM0008 - Industrial fuel switching from coal and petroleum fuels to natural gas without extension of capacity and lifetime of the facility.

The baseline of the project is continuation of the present situation where naphtha is used for power generation. The applied methodology did not require identification of alternatives.

Baseline emissions are calculated on the basis of the expected consumption, heat rate and calorific value of naphtha and the IPCC emission factor. They amount to 459,905.39 t CO_2/year. Project emissions resulting from the use of natural gas are calculated on the basis of the expected consumption and the IPCC emission factors for natural gas. They amount to 349,164.1566 t CO_2/year.

Strangely, emissions from the production and transportation of naphtha, which amount to 11,279.26 t CO_2/year, are counted as leakage rather than baseline emissions. On this basis, the PDD calculates expected net emission reductions of 99,461.97 t CO_2/year.

Additionality

To demonstrate additionality the project participants have conducted an economic analysis that finds that the NPV of the project is negative due to the following factors:

- use of natural gas is more expensive than use of naphtha
- as the physical availability of natural gas is limited, the plant is expected to not be able to produce at full capacity.

The project proponents argue that an analysis of prices at the time of signing the gas contract in 2000 showed prices of Rs 1.85/kwh for naphtha and Rs 2.04/kwh for natural gas. However, no independent sources are cited.

The argument on the low availability of natural gas rests mainly on an article from the Economic Times, Bombay Edition, of 30 November 2005. A further argument put forward is that expansion of power supply in Gujarat in recent years has been mainly lignite-based. However, dominance of lignite does not necessarily signify that natural gas is not available, it could also be due to other factors.

The DOE at first questioned the price difference and scarcity of gas, but was subsequently satisfied by the above information provided by the project participants. An assessment of the veracity of these claims is beyond the scope of this research project.

For the sensitivity analysis, the calculation of the NPV considers variations of the price differential between naphtha and gas of +/-2%. No justification for the choice of percentage is given.

No common practice analysis was required by the methodology.

Sustainable development

As a fuel switch project from one non-renewable to another non-renewable energy source, where emission reductions are based on the lower carbon content of natural gas, the Dahej-Gujarat project would **not** be **eligible under**

the GS. Under the Gold standard only emission reductions related to end-use energy efficiency improvements associated with the fuel switch, such as energy recovery by water condensation in the fumes of natural gas fired boilers, are eligible (Ecofys et al 2008).

The project only assesses some of the sustainable development indicators:

An EIA was not required for the project activity and the relevant air and water permits from the respective State Pollution Control Board were obtained for the site. Identified **environmental benefits** of the project activity include improved **air quality** through the reduction of stack emissions from the power plant, as well as avoided movement of naphtha tankers and corresponding tail-pipe emissions. The electricity use to pump the natural gas through the newly built pipeline is considered very low, but not quantified. Temporary increases of small particulate matter levels due to the pipeline construction are acknowledged, but the overall impact is considered to be negligible. Land-use issues related to the pipeline construction are not discussed. Further benefits mentioned in the PDD are a reduced risk of **soil** contamination due to the avoidance of naphtha spillages when unloading the naphtha tankers and the reduction of fire risk due to replacement of easily inflammable naphtha with less easily inflammable natural gas (PDD Dahej-Gujarat Project 2005).

A total of 70 stakeholders participated in the **stakeholder consultation**, ranging from government officials to the village surpanch (= the village head), to distributors and suppliers, as well as people from educational institutions and employees. Stakeholders were invited by an announcement on the notice board of the landfill site. Not many representatives of the local community seem to have been present at the consultation. The notification was also posted on the company's website for 20 days, where stakeholders could post their comments or questions. Strikingly, documented comments were only received from company representatives and mainly concerned the nature of the CDM activity, not its environmental or social impacts. No comments by local communities are documented in the PDD. It is unclear whether the documented comments are only those received online or a summary of all comments. The DOE deemed the stakeholder process sufficient since no considerable social or environmental impacts were expected from the project activity (Validation Report Dahej-Gujarat Project 2006).

None of the other aspects of sustainability – precautionary safeguards, impacts on natural habitats labour and human rights, social, economic and technological development – are discussed in the PDD. Not even potential (positive) impacts on poverty eradication and **livelihood of the poor**, although this is one of the Indian DNA's sustainable development indicators.

Conclusions

Assessing the additionality of the project would require gathering information on the actual price differential between naphtha and gas and on the physical availability of natural gas in Gujarat province, which is beyond the scope of this project.

In terms of sustainable development, the environmental assessment is credible, although a more detailed analysis of the resource needs for the new pipeline could have been integrated. The stakeholder consultation seems to have included few people from local communities, but this cannot be said for sure due to insufficient documentation. Clearly, this project activity would not be eligible for GS certificates and even fails to fully address the official Indian DNA requirements. Surprisingly, although host Party requirements are explicitly mentioned to be validated in the beginning of the validation report, any reference to these criteria, let alone a compliance assessment of these criteria is missing.

4.1.8 Bundled Wind Power Project in Tamilnadu, India, Co-ordinated by the TamilNadu Spinning Mills Association (India)

Project description

The project involves installation of 704 wind turbines. It comprises small wind mill sub-project owners, who operate spinning mills and have invested into wind energy generation under the umbrella of the TamilNadu Spinning Mills Association (TASMA). The generated wind power is used for meeting their captive needs and for exportation to the grid. All the wind mills are connected to the grid of the Tamil Nadu Electricity Board (TNEB) / Southern Grid. Total installed capacity amounts to 468 MW and the generation is expected to be approximately 860 GWh annually.

Baseline and emission reduction

Baseline and emission reduction are established on the basis of methodology ACM0002 ver. 6 - Consolidated methodology for grid-connected electricity generation from renewable sources.

The baseline of the project is continuation of the present situation where electricity is provided from the grid. The PDD does not consider other alternatives to the project, such as other in-house power generation (PDD Bundled Wind Power Project Tamilnadu 2007).

Baseline emissions are calculated as the baseline emission factor times the expected electricity generation. The baseline emission factor is calculated as

the combined margin of BM and OM as calculated by the Central Electricity Authority and amounts to 0.932 t CO_2/MWh. Electricity generation started at 140 GWh in 2003 and reached the maximum of 860 GWh in 2006. Average emission reductions over the project lifetime are expected to be 686,697 t CO_2.

Additionality

To demonstrate additionality, the project participants have conducted a benchmark investment analysis that concludes that the IRR without use of the CDM is below the benchmark of 16%. This benchmark is recommended by the Central Electricity Authority, the Central Electricity Regulatory Commission and the Tamil Nadu Electricity Regulatory Commission. The PDD lists all parameters used as well as references and justifications for all values. The investment analysis has been done for all sub-projects individually. Instead of the normal 10-12 years, the IRR calculation is based on a more conservative 20 years of cash flow. The IRR of all individual sub-projects has been calculated and is shown to be below the benchmark of 16%.

The sensitivity analysis varies electricity generation by +/-4%, based on variation in plant load factor based on wind speed patterns of about 1%. Furthermore, the analysis varies maintenance expenses by +/-5% as per order of the Tamil Nadu Electricity Regulatory Commission. Analysis of wind speed patterns is beyond the scope of this research project, but other CDM projects, including other wind projects analysed in this report, consider a higher variation. The more profitable among the sub-projects do come close to the benchmark even with the chosen variation. It could be expected that a number of the sub-projects would exceed the benchmark if a higher variation was used. In addition, further factors such as electricity tariffs could have been included in the sensitivity analysis.

As for common practice, since the 1990s dozens or in some years even hundreds of MW of installed wind power capacity have been added in Tamil Nadu each year. In 2004-5, cumulative installed wind power capacity in Tamil Nadu had reached 1677.4 MW.

The PDD claims that nevertheless the project's structure, where wind power is promoted and implemented by an industry association through its members, is unique.

The PDD further claims that a series of policy and other changes in 2001-2002 made wind power generation significantly less attractive, in particular:

- The tariff was changed from 2.25 Rupees (Rs.)/kWh with 5% increase each year to a fixed tariff at 2.70 Rs./kWh
- Wheeling and banking charges increased
- Costs of wind power installation and land prices have increased steadily

The PDD therefore claims that installations up to 2002 are not comparable to new installations. Moreover, 96.63% of new installations started since 2002 intend to use the CDM and are therefore not to be included in the common practice analysis.

It bears noting, though, that this would mean that without the CDM there would be no further wind power development whatsoever in Tamil Nadu. This hardly seems realistic.

Sustainable development

As a wind farm project, the Bundled Wind Power Project in Tamilnadu would be **eligible** for the **GS**.

In regard to the sustainability assessment and stakeholder consultation, the lack of transparency in the PDD makes a thorough assessment difficult. Nevertheless, quite a few of the main categories are treated as analysed below:

EIAs are not required for wind farm installations by Indian law, so no EIA was conducted. However, **environmental and health and safety indicators** were assessed in a so-called "proactive review of environmental impacts" (PDD Bundled Wind Power Project Tamilnadu 2007), using the following matrix:

Score	Quantity (Q)	Occurrence (O)	Risk (I)	Status of Control (C)
5	Excessive	Continuous	Fatal to human life	No control
4	Very high	Several times a day	Human health effect	Partial control at output stage
3	High	Once a day	Land/water contamination Resources consumption	Partial control at input stage
2	Moderate	Once a week	Cause discomfort or acidic rain or nuisance	Total control at output stage
1	Low	Once a month or less frequent	Negligible visual impact	Total control at input stage
Overall Score = Q * O * I * C				

At least under the risk column, the matrix seems rather arbitrary in that it values acidic rain of a lower impact than land or water contamination. No further explanation is provided for the matrix. Each indicator (soil erosion, air quality,

snake bite, accident etc.) is then represented with an overall score only, the highest score being 16 for dust and smoke occurring during construction. Most other indicators range between 1 and 4. It is argued that since none of the indicators is above an overall score of 25, environmental impacts are not significant. However, no explanation is given as to why 25 is considered the threshold for significance, let alone how the overall scores are composed for each indicator, rendering the entire analysis intransparent.

The project activity introduced several **Environmental Management Programmes** to keep noise levels down, maintain the ecology and to provide a safe and healthy work environment. The greatest risk to **soil conditions** are oil spills and erosion, the mitigation measures for which are identified as spillage control, green belt development and the planting of Jatropha. Bird hits by turbine blades are considered but found not be significant. **Noise** is assessed not to be significant, but noise levels are planned to be monitored for two days each year at all sites; operators and maintenance workers are provided with ear muffs. Other measures to ensure a **safe and healthy work environment** include minimum safety setbacks of 150m or three times the turbine height to be established from any property line or public roadway/rail, rotational speed controls, an emergency plan for major accidents and training for personnel.

Precautionary safeguards and the **protection of natural habitat** are not discussed. The same applies for **quality of employment** and **labour standards**, as well as anti-corruption and **human rights**. Here, one comment made during the stakeholder consultation about giving “land back to farmers once the wind farms are in operation” (PDD Bundled Wind Power Project Tamilnadu 2007 p. 39) raises doubts about whether the land acquisition (validated by the DOE) took local communities duly into account.

This could also have an effect on the **livelihood of the poor** in the affected regions. According to the PDD, giving back land to farmers “is not allowed under the current regulation for safety reasons“, but “will be considered in case the regulation changes“ (PDD Bundled Wind Power Project Tamilnadu 2007 p. 39). No further explanations are provided on the matter.

On **economic and technological development**, the generation of **additional employment** especially for windmill operations and maintenance security is mentioned, but not quantified. **Technology transfer** is not discussed, but turbines are from international manufacturers.

A **stakeholder consultation** was conducted, where local stakeholders were identified to be the people living in the cities near the sites. Villagers were consulted using a questionnaire in the local language (Tamil) to which a total of 215 people responded. Responses are represented solely in aggregated scores, where 100 represents the highest positive score. Overall high positive

scores were received with the lowest score being 75.35 for the question if the project improved the livelihood. It is unclear whether respondents already answered in numbers or if numbers were inferred later based on their responses. Unfortunately, the summary with its aggregated score, lacking explanations as to how these were calculated and the way questions were answered makes it impossible to properly judge the responses. They can only be guessed from the corrective actions in response to stakeholder comments described in the PDD: planting trees to improve the environment, including water drainage for newly constructed roads, not building wind mills within 1 km from schools (to be discussed with manufacturers), installing a proper maintenance and safety programme to avoid accidents, which should include the public.

Not all comments submitted during the UNFCCC public commenting period are reproduced by the DOE's validation report. Most of them were "not considered" since they were not submitted by UNFCCC-accredited observers. However, the Marrakesh Accords clearly stipulate that all stakeholders may submit comments. The validation report is therefore not in line with UNFCCC requirements. It claims that "relevant points have been taken into account during the validation process". Which points these might have been, however, remains unknown.

Conclusions

Use of wind power is clearly common practice in Tamil Nadu. The case for additionality rests on the values chosen for the plant load capacity factor etc., a detailed analysis of which is beyond the scope of this project. In any case, it is not credible that the very dynamic development of wind power in Tamil Nadu would have come to a complete stop in 2003 without the CDM, as is implied by 96.63% of all new projects seeking CDM registration.

Apart from the abatement of GHG, the project activity mainly contributes to sustainable development through an increased contribution of renewable energy to the South Indian electricity mix, thereby helping to meet the increasing energy demand through clean energy. The inadequately quantified documentation of the environmental impacts analysis and the stakeholder consultation make it very difficult to judge this project activity. In particular the comment on returning land to farmers raises doubts about potential negative impacts on the local population by the project activity.

4.1.9 Vinasse Anaerobic Treatment Project (Nicaragua)

Project description

The purpose of the project is to treat the wastewater generated in the production of alcohol (vinasse) and to use the organic matter removed from the wastewater to produce renewable energy.

Baseline and emission reduction

Baseline and emission reduction are established on the basis of methodology AM0013 ver. 3 - Avoided methane emissions from organic waste-water treatment.

The description of alternative scenarios is not very clear and the degree of detail varies for each alternative. The alternatives are:

1. Continuation of the current situation
2. Spray irrigation, i.e. management of the vinasse through application of the waste liquids in the cane fields
3. Aerobic biological treatment of the wastewater, yielding biomass sludge as fertilizer
4. Improvement of the boiler and steam system efficiency in the existing plant

Based on a qualitative feasibility discussion the PDD selects continuation of the current situation as the most likely scenario. However, the discussion of additionality shows that the efficiency improvements are the most economically attractive option and face few barriers (see section on additionality below). The PDD does not really discuss why nevertheless continuation of the current situation is taken as the baseline (PDD Vinasse Anaerobic Treatment Project 2006).

The emission reductions result from:

- The capture of methane that would otherwise be released from the lagoon, and
- The displacement of fuel oil and grid-fed electricity by combusting the recovered methane to produce energy

Lagoon baseline emissions amount to 1,348,005 t CO_2 over ten years. Electricity baseline emissions are calculated as the combined margin of OM and BM and amount to 144,935 t CO_2 over ten years. Total baseline emissions thus amount to 1,490,365 t CO_2 over ten years.

Project emissions result from remaining methane emissions from the lagoons, physical leakage from the digester system, stack emissions from flaring and

energy generating equipment, emissions related with the consumption of electricity in the digester auxiliary equipment, emissions from land application of sludge, and emissions from wastewater removed in the dewatering process. In total, they amount to 294,474 t CO_2 over ten years.

Subtraction of project emissions from baseline emissions hence yields an expected emission reduction of 1,195,891 t CO_2 over ten years.

Additionality

To demonstrate additionality, the project participants have conducted an investment analysis using the return on investment as indicator. It shows that the project's return on investment is higher than for all other options except the efficiency improvements and also higher than the company's hurdle rate.

The PDD contains a qualitative sensitivity analysis, claiming that financial models to calculate the impacts of various factors for each alternative are not available. The factors considered are:

- Technology failure
- 50% increase of electricity or fuel price
- 50% increase in interest rate
- Price increase of harvested sugar cane

No explanation is given for the chosen percentages. The analysis shows that the project remains the financially most attractive option in all cases except for the case of technology failure.

The case for additionality therefore rests on the barrier analysis. The PDD identifies the following barriers:

- The project is the first of its kind in all of Central America, prior applications of anaerobic technologies have been unsuccessful
- Scarcity of capital in Nicaragua
- Exchange rate risk as financing is mainly sourced from hard currency whereas financial returns are predominantly in local currency
- The investment is not within the core business of the distillery

Continuation of the current situation would not have been constrained by the barriers. Similarly, implementation of the efficiency improvements in the distillery would have required a much lower investment and hence would not have been prevented by the barriers either. The PDD therefore concludes that some of the alternatives to the project would not have been prevented by the barriers and hence the project is additional.

The PDD substantiates none of the barriers from independent sources, but they were apparently confirmed by the DOE during validation.

Sustainable development

The vinasse anaerobic treatment project could be amongst the project categories **eligible under GS**, as long as the rated biogas consumption of the generators corresponded at least to 65% of the expected volume of methane captured (minimum utilisation ratio) and as long as the ratio was properly monitored (Ecofys et al 2008).

The sustainable development aspects of the project are partly discussed:

An independent **EIA** was conducted for the first phase of the project activity (anaerobic digestion of the vinasse, including treated fertilizer production and flaring the produced biogas; electricity generation from the biogas is already part of phase 2 of the project activity) and further EIAs will be conducted as required. A copy of the environmental license from the environment ministry (MARENA, Ministerio del Ambiente y los Recursos Naturales (Ministry of the Environment and Natural Resources)) in Spanish is included in the PDD, containing a list of obligatory requirements concerning health and safety, which the project proponent has to fulfil (for convenience and transparency, this list could have been translated into English).

The summary of **environmental impacts** in the PDD is rather detailed (PDD Vinasse Anaerobic Treatment Project 2006):

Compared to the baseline case, **air quality** will be improved through the reduction of CO, SO_2 and particulate matter by a 46% substitution of fuel oil with methane (once phase 2 is finalised). **Water quality** (surface and underground) will also be improved through the installation of a wastewater treatment process through biodigestion, as well as through the reduction of the organic content in the fertilizer due to the anaerobic digestion. The improved fertilizer will also have a positive effect on the **soil condition**.

The largest identified risks are in fact **health risks**, in particular **heat stress** in the plant due to high inside and outside temperatures and risks for lab workers **handling** the **sodium hydroxide and phosphoric acid** for injection into the digesters. Therefore, the MARENA required using cooling material for heat conduction pipelines and for boilers, installing an appropriate ventilation system and keeping exposure to a maximum of 8 hours per day. Workers handling chemicals must wear protective clothing and receive medical checks three times per year

Noise effects are likely to occur mainly during construction but are not regarded as severe. The Environment Ministry requests workers to be provided with ear muffs or similar equipment and limiting construction to daytime hours.

Other selected mitigation measures required by the Environment Ministry include requirements for monitoring and a contingency plan, as well as

conducting the methane in elevated pipes to avoid impacts of fugitive emissions and indemnity payments in case that emissions from the plant affect the values or quality of settlements in its area of influence.

Precautionary safeguards and the **protection of natural habitats** are not discussed. Neither are **labour standards** or **human rights**. In fact, **social development indicators** are not explicitly discussed at all, although issues of a safe and healthy work environment are addressed through the environmental license. Furthermore, the company had earned recognition from the Ministry of Labour as a **leader in health and safety** for four years in a row at the time (PDD version 02, 1 July 2004).

In regard to **quantitative employment and income generation**, the PDD argues that the project activity will allow the Company to be part of the group of "Clean Producing Industries", increasing the acceptability of its products both nationally and internationally. "This should lead to an increase in revenue, which in turn should lead to grater investment, more jobs, and more taxes coming into Chichigalpa" (PDD Vinasse Anaerobic Treatment Project 2006). However, it is doubtful whether this benefit materialised. A quantification of additional employment, e.g. workers for the digesters, is missing completely.

A **stakeholder consultation** was conducted in 2002 to discuss the EIA (as required by law). Participants were invited by a large temporary sign at the entrance of Chichigalpa (the town of the project activity), through a car with loudspeakers touring the town, as well as through an invitation publicized in La Prensa, the largest newspaper in Nicaragua. The main comments and the company's response are summarised in the PDD. The main concerns regarded odour, health and safety issues or water quality. All comments were duly treated and the project design already included mitigation measures for these concerns. Details on the number and background of involved stakeholders are missing. In 2004, two additional consultations discussed the CDM activity. This was required by the DNA, but no further information as to the nature of these consultations is provided in the PDD, even though this had been requested by the DOE (Validation Report Vinasse Anaerobic Treatment Project 2006).

Conclusions

The investment analysis shows that the project would have been very profitable even without use of the CDM, the additionality therefore rests on the barrier analysis. The PDD substantiates none of the barriers from independent sources, but they were apparently validated by the DOE during validation. Nevertheless, it is not clear why continuation of the current situation was chosen as the baseline even though it was shown that efficiency improvements in the distillery were the most economically attractive option and faced few barriers.

In view of its contribution to sustainable development, the project activity has significant co-benefits regarding air and water quality improvements. The stakeholder consultation seems decent and seems to have led to a better understanding of the project activity. It is noticeable that the national regulation for receiving an environmental license has a strong safeguarding mechanism for ensuring health and safety standards, further improving the project activity.

4.1.10 Cerro Patacón Landfill Gas Utilization Project (Panama)

Project description

The Cerro Patacón Landfill is the biggest in the country and serves Panama City and nearby municipalities. The objective of the project is to replace the existing passive landfill gas venting system by an active gas collection and flaring system. In addition, the collected gas may be used for electricity generation with a maximum installed capacity of 6.3 MW.

Baseline and emission reduction

The PDD considers the following alternatives to the landfill capture (PDD Cerro Patacón Landfill Gas Utilization Project 2008):

- The project activity without registration under the CDM
- Continuation of the current situation.

The PDD considers the following alternatives to the electricity generation:

- Power generation from landfill gas without registration under the CDM
- Existing or new on- or off-site fossil fuel cogeneration plant
- Existing or new on- or off-site renewables based cogeneration plant
- Existing or new on- or off-site fossil fuel CPP
- Existing or new on- or off-site renewables CPP
- Existing or new grid-connected power plants

The PDD states that other renewable sources are not available at the project site and that fossil fuel based plants would not be economically competitive with purchasing power from the grid, which is hence the only viable option. However, these claims are not substantiated with any figures or external documentation.

Baseline emissions are calculated as the amount of methane that is destroyed by the project and the grid-connected electricity generation displaced by the project. Expected methane destruction ranges around 13,000 t CH_4/year, that is, about 273,000 t CO_2-eq./year. Avoided electricity generation emissions are calculated as the expected electricity generation by the project times the grid emission factor. The grid emission factor for grid electricity is calculated on the basis of the combined margin of BM and OM and amounts to 0.606 t CO_2/MWh. With an expected electricity generation of 46,632 MWh/year, this amounts to

emission reductions of about 28,259 t CO_2/year. In total the project hence assumes average emission reductions of ca. 300,000 t CO_2-eq./year.

Additionality

As the only income from the proposed project is the sale of CERs, the project uses a simple cost investment analysis to demonstrate additionality. As installation of the gas capture equipment produces costs without economic benefits, the project is deemed to not be financially attractive without the CDM. However, the discussion completely neglects the economic benefits of the proposed electricity generation.

In addition, the PDD contains a barrier analysis. The PDD identifies the following barriers:

- Lack of capital in the country
- Lack of skilled labour
- Lack of infrastructure for supporting the maintenance of electricity generation from landfill gas (i.e. local providers of equipment and services)
- The project would be first of its kind in Panama

As continuation of the current situation would not be constrained by the barriers, the PDD concludes that the project is additional. However, none of the barriers is substantiated from independent sources.

Sustainable development

The Cerro Patacón project could principally fulfil the **eligibility criteria** of the **GS**, as long as the rated biogas consumption of the generators corresponded at least to 65% of the expected volume of methane captured (minimum utilisation ratio) and as long as the ratio was properly monitored (Ecofys et al 2008).

The project activity also fulfils quite a number of the sustainable development aspects required by the GS:

An **Environmental Action and Management Plan** (Plan de Acción y Manejo Ambiental, PAMA) was carried out according to national law and approved by the Environmental National Authority (Autoridad Nacional del Ambiente, ANAM) in September 2007. Additional **environmental impacts** are said to be addressed in a feasibility study by SCS Engineers that was approved by the Municipality, but no original documentation of this feasibility study can be found online. However, the PDD includes a rather detailed assessment of the environmental impacts on air and water quality, land-use and biodiversity and clearly describes associated mitigation measures. Examples include the re-use of the digged up **soil** on the landfill site and immediate coverage of exposed land with vegetation to minimize dust pollution, collection of leachate in leachate tanks and a cleaning system, as well as the guarantee that all sewage is treated in the nearby sewage treatment plant to ensure **water quality**, but also

planting of trees around the plant to reduce the **noise** level outside the plant during the construction period to 55dB or lower, meeting national requirements. Since the project activity takes place within the existing landfill site, no additional land is required and no impacts on **biodiversity** need to be expected.

Precautionary safeguards are not explicitly discussed, nor are labour standards or impacts on the livelihood of the poor.

In terms of **social development**, the activity contributes to the **quality of employment** by promoting the integration of adequate environmental infrastructure, such as appropriate waste management and storage, as well as aftercare for landfill sites. The project also provides local scavengers with the possibility to organize the recycling activity under safe and professional conditions. In regard to **access to affordable and clean energy systems**, the Cerro Patacón project could optimize the use of natural resources and act as a clean technology demonstration project, encouraging less dependency on grid-supplied electricity, if its energy component is implemented. The realisation of the energy component would be in line with the environmental strategy of Panama, of which renewable energy constitutes one priority.

Furthermore, the project will provide **additional** short- and long-term **employment opportunities** for the local population. Local contractors and labourers are required for construction, and long-term staff is needed to operate and maintain the system.

Two **stakeholder consultations** were conducted for this project activity, the first one only with public authorities and the second one including further stakeholders, identified as living directly in the influence zone of the landfill by means of interviews and polls. Namely, this included academic and industry representatives, as well as members of the local community. According to the PDD, questions were raised about specific parts of the project and the future management of the landfill, but no details are mentioned and no documentation is available online so that the nature of these comments remains unknown. According to the PDD all comments were taken into account in the workplan. Based on the available documentation, however, it remains unclear if the project design changed based on the stakeholder consultation. Documentation of the stakeholder consultation is therefore intransparent. Nevertheless, since the project takes place within the area of the already existing landfill, improving its environment, the final assessment in the PDD that the stakeholder consultation was positive overall seems credible.

Conclusions

In general, the project credibly improves the environmental and safety performance of the existing landfill site. The assessment of the sustainable development impacts is rather detailed, apart from the insufficient

documentation of the stakeholder consultation. The assessment also shows that certain mitigation measures, such as tree planting for noise reduction, are taken in order to fulfil national standards. Overall, national environmental requirements in Panama in combination with the detailed assessment criteria of the DNA seem to have effectively contributed to a high environmental standard of this CDM activity.

By contrast, the establishment of the baseline and demonstration of additionality are deficient. None of the claims about the non-viability of alternatives to the project are substantiated with any figures or external documentation. In addition, the investment analysis completely neglects the economic benefits from the proposed electricity generation and none of the identified barriers is substantiated from independent sources.

4.2 Summary Assessment of Conventional CDM Projects

4.2.1 Assessment Regarding Sustainable Development

The analysis of the selected conventional CDM projects has shown that the existence of sustainable development criteria does motivate project developers to think about sustainable development aspects. Five out of the ten projects analysed did in fact demonstrate at least in theory that their project activity yields co-benefits beyond GHG reduction (La Geo, Vinasse, Rio Taquesi, Transmileneo, Colombo Bagasse). Whether these benefits actually materialised was impossible to verify as there is no ex-post monitoring of sustainable development aspects and no stakeholders or civil society organisations could be found that had engaged in any of the projects.

Aspects covered by the GS which are usually not discussed in conventional projects comprise human rights issues, anti-corruption and labour standards (apart from health and safety) as well as precautionary safeguards, such as on the involvement of hazardous chemicals or the conversion or degradation of critical natural habitats.

4.2.2 Assessment Regarding Additionality

As for additionality, it can be said that the ten analysed PDDs did, broadly speaking, not reveal any approaches that could be considered best practice. To the contrary, from the PDDs and validation reports, additionality is at least doubtful in all cases.

Three out of five CDM project proposals using an investment analysis derive all or at least a certain number of decisive parameters from company-internal information. This is very problematic since this makes an external validation impossible. Only the PDD of the “Bundled Wind power project” in Tamilnadu/India transparently lists all parameters used as well as references and justifications for all values. The investment analysis has been done for all sub-projects individually. Instead of the normal 10-12 years, the IRR calculation is based on a more conservative 20 years of cash flow. The IRR of all individual sub-projects has been calculated and is shown to be below the benchmark of 16%. This can be regarded as a transparent analysis.

However, this project also has shortcomings associated with the sensitivity analysis: The sensitivity analysis varies electricity generation by +/-4%, based on variation in plant load factor based on wind speed patterns of about 1%. Other CDM projects, including projects analysed in this study such as the Fujian wind project, consider a higher variation. It could be expected that a number of the sub-projects would exceed the benchmark if a higher variation was used. In addition, further factors such as electricity tariffs could have been included in the sensitivity analysis. No PDD sufficiently justified why certain key parameters in the sensitivity analysis were altered by a certain percentage.

The barrier analyses have a very similar shortcoming: They seldom substantiate the barriers. Only one project (the “Colombo Bagasse Cogeneration Project” in Brazil) exclusively cites independent sources. However, even this argumentation remains unconvincing as the barriers mentioned are of very general nature and it remains unclear whether they apply for this activity. Three CDM project proposals do not cite any reference at all in the barrier analysis. For instance, the project proponent of the “Rio Taquesi Hydroelectric Power Project” in Bolivia tells the reader that “Bolivian country risk has always figured prominently in any merit evaluation for financing infrastructure in the country”.

The picture does not change with regard to the current practice analyses. It seems that the project proponents try to very narrowly describe their respective technology/business approach in order to distinguish them from other activities. For instance, the proponent of the “Power Generation (20MW) by utilizing Coke Oven Gas” project in China claims this activity to be the first of its kind because “between the year 2002-2006 […] nine power generation projects with COG by using the Internal Combustion Engine have been constructed in Shanxi province. […] The project activity is the only one with the installed capacity above 15MW.”

4.3 Analysis of DNAs

4.3.1 Brazilian DNA Practice

In Brazil, a commission of representatives from eleven ministries functions as DNA (Interministerial Commission on Global Climate Change, CIMGC (Comissâo Interministerial de Mudança Global do Clima)). The Ministry of Science and Technology holds the presidency of the commission and also hosts the Executive Secretariat of the CIMGC. The commission meets every sixty days in order to consider project proposals. A project proponent having submitted a project before a commission meeting will be notified at the following meeting whether his project was approved or whether he/she has to make corrections. To obtain a Letter of Approval (LoA) therefore takes at least 60 days.

The Brazilian DNA has a reputation of strictly analysing projects before approving them (GTZ 2008). This is also reflected in the fact that it accepts only projects which have already been validated; projects at earlier stages will be rejected right away. Project proponents have to submit a number of documents, including a PDD in English as well as in Portuguese, a documentation how the project contributes to Sustainable Development (called “annex III” according to the corresponding decision of the CIMGC), Letters of Invitation to comment for stakeholders, the validation report, and declarations of the project’s compliance with Brazil’s environment and labour legislation, respectively (CIMCG 2009).

After receiving a project proposal, the different ministries involved in the CIMGC analyse the documents according to their competence; a special emphasis is laid on an assessment of the project’s additionality (Rothballer 2008). If the LoA cannot be issued, the project is approved with qualifications or put under review. In these cases, the project proponent has to present documentation addressing the concerns of the commission, which will be considered in the session following the submission of the corrected documents. As the DNA is considering projects after validation only, it is the CIMGC’s policy not to reject projects but to try to improve the submitted PDDs when deemed necessary (Interview Miguez). This approval process might be lengthy, but projects that in fact get approved are normally carried out without interruption by any kind of legal problems (GTZ 2008). So far, 160 Brazilian CDM projects have been registered with the CDM EB (as of 24 August 2009).

As regards the project’s contribution to **Sustainable Development**, Brazil’s requirements cover environmental, social, and economic development issues, see Table 19. The environmental section covers several areas such as impacts due to solid waste, liquid effluents, and atmospheric pollutants. Furthermore, project proponents should demonstrate the project’s commitment to civil rights

and its integration with other socio-economic activities The requirements are described qualitatively in a comprehensive guideline (CIMGC 2009). However, the guideline defines no clear indicators or criteria. An EIA is not required in Brazil.

Table 19: Sustainable Development Criteria of Brazil

Environment	Social development	Economic development	other
Local environmental impacts from solid wastes, liquid effluents, atmospheric pollutants, etc.	Commitment to social and labour responsibilities	Quantitative level of employment	Commitment of the project to the defence of civil rights
	Qualitative level of employment	Degree of technological innovation	Integration of project with other socio-economic activities
	Quality of life of low-income populations	Possibility of reproduction of the technologies used	
	Commitment to health and education programs		

Source: own compilation according to CIMGC 2003

As for the **stakeholder consultation** process, Brazil requires that a number of stakeholders be informed about the project prior to validation. These include municipal governments and city councils; state and municipal environmental agencies; the Brazilian Forum of NGOs and Social Movements for the Environment and Sustainable Development (Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e o Desenvolvimento, FBOMS); community associations whose activities are related to the project activity; the State Attorney for the Public Interest. Project proponents are to include copies of letters of invitation in their documentation. These letters must contain the name and type of project activity as well as the internet address of a website where the latest available Portuguese version of the PDD can be downloaded. Furthermore, the letter has to include a description of the project activity's contribution to sustainable development and, finally, an address where stakeholders without access to the Internet can submit a written request for a printed copy of the above-mentioned documentation from the project proponent. These letters must be sent either by e-mail or delivered personally at least 15 days prior to validation; a proof of receipt has to be presented to the validator as well as to the CIMGC. Any comments received and the project proponent's

reaction must be part of the validation report. However, no formal meeting for stakeholder consultation is deemed mandatory (CIMGC 2009).

Theoretical Analysis

Comparing the GS's sustainable development criteria to those of the Brazilian DNA, it is obvious that the former are much more detailed and numerous. Nevertheless, some significant indicators are included in the DNA's requirements and the three main pillars of sustainability – environmental, social and economic development – are covered. Thus, the Brazilian DNA asks for a comparison of the reference scenario to the project's impacts on the local environment (solid wastes, liquid effluents, atmospheric pollutants, etc.) and the quality of life of low-income populations as well as the qualitative and quantitative level of employment.

Furthermore, the project's commitment to social and labour responsibilities, health and education programmes and the defence of civil rights are to be assessed. For neither of these indicators, guidance or further details on the assessment are provided. With more detail, the DNA focuses on technology transfer requesting the discussion of the degree of technological innovations and technologies used in the project and their possible reproduction. While it remains unclear how the evaluation of the degree of technological innovations should be operationalised, the requirements explain that the possibility of the reproduction of the technologies used is to be measured considering demonstration effects, the origin of the equipment, royalties, technological licenses and the need for international technical assistance.

GS indicators such as the project's impact on biodiversity, the access to energy services and the balance of payments and investment, however, are not mentioned in the DNA's requirements; neither are the precautionary principles, labour standards or the stakeholder consultation as asked for by the GS. The Brazilian DNA, on the other hand, adds the assessment of a project's commitment to the defence of civil rights and the possibility to measure a project's contribution to regional development in terms of its integration with other socio-economic activities in the region to its list of requirements. For more details, see Annex 9.

Application in practice

The **CIMGC** underlines that a project's contribution to **Sustainable Development is analyzed with a special focus** when assessing projects for approval: whether and how project activities comply with this requirement is discussed in detail by the eleven ministries on the CIMGC (Interview Miguez). Furthermore, the documentation required must include the project's compliance with national environmental and labour legislation. No monitoring of the

sustainable development components is mandatory as its assessment would be too expensive for the DNA.

When assessing a project proposal, all sustainable development criteria included in Annex III are equally weighted; however, the DNA admits that approval depends on the individual case – not all five sustainable development indicators must necessarily be attended to. The CIMGC sees the GHG emission reduction as the most important contribution to sustainable development while the other criteria included in Annex III are regarded as "additional benefits" (ibid.). Therefore, a number of projects were rejected due to failure to display additionality (Miguez, cited in Rothballer 2008); however, according to Rothballer, no project has been rejected for non-compliance with the sustainable development criteria in Annex III so far (Rothballer 2008).

Indeed, the assessment of Brazil's **sustainable development criteria** by the CIMGC seems highly **subjective.** The absence of a pre-defined evaluation grid provides room for interpretation. Integrating the criteria in the validation, monitoring and verification processes could improve the CIMGC's role as regulator. This view is supported by Rothballer (2008) who argues that the CIMGC's criteria are not precise enough and lack qualitative and quantitative indicators. He has observed that text on sustainable development is often very general, sometimes even copied from one PDD to the other and is hardly ever adapted to the individual situation at the project site.

Friberg (2007) acknowledges the transparency of the **stakeholder consultation process** with its obligation to at least inform stakeholders officially, which in his opinion deviated at the time from the traditional top down approach. Yet Friberg and Castro (2008), in their analysis of Brazilian CDM projects found out that "less than 5% of Brazilian CDM projects receive any comment from stakeholders, and most of the comments received are of a general character and not really commenting on project design". They explain this by a lack of capacity on the part of the NGOs; moreover, they question that the related information in fact reaches the local community.

In order to assess the application of the sustainable development criteria in practice, we also **analyzed** the **CDM Project "Colombo Bagasse Cogeneration Project"** (CBCP), see chapter 4.1. For this project, most of the DNA's requirements have been accounted for. The description in the PDD, however, is not very detailed (PDD Colombo Bagasse Cogeneration Project):

Corresponding to the DNA's request for the assessment of the project's contribution to local **environmental sustainability,** CBCP's PDD briefly discusses the project's impacts on the environment and mentions its engagement in local environmental organisations and its Environmental Management System. Instead of assessing specific parameters to measure the

project's environmental impacts as suggested by the DNA (solid wastes, liquid effluents, atmospheric pollutants, etc.), however, the PDD simply mentions that the CBCP's impacts are not considered significant and stem from activities that were already in place before the project.

Similarly, where asked to assess the commitment of the project to **social and labour responsibilities** and the qualitative level of employment, the project, being certified under ISO 9002, claims to comply with the latest quality standards without explaining any details.

While the DNA requires an assessment of direct and indirect effects on the **quality of life** of low-income populations noting the project's socio-economic benefits, the PDD only gives an example for CBCP initiatives to this end. As asked for by the DNA, CBCP's PDD evaluates the project's commitment to health and education programs.

The quantitative level of **employment** generated by the project is assessed in detail for the 2002/2003 crop season. Beyond that, only general information is given about CBCP being "the most important job creator (…) where the company is located", but without giving further numbers.

While the PDD explains in detail the **technology** used, neither the degree of technological innovation of the project nor the possibility of reproducing the technologies used are discussed as required for by the Brazilian DNA.

Furthermore, there is no assessment of the project's commitment to the defence of **civil rights**, another DNA requisite.

On the other hand, the PDD assesses one indicator not asked for by the DNA but included in GS: the project's positive impact on the access to **clean energy services.**

In conclusion, the DNA's criteria and their implementation seem to have led to the approval of a sustainable project, but the description in the PDD is mostly vague. Due to the lack of detail the claims made could hardly be monitored and verified.

Conclusions

Overall, the Brazilian DNA covers a number of important sustainable development criteria and has developed a substantial tool to measure a project's general impact on sustainable development. However, the reduced amount of detailed criteria as compared to the GS and a tolerance of flexible interpretation of its requirements leads to inefficient application in practice. Making the criteria more concrete so that their application could be measured and verified would clearly help to safeguard the projects' contribution to sustainable development benefits other than GHG reduction. Furthermore, a requirement for physical stakeholder consultations as required by the GS could

lead to an improved involvement of stakeholders. The current procedure apparently does not really lead to participation of local people affected by the projects. Informing local stakeholders publicly and the obligation to hold meetings would be desirable. Furthermore, the commenting period for stakeholders should be extended, a mere 15 days before validation is probably too short for most individuals or groups involved.

4.3.2 Indian DNA Practice

The Indian DNA is located in the Indian Ministry of Environment and Forests and is called the National Clean Development Mechanism Authority. The National CDM Authority is a multi-ministerial body and consists of the following:

• Secretary (Environment and Forests)	Chairperson
• Foreign Secretary or his nominee	Member
• Finance Secretary or his nominee	Member
• Secretary, Industrial Policy and Promotion or his nominee	Member
• Secretary, Ministry of Non Conventional Energy Sources or his nominee	Member
• Secretary, Ministry of Power or his nominee	Member
• Secretary, Planning Commission or his nominee	Member
• Joint Secretary (Climate Change), Ministry of Environment and Forests	Member
• Director (Climate Change), Ministry of Environment and Forests	Member-Secretary

As of August 2009, a total of 523 Indian CDM projects, were submitted to the EB, of which 37 projects were rejected and 11 withdrawn (UNFCCC website). If any or how many projects have been rejected by the Indian DNA is unclear.[8]

Following Sutter's (2003) differentiation introduced above, the Indian DNA's sustainable development indicators are formulated as a guideline, in the form of four different "well-beings": social, economic, environmental and technological (Table 20).

[8] No Indian DNA representative was available for an interview and none of the other interviewees had this information.

Table 20: Indian DNA's Sustainable Development Indicators

Environmental well being	Social well being	Economic well being	Technological well being
Include a discussion of the impact of the project activity on resource sustainability and resource degradation	Alleviation of poverty by generating additional employment	Additional investment consistent with the needs of the people	Transfer of environmentally safe and sound best practice technologies to assist in upgrading the technological base. The transfer of technology can also be domestic or from other developing countries.
Biodiversity friendliness	Removal of social disparities		
Impact on human health	Contribution to the provision of basic amenities leading to improved quality of life of people		
Pollution reduction			

Source: http://cdmindia.nic.in/host_approval_criteria.htm

In addition to these guidelines on sustainable development, the Indian DNA requires a stakeholder consultation to take place for each project (Interview D'Souza). EIAs are not required for all CDM projects, only for those project activities for which an EIA is required by Indian law in general. Other relevant clearances such as from the Pollution Control Board also have to be obtained, but these are not special CDM requirements.

Theoretical Analysis

The Indian DNA's sustainable development requirements are not very detailed. Nevertheless environment, social development, economic development and technology transfer are all covered. As shown in Table 20, the Indian sustainable development guideline leaves much room for interpretation, in particular in regard to environmental criteria. For instance, a discussion of the project's impact on resource sustainability is required without further specifying any indicators or sub-categories (water, soil etc). Similarly, the requirement for economic well being does not give any details on when additional investment would be "consistent with the needs of the people".

Other GS criteria, such as quality of employment, labour standards or human rights are not covered by the Indian DNA (see Annex 9 for more detailed information). Ultimately, the GS provides a much better basis for a standardised (and thorough) assessment of the contribution to sustainable development due to its higher level of specifications.

Application in practice

The project analyses of the Dahej-Gujarat fuel switch project and the bundled wind power project in Tamilnadu showed that the assessment of a CDM project's contribution to sustainable development is dealt with very differently in different PDDs. While for the Dajeh-Gujarat project benefits of the fuel switch from naphtha to natural gas are simply listed, in the Tamilnadu Wind Farm PDD a quantified list of indicators was used. Unfortunately, this apparently more sophisticated methodology was not transparently presented in the PDD (but may have been explained during the obligatory project presentation at the DNA). This clearly is a result of the very general sustainable development guideline of the Indian DNA, which leaves it to the project developer how the assessment is demonstrated. Although allowing this kind of flexibility is not necessarily bad, project developers might find it easier to adhere to the requirements if DNA instructions were clearer.

More importantly, in the Dahej-Gujarat case, only environmental aspects are discussed in the PDD. None of the other areas of sustainability are mentioned. Strictly speaking, the project therefore does not adhere to the DNA's guidelines, although further explanations may have been given orally. Similarly, in the Tamilnadu wind power project, aspects of "social well being" are only partly assessed. Only generation of jobs is mentioned, but without quantification. Removal of social disparities etc. are not discussed.

Furthermore, the documentation of stakeholder consultations in the PDDs (and validation reports) is partly incomplete and/or intransparent, making it difficult to judge how well stakeholders were actually consulted or who exactly participated.

Although it remains unknown whether the above ambiguities were clarified to the DNA, the project analysis leaves the impression that the DNA is rather flexible when it comes to assessing the fulfilment of its sustainable development guideline. This was confirmed in stakeholder interviews.

Interviews were conducted with three representatives of Indian civil society. All interviewees confirm that at least several Indian CDM projects are not sustainable. Even worse, some of the projects are actually hurting local communities. There are projects that caused displacements without compensation, some have even been fined for illegal logging by the Ministry of the Environment (Interview Parekh) and one project is reported to have caused

fly ash emissions that have contaminated the soil in the area so that the community crop (lac) could no longer be grown, driving people to seek different jobs in urban areas (Interview D'Souza). While some of the negative impacts of CDM projects may be difficult to foresee ex-ante, these reports leave serious doubts about the integrity of the Indian DNA's sustainable development assessment. According to one interviewee, reductions of CO_2 emissions clearly seem to be the priority, not the contribution of the project to sustainable development as defined in the well-beings (Interview D'Souza).

On the other hand, the Indian DNA was said to take great interest in pro-poor CDM projects developed by the Agricultural Development & Training Society (ADATS), an Indian rural development organisation. In these cases, where for instance domestic biogas units were installed and CER revenues were distributed among the 5,500 poor women using the biogas units, the DNA was reported to have been intrigued by the high level of community participation and showing high interest in the progress of the project (Interview Esteves). Yet, due to the necessary technical expertise and the transaction costs involved, project development remains difficult for project developers who want to develop small projects. So some clearly sustainable projects may never be realised (Interview Parekh and D'Souza). The lack of community involvement in most CDM projects was mentioned by two interviewees (Interview D'Souza and Esteves).

Active community involvement is also an issue during stakeholder consultations. Laya, an Indian NGO aiming at empowerment of marginalised groups, conducted a study in which they assess the contribution to sustainable development of different CDM projects in tribal areas across four states (Andrha Pradesh, Orissa, Jharkhand and Chattissgarh). In interviews with leaders of the local communities they found that local communities had no understanding of what the CDM actually was. In some cases the proceedings of stakeholder meetings were only available in English, making it impossible for the community to actually respond (Interview D'Souza).

Conclusions

The picture of the sustainability of Indian CDM projects is rather mixed. While some remarkable projects with high level community involvement and fair revenue sharing agreements are being developed by Indian NGOs, other projects are being reported to have a directly negative impact on local communities and environments. It is worrisome that such projects make it through the sustainable development assessment of the DNA. Some aspects, such as people being provided only temporary jobs, however, cannot be assessed by the DNA ex-ante. Here the problem is more fundamental and lies with the general design of the CDM, not including any validation of sustainable development benefits.

Transparency in documenting stakeholder consultations should be improved for better credibility. Clear guidance on stakeholder consultations by the DNA could potentially contribute to more sincere involvement of local stakeholders.

4.3.3 Bolivian DNA Practice

Until mid-2009, Bolivia's approval requirements included a remarkable list of sustainability criteria. However, since approximately mid-2009, the approval process and the whole Kyoto infrastructure are in transition due to a restructuring process of the ministries. The website of the DNA as well as DNA staff were unavailable for several weeks, which made it impossible to trace the latest developments within the time frame of this study. Therefore, we present in the following some basic results of our research as of June 2009. This allows for some conclusions on best practice regarding sustainable development indicators in DNA requirements. Yet, this analysis is very theoretical by nature and it does obviously not describe the state of play in Bolivia today.

The Bolivian DNA was, until mid-2009, part of the Vice-Ministry of Natural Resources and the Environment, which belonged to the Ministry of Sustainable Development. In addition, Bolivia had installed an Agency for Clean Development (Oficina de Dessarollo Limpio, ODL), which was responsible for the promotion of the CDM and for technical assistance to the DNA (ODL 2006). Both DNA and ODL sent representatives into a Projects Evaluation Commission, which decided on project approval (Hinostroza 2005). Project approval took about 15 working days. So far, three Bolivian projects were registered by the CDM EB (as of 26 August 2009), among them a reforestation project (UNFCCC 2009).

Bolivia had developed a considerable list of sustainable development criteria, see Table 21. This list comprised a number of environmental, social as well as economic issues. As the DNA explained at that time, these criteria were to be considered as a "non-exhaustive reference guide"; not all projects were expected to fulfil all criteria. The guidelines display a considerable level of detail. Every requirement is accompanied by a list of concrete indicators, such as "levels of pollution avoided, improvement in the quality of environmental factors such as water, air, soil, etc." in the case of the category "emissions from particulates and other elements that affect the quality of the local environment" (ODL 2009). This makes the list criteria more objective and compliance easier to assess.

Therefore, the then Bolivian DNA criteria are a multi-criteria methodology with specific indicators (Sutter 2003).

The procedure for stakeholder consultation could not be assessed due to the above mentioned changes in the Bolivian administration: as both the website

and DNA staff were unavailable, it was simply impossible to obtain the necessary documentation (the sustainable development criteria had been downloaded earlier).

Table 21: Sustainable Development Criteria of Bolivia as of January 2009

Environment	Social development	Economic development	other
Improvement in the quality of water, air, soil, etc.	Increase of equity levels	Employment levels	Integration with local stakeholders
Reduction of the local environmental pressure on biodiversity, water and soil resources, etc.	Effects of environmental impacts on local health	Income of local stakeholders	
Sustainable use of local resources	Quality of life of the population, especially the poor and the local community	Effects on levels of local production	
	Reduction of natural disaster risks, increase of the resilience to climate change and of capacities for adaptation	Generation of new investment	
	Effects on poverty levels	Effective transfer of technology	
	Respect of local cultures		

Source: own compilation based on ODL 2009

Theoretical Analysis

Quite a number of the GS's requirements are mirrored in Bolivia's Sustainable Development criteria. This holds especially for the environment part, which covers every aspect of the GS annex I (air quality, water quality, soil condition, other pollutants, biodiversity aspects), even if the description is not as detailed compared to the GS manual. Text on the protection of natural habitats and the precautionary principle is missing, however.

As for social development, the DNA guidelines require an increase of equity levels. This includes unusually detailed references to ethnic, generational as well as gender equity and the marginalization of social actors. Moreover, special emphasis is laid on the livelihood of the poor. Reference to labour standards is not made. Concerning economic development, most GS criteria can be found in the Bolivian criteria list as well.

All in all, roughly two third of the GS's requirements are covered by the Bolivian sustainable development criteria. The requirements display a special concern for the poor. Special emphasis is, moreover, on the use of local resources and local produce: the guidelines refer to a rate of variation of local gross domestic product (GDP), as well as to effects on levels of local prices. These requirements differ from the GS rules. Furthermore, an EIA is required (ODL 2004). For more details, see Annex 9.

Application in practice

Due to the current restructuring process in Bolivian climate politics, we were not able to conduct an interview with a DNA representative. The following analysis, therefore, draws mainly on the conventional CDM project looked at in section 4.1 of this report.

The Rio Taquesi Hydroelectric Power Project comes close to complying with every item on the DNA's list. All criteria are at least mentioned in the PDD (see Annex 7). However, this is mainly due to the fact that many criteria such as water quality and soil condition do not apply. Other indicators, such as equity levels, are addressed, but they are to be assessed ex-post only. While it is a good initiative to introduce ex-post monitoring of sustainable development indicators, a pre-project assessment would theoretically have been necessary to address the DNA's requirements. As we could not assess these special sustainable development monitoring data (according to the PDD, they were to be sent to the DNA only), we could not determine whether actual monitoring of sustainable development aspects was carried out or not.

Some of the initiatives the project intends to launch (see project description in section 4.1) exceed the DNA's requirements, such as the health care facility and the work of the Taquesi Foundation. As for the creation of jobs, the PDD mentions "job opportunities" being created, but how many is not substantiated. In the context of sustainable development monitoring, an indicator "number of employees trained" is mentioned; however, figures for this indicator remain intransparent. The validation report mentions jobs being created through the health care facility. However, in line with the CDM regulations the validator only checked whether this indicates a possible diversion of ODA or not.

Conclusions

All in all, the Bolivian DNA's Sustainable Development Criteria were well developed in theory. When looking at the Rio Taquesi project, one can see that most of the criteria were addressed. Even if some indicators did not apply and others were to be monitored ex-post only, the existence of sustainable development criteria combined with a (simple) set of indictors seems to have motivated the project proponent to deal with these issues in a comprehensive manner. It would have been interesting to look at the monitoring data of the foreseen sustainable development monitoring. Unfortunately it was not possible to verify this voluntary initiative.

On the management side, a possible conflict of interest in the setup of the CDM office ODL is obvious: the CDM office both promoted the CDM and at the same time took part in the approval process. Regardless of which direction the CDM policy in Bolivia takes, this overlap should be abolished.

4.3.4 El Salvadorean DNA Practice

In El Salvador, the MARN functions as DNA. The MARN has a high degree of independence in defining El Salvador's DNA, its role and its procedures, as for this purpose it needs neither a presidential nor a ministerial decree. Due to a lack in human and financial resources, the Salvadoran DNA is also responsible for the promotion of the CDM and national capacity-building for the mechanism (OLADE / Canadian International Development Agency / University of Calgary 2006).

In 2006, 17 projects were in El Salvador's pipeline (MARN 2006b). At the end of August 2009, five CDM projects had been registered by the EB. A further project had requested registration by the EB and one had been withdrawn (UNFCCC website). It remains unclear whether the MARN has ever rejected projects and if so, how many.[9]

In El Salvador, the DOE is responsible for assessing the eligibility of a project for the CDM. For national approval, the MARN confines itself to evaluating whether a CDM project contributes to sustainable development or not (MARN 2006a).

The information available online suggests that up to 2005, an environmental permission of the MARN based on the evaluation of an EIA was the only requirement for national approval. The EIA had to include socio-economic and cultural aspects (OLADE / Canadian International Development Agency / University of Calgary 2005). For the evaluation of a project's impact,

[9] This information is not made available to the public and no representative from the MARN was available for an interview.

environmental law in El Salvador demands a stakeholder consultation (Asamblea Legislativa de la República de El Salvador 1998). Inviting written comments, the EIA has to be made available to the public nationwide for ten working days. If a project is expected to possibly have a negative impact on the quality of environment or to bear a risk to the health and well-being of people, the Ministry of Environment organizes a public consultation in the affected municipalities.

In 2006, the MARN published new criteria and procedures for national approval (MARN 2006a). In addition to an environmental permission, the project's contribution to sustainable development now has to be summarised in a report addressing three categories:

- Protection and preservation of local and global environment
- Contribution to improvement of quality of life of local communities and the society in general (here, the project's social targets shall be described) and
- Positive local and national impacts on the economy.

For all of these three criteria, the DNA has defined criteria, which are displayed in Table 22. El Salvador's DNA has defined two environmental, three social and six economic development criteria.

Table 22: Sustainable Development Criteria of El Salvador

Environment	Social development	Economic development	other
Improvement of quality of environment	Description of social policy	Reduction of oil imports	
Use of efficient technology regarding energy and water consumption	Financial and human resources to be invested in programmes with social character	MWh generated from renewable energy projects or saved by energy efficiency projects	
	Labour policy prioritizing capacitation of and employment for local workforce	Use of efficient technology regarding energy and water consumption	
		Technology transfer	
		Generation of employment	
		Total investment	

Source: Own compilation

According to Sutter's definition of the four different approaches to assess the contribution to sustainable development of a CDM project (Sutter 2003, see above), El Salvador uses a qualitative assessment based on guidelines.

To facilitate an efficient approval process, the MARN has aimed to define clear criteria, evaluation and national approval procedures (MARN 2006a). The approval process entails six steps. For evaluation, the MARN may request the opinion of other authorities such as the Directorate of Electric Energy of the Ministry of Economy (Ministerio de Economía, MINEC). However, there is a lack of information on how the criteria and indicators are evaluated. The time limit set for the evaluation and the issuance of the letter of national approval after all relevant requirements have been fulfilled is 45 working days.

Theoretical Analysis

In comparison to the GS-criteria, the Salvadoran DNA's criteria for sustainable development are much more general. This makes their evaluation more difficult. Furthermore, not all of the criteria relevant for GS approval are mentioned.

The **environmental criteria** set by the GS are much more detailed and numerous than El Salvador's. The GS asks for an analysis of the project's impact on biodiversity, air quality, water quality and quantity, soil condition and other pollutants and has a detailed description of relevant indicators and parameters. The Salvadoran DNA's criteria, on the other hand, only ask for the project's contribution to the protection and preservation of the local and global environment and want the project to improve the quality of the environment. There are no specifications on how or in which area this should be demonstrated. Only concerning water, the DNA asks for efficient technology to be used regarding water consumption – a criterion as relevant for the environment as for the economic development. Furthermore, as mentioned above, every project has to obtain an environmental permission for which an EIA is required.

The GS criterion concerning the **livelihood of the poor** can clearly be recognized in the Salvadoran criterion on the project's contribution to the improvement of the quality of life of local communities and the society in general. Additionally, El Salvador asks for a description of the company's social targets regarding **social policy** as well as of the financial and human resources the company invests in **programmes with social character.** Both the GS and the Salvadoran DNA ask for the project's impact on the presence of **clean energy** and the reduction of **oil imports** resulting from the project as well as the **generation of employment.** As for the GS criterion of changes in human and institutional capacity, El Salvador requires an analysis of the project's labour policy concerning the **qualification** of local workforce. While for the Salvadoran DNA the project's influence on the **balance of payments** does not have to be

assessed (GS criterion), both consider the **investment** resulting from the project to be an important criterion. El Salvador asks for the GS criterion of **technology transfer**, too, but, as for most of the other criteria, does not specify how to measure it.

In contrast to the GS, the Salvadoran DNA does not require an analysis of the **precautionary principles,** the **quality of employment, labour standards** or a **stakeholder consultation** as defined by the GS. See Annex 9 for details.

Application in practice

The analysis of CDM project "La Geo, S. A. de C. V., Berlin Geothermal Project, Phase Two" shows that most of the criteria set by the Salvadoran DNA have been accounted for:

- For La Geo, no **EIA** had to be conducted for two reasons. First, there had been an environmental impact study in 1994 as well as an ex-post environmental diagnosis in 2000 for the first phase of La Geo. In addition, the environmental impacts expected from phase two were considered to be insignificant by both the host party and the project proponent. An environmental analysis was conducted in 2004.
- Though the Salvadoran DNA's criteria regarding the protection and preservation of the local and global environment and the improvement of the **quality of the environment** are defined rather generally, La Geo's PDD assesses them thoroughly. This is owed to the concerns raised in the EIA that had been conducted for the first phase of La Geo. All of the issues raised there are addressed by the following measures: Not only are the potential risk of water contamination and the modification of the surface water stream mentioned in the PDD, but also mitigation measures such as the protection of aquifers during the drilling and reservoir production process. Furthermore, the groundwater is permanently monitored through periodic sampling and analyses of wells, aquifers and point sources of water supply. The risk of erosion has been analysed as well. The second phase of the project contains a conservation and reforestation programme in areas surrounding the plant and a biodiversity inventory research project. In 2003, La Geo submitted an EMP.
- As for the DNA's criterion of the project's contribution to the improvement of the **quality of life** of local communities and society, La Geo's PDD illustrates that the project will offer road infrastructure enabling communication and commercial activities, reduce the expenditures and increase the income in local municipalities. This will facilitate a better income distribution and allow to provide the population with better services. Regarding **social policy** and **the investment in programmes**

with social character, the project contains a community engagement programme set out to maximize benefits to the municipalities nearby by, inter alia, social investment activities. The DNA's request to present the financial and human resources employed for these activities, however, has not been accounted for in La Geo's PDD.

- The Salvadoran DNA also asks for the **qualification** of local workforce. La Geo's Environmental Education Programme is laid out with a broader goal aiming at the enhancement of peoples' understanding of geothermal resources and its benefits without special reference to the workforce.
- Moreover, the DNA's criterion to **reduce oil imports** and **generate renewable energy** is fulfilled by La Geo. So is the aim to **create employment**, which is contained in the community engagement programme. The incorporation of the development of sustainable small businesses extends the project's ability to provide new jobs.
- Though the technology used in La Geo is described in detail, no reference is made as to how **efficient** this **technology** is regarding energy and water consumption as required by the DNA, nor whether La Geo has resulted in the **transfer of technology.**
- There is no information provided on the DNA's criterion about the **total investment** resulting from the project.
- **Stakeholders' participation** in La Geo has been guaranteed by means of public hearings, invitations in national newspapers, publications and education programmes on the project, the community engagement programme and a public affairs office.

Overall, the majority of the Salvadoran DNA's criteria have been treated in the project developer's documents. Though there is a lack of transparency concerning some criteria, it is obvious that the application of the DNA's criteria have let to a meaningful evaluation of the project's impact on sustainable development. With La Geo, the Salvadoran DNA has approved a project that could probably pass the GS's requirements without much additional effort.

Conclusions

From the information available it seems that altogether, the Salvadoran DNA's procedures and criteria form a solid base for the evaluation of a project's contribution to sustainable development. Yet, the lack of details and specific parameters in the formulation of the criteria cause intransparency in the evaluation process: There is room for interpretation of the required report on sustainable development. A clearer definition of more comprehensive criteria and a public consultation as required by the GS could improve the expressiveness of the DNA's evaluation. Moreover, with the DNA being

responsible for both national approval and the promotion of the CDM, there is a potential conflict of interests, which should be addressed.

4.3.5 Panamanian DNA Practice

In Panama, the DNA is placed in the ANAM. As of September 2009, seven Panamanian CDM projects were submitted to the EB, of which one project was rejected. Over a hundred more projects are in the pipeline (ANAM 2009). If any or how many projects have been rejected by the Panamanian DNA is unclear.[10]

The Panamanian DNA requires an EIA for project approval. Panama distinguishes between three categories of EIA. Projects are divided into these categories by use of a very detailed list of criteria and indicators presented below (Table 23) and in Annex 9. The EIA categories are projects with:

- no significant negative environmental impacts and no environmental risks
- significant negative environmental impacts that can be eliminated or mitigated with common measures, which are easy to apply
- quantitatively or qualitatively significant environmental impacts, which merit a profounder analysis and the identification and application of mitigation measures.

The Panamanian DNA's sustainable development requirements are closest to what Sutter (2003) calls a multi-criteria methodology. Indicators are formulated as a checklist for health and environmental risk, as well as for socio-economic risk assessment. The level of risk is to be evaluated by a number of rather detailed (although not explicitly quantified) indicators for air, water and soil quality, biodiversity and socio-economic activities (see Table 23 below and for more detail Annex 9).

[10] No DNA representative could be reached for an interview.

Table 23: Sustainable development criteria of Panama

Environment	Social development	Economic development	other
Air quality • generation of liquid or gaseous effluents whose concentrations exceed environmental quality standards • composition, quality and quantity of volatile emissions of gas or particles • odour	Transformation of economic, social or cultural activities based on the environment of the group or local community	Tourism • effect on, intervention in or exploitation of territory with scenic or touristic value • encouragement of the development of recreative and/or touristic activities	Impacts on any historic, architectural, public or archaeological monument, any typical area or nature-sanctuary and on scenic beauty
Water quality • Risk of proliferation of sanitary pathogens and vectors • Alteration of bodies of water (surface and subsurface), including physical, chemical or biological parameters, modification of water use	• effect on people protected for special dispositions • alteration of systems of life of ethnic groups of high cultural value	Obstruction of the access to natural resources, which serve as a base for any economic activity or subsistence of neighbouring communities	Health
Soil • generation or discharging of solid residues whose concentrations exceed norms • alteration of fragile soil generation or increase of erosion • loss of soil fertility near the proposed activity • accumulation of salts and/or soil contamination	• induction of resettlement of communities • generation of processes of ruptures of social networks or alliances		

Other pollutants • composition, hazardousness, quantity and concentration of inflammable, toxic, corrosive and radioactive material used in the proposed activity • level, frequency and duration of noise, vibration or radiation • proliferation of sanitary pathogens and vectors	For projects in category 2 and 3 above, an environmental education plan has to be developed		
Biodiversity • alteration of vulnerable species or species conservation • introduction of exotic species • effect on, intervention in or exploitation of natural resources located in protected areas • generation of new protected areas • modification of once protected areas • loss of protected environment			

Source: own compilation based on República de Panamá 2006

The DNA also requires that the local community's perception of the project be included in the project documentation. At the time of writing, stakeholder consultation for CDM projects follows detailed regulations for stakeholder consultation as required in the EIA process. Requirements for stakeholder consultation depend on the category of the EIA. For instance the public has 15 working days for submitting comments to the EIA in category 2 projects, but 20 working days for category 3 projects.

Theoretical Analysis

In regard to environmental requirements the Panamanian criteria and indicators are very similar to those of the GS. Indicators are very detailed and present a good basis for a thorough assessment of environmental impacts (including health) of a project activity.

Risk assessment criteria for social and economic development are different to those of the GS. For instance, technology transfer is not an assessment criterion, instead the focus is on the promotion of touristic activities and the avoidance of any negative impacts on the industry or on scenic beauty. Risk assessment criteria for social development by the DNA are also quite comprehensive, with a focus on protecting the resource base and environment for local communities' livelihoods and cultural activities, including protection of ethnic groups and avoidance of resettlements.

Furthermore, ANAM has sought to raise awareness among CDM project developers to involve communities in their activities and donate 30% of the CER revenues to the community, so they can develop a sustainable business environment (República de Panamá 2006).

GS criteria not covered by Panama's DNA requirements are mainly labour and human rights, quality of employment and technology transfer.

Application in Practice

Analysis of the Cerro Patacón Landfill Gas Utilization Project showed that the detailed list of environmental and social risk assessment criteria and indicators effectively promoted a thorough assessment of the project activity's impacts (see section 3.2.10). Nevertheless, a more detailed discussion of the contents of the stakeholder consultation would have further improved the transparency of the assessment. Also, there is no explicit mentioning of any community benefits, although the PDD mentions that "the project brings to local scavengers the possibility to organize the recycling activity given them safety and professional conditions". Landfill projects are known to potentially have negative impacts on the subsistence of local scavengers, who often can no longer continue waste picking after landfill gas activities are implemented (personal communication

from Silvio Ruiz, Asociación de Recicladores de Bogota, Colombia). The above comment indicates that project developers actually provided for local scavengers, securing their livelihoods. Since no further elaborations are provided in the PDD and since no stakeholder could be interviewed, no final conclusions can be drawn on this particular matter.

Conclusions

The Panamanian DNA uses a very detailed set of criteria and indicators to assess environmental and socio-economic impacts of CDM project activities. Most of the criteria are formulated as risk assessment criteria, taking a precautionary or safeguarding approach. The analysed project activity demonstrated that detailed requirements can lead to thorough assessments of project activity impacts. Detailed requirements for stakeholder consultation exist and can be assumed to have been documented for the DNA. However, a translation of this documentation into English and inclusion in the CDM documentation would have been desirable. Overall, Panama is a good practice example for safeguarding requirements. With the DNA trying to promote active involvement of the community in CDM project activities and asking project developers to share 30% of CER revenues with the community, Panama seems to be moving towards more active promotion of community benefits.

4.3.6 Nicaraguan DNA practice

The DNA of Nicaragua is located under the MARENA. Nevertheless, the approval process of CDM projects also includes other ministries, in particular the Ministry of Energy. The following documents have to be submitted to the DNA:

- A letter of approval of the local mayor's office or the local constituency where the project is to be located, confirming that the project contributes to sustainable development of the municipality.
- The project idea note (PIN) of the project activity.
- Documents displaying the legal representative of the project activity and proof of the legal status of the project proponent and of the company.

Mainly the PIN is used to assess the sustainability of the project activity. All sustainable development criteria have to be mentioned in the PIN. If this is not the case, the DNA contacts the project proponent to ask for changes in the PIN until it does fulfil all requirements. Technical advice and assistance by the MARENA are available free of charge for the project proponent.

Once the MARENA has verified that a project fulfils the CDM requirements, it is passed on to the Ministry of Energy for a license allowing to generate and disseminate energy (if an energy generation project).

The project developer then finalises the PDD and resubmits the PDD to the MARENA with a letter requesting endorsement by the Government of Nicaragua. Projects are not unilaterally approved. In total, eleven institutions, from the government and private sector, are involved; including inter alia the Ministry of Environment, the Ministry of Fishery and Forestry, the Ministry of Energy, the Central Bank, the Chamber of Commerce, the Ministry of Finance, and the Chamber of Private Enterprises. At least six members have to be present to approve a project. Within the approval process, the suggestions on behalf of the MARENA are the most important (Interview Ruiz and Madriz Callejas). The approval should not take more than 30 working days, counting from the day when the PDD is made public for comments (see below).

As of September 2009, four CDM projects were submitted to the EB, all of which aim at renewable energy generation. So far, no project has been rejected by the DNA, also because the DNA already evaluates the PIN and helps project developers to adhere to the requirements (Interview Ruiz and Madriz Callejas).

The Nicaraguan government views the CDM as a supportive mechanism to change its energy structure towards more renewable energy and reduce its dependence on fossil energy imports. Currently, 23% of energy is renewable, but the remainder comes from fossil sources, leaving a large potential for green energy. The change in energy structure is also viewed as a contribution to alleviating poverty (Interview Ruiz and Madriz Callejas). Hence, the sustainable development criteria of Nicaragua put a strong emphasis on transforming the energy system towards renewable energy and creating new and green jobs.

The criteria are currently being revised, at the time of writing no updated version was available. The explicit indicators used by the DNA of Nicaragua are focused on energy generation. Environmental criteria are not explicitly listed (in the old version) in addition to the EIA (Multiconsult & Cía. Ltda., 2008) as presented in Table 24.

In regard to the energy components, the Nicaraguan DNA requirements are best described as multi-criteria methodology (Sutter, 2003). However, since for instance environmental criteria are not broken down into indicators, this categorisation only partly applies to the criteria (as of 2008).

Table 24: Sustainable Development Criteria of Nicaragua

Environment	Social development	Economic development	Energy
As per EIA requirements	Human and institutional capacity • access to energy, especially to electricity, allowing community activities, such as recreation and communication	Job generation and/or per capita income	Reduction of imports of petroleum derivates;
		Balance of payments	Energy available for final consumption
		Contribution to value added in a sector and/or GDP	Substitution of imported energy and/or energy with greater environmental impact
			Increased access to energy

Source: Multiconsult & Cía. Ltda. (2008)

The DNA also puts a heavy emphasis on stakeholder consultation. Therefore, a consultation has to be conducted before a project can be approved. Developers have to place an invitation to the stakeholder consultation in a newspaper. In addition, eight days before the consultation takes place the invitation and the PDD are made available on the homepage of the MARENA for national and international stakeholders to comment.

For projects with significant or high environmental impacts, an EIA has to be conducted. Required EIA, environmental permissions and environmental authorisations vary according to the size of a project. A national project is a project of potentially high environmental impacts. For projects in this category, a more detailed EIA has to be conducted. Large projects at the subnational level need a less detailed EIA. National and large subnational projects need to gain an environmental permission issued by the Ministry of Environment. Small projects with small expected impacts do not require an EIA. In order to save on transaction costs the stakeholder consultation for the CDM activity should be integrated into the consultation necessary for the EIA.

Theoretical Analysis

As is apparent from Table 24 above, the DNA's sustainability requirements (as of 2008) are strongly focused on the transformation of Nicaragua's energy structure towards renewable energy and job creation. Environmental criteria or indicators are not listed as part of the DNA's requirements. Nevertheless, they have to be assessed as part of the EIA, unless the project is not expected to have any significant environmental impacts at all.

Other GS requirements, such as labour standards, livelihood of the poor or human rights are not elaborated by the DNA.

Application in practice

The analysis of the Vinasse Anaerobic Treatment project showed that its environmental impacts are covered in the EIA. In the analysed project the summary of environmental impacts in the PDD (version 02, 1 July 2004) was rather detailed, including air, water and soil quality, as well as potential impacts on health and safety at the work place.

The PDD analysis also revealed that in their environmental license the MARENA required a catalogue of health and safety measures to ensure a good work environment within the project activity.

Furthermore, in project activities where the MARENA deems it necessary, they may conduct on-site visits or monitoring of the project activity at any time (Interview Ruiz and Madriz Callejas).

In the Vinasse Treatment project, invitations to the stakeholder consultation were not only publicised in the largest newspaper in Nicaragua (as required by the DNA), but also by a large temporary sign at the entrance of the nearby town and loudspeaker announcements. These seem to be effective means to include the local community. The DNA itself also tries to guarantee that the projects are well-known in the relevant regions and municipalities (Interview Ruiz and Madriz Callejas). In the analysed project, two additional consultations to discuss the CDM project activity were required by the DNA (PDD version 02, 1 July 2004), providing evidence that the Nicaraguan DNA is taking stakeholder involvement seriously. With its energy generation component the project activity falls squarely into the priorities of renewable energy promotion in Nicaragua.

Conclusions

The Nicaraguan DNA has a strong focus on renewable energy generation and green job creation as part of their sustainable development strategy and poverty alleviation. Other environmental and health criteria are assessed as part of national environmental regulation (EIAs). The DNA itself has a big interest in

promoting the use of the CDM for energy transformation and hence provides technical assistance to the project developers as far as possible. Nicaragua is a small country with few CDM activities. All projects seem to be closely followed by the DNA and extensively assessed in a cross-ministerial approval process. Although requirements are much less detailed than in the GS, they seem to ensure a thorough assessment of sustainable development benefits and genuine stakeholder consultation.

4.4 Summary Assessment of DNA Approval Criteria and Procedures

As for the DNA's sustainable development criteria, transparency and clarity are the main problems. The analysis shows that most host countries have a rather general list of non-binding guidelines rather than clear criteria. This makes it easy to comply with the requirements: PDD sections on sustainable development as well as validation reports tend to have vague wording avoiding concrete and verifiable statements. Other project proponents develop questionable methodologies, which are difficult to understand. For instance, in the PDD of the Bundled Wind Power Project in Tamilnadu, an obscurely quantified matrix is used to assess sustainability, rendering the assessment entirely intransparent. Even though it was mentioned in the validation report that the environmental assessment was unclear, obviously only small amendments were sufficient for the DOE to accept the final (and still intransparent) version of the PDD.

Also, it is usually unclear whether and how criteria are weighted by the DNAs in the approval process: this adds to the tendency to keep PDD texts very general and vague. Without clear guidance how to evaluate sustainable development aspects, the process gets highly subjective and leaves too much room for interpretation – for both applicants and evaluators.

It would increase transparency if at least every DNA criterion was to be mentioned and addressed in a list, even if only with a "not applicable" entry. Yet addressing nonspecific and vague requirements is clearly not easy. It is probably easier for environmental issues as compared to community benefits.

A further problem is that although DOEs review the environmental assessment and the documentation of stakeholder consultations, they have no mandate to validate compliance with host country DNA criteria. This leads to claims of sustainable development benefits that are never evaluated. An integration of this assessment in the validation process, perhaps combined with ex-post monitoring by DOEs, would quite likely increase project proponent's ambitions

to prove the sustainable development benefits of their projects. However, this would have implications for transaction costs. Theoretically, DNAs could take over at least the monitoring; yet most of them would run into capacity problems. Even “large” DNAs such as the Brazilian one do not see themselves as able to do this systematically (Interview Miguez).

The stakeholder consultation is often only rudimentary, completely unregulated and badly documented. An exception is the Brazilian example with its obligation to inform at least 10 stakeholder groups including the Brazilian NGO forum. However, it would be more effective to ask for active consultations instead of a mere information letter which can just be filed away without any further consequences. Moreover, this process seems to exclude stakeholders from the project site itself as, for example, the NGO forum does not necessarily have representatives in every province. In this regard, the letter of approval from the local mayor’s office required in Nicaragua is a good step further. However, the capacity problem on the part of civil society remains.

The number of projects that actually changed after stakeholder consultation is extremely limited: in the project list we analysed, not a single project was changed, at least not the activity in itself. An exception is the project La Geo with its additional educational activities but the changes were extra benefits being added and did not alter the project activity itself.

Again, involving the DOEs in this process could add incentives to conduct stakeholder consultation more thoroughly. If the consultation process was part of the validation process and DOEs representatives attended the meetings, this would also help to make the whole exercise more transparent.

All in all, the analysis points to a dilemma for the DNAs to weigh between additional sustainable development requirements and additional transaction costs, which could possibly deter potential investors. However, based on the PDDs and validation reports of the analysed projects, those conventional projects, which did comprise sustainable development benefits, show that it seems possible to both contribute to sustainable development and stay economically viable.

At a more general level, it may be asked what sustainable development really means and for whom. One interviewee suggested, for example, to lay more emphasis on community benefits (Interview D’Souza). This could be achieved by sharing the CER benefits with local communities involved in the project activities. For instance, one pro-poor project on biogas in India channels 100% of the CER revenue into the community, to those households actually operating the biogas digesters (Interview Esteves). In other projects, where communities are not directly involved in the CDM activity, community benefits will have to be

realised differently, but at the very least it should be ensured that projects do not have a negative effect on the local communities. This was reported for another project activity in India, where a small steel mill changed its production processes to reduce CO_2 emissions. At the same time, however, the new process increased fly ash emissions. Fly ash pollution in return negatively affected the growth of the lac plant, a local crop, ultimately depriving the surrounding communities of their livelihood base (Interview D'Souza). However: up to which level can this be addressed at international level given the differences not only from host country to host country but also between different project sites?

Experiences during this study with the Bolivian DNA being "put on hold" after a government reshuffle and the fact that the CDM only started to take off in Nicaragua after a new government came into office pushing renewable energy development (Interview Ruiz and Madriz Callejas) show that CDM policy is still dependent on national circumstances in the host countries.

5 Current Status of the Negotiations

A variety of proposals for improving the environmental integrity and contribution to sustainable development of the project-based CDM have been tabled in the negotiations. The following chapter will go through and assess these proposals as laid out in section 2.4. The aims of this discussion are to

- Provide the basis for assessing to what extent recommendations derived from the preceding steps of the analysis could have a chance to be agreed under the UNFCCC, and
- Identify and take into account further options for reforming the CDM that are not related to the preceding steps of the analysis but have been proposed under the UNFCCC.

5.1 Standardised, Multi-Project Baselines

5.1.1 Description

Under the current CDM rules, baselines are established individually for each project on the basis of a methodology approved by the CDM EB. In the negotiations, it has been proposed that the EB should define standardised baselines “by establishing parameters, including benchmarks, and procedures”. These standardised baselines could then be used for the demonstration of additionality and calculation of emission reductions. For example, a benchmark could be set for projects in the cement industry in terms of emissions per tonne of produced cement. In this example, cement factories that stay below the benchmark would receive credits.

Parties have so far not been able to agree on whether use of these standardised baselines should be mandatory or optional. Similarly, the basis for establishing standardised baselines is undecided. The negotiation text contains the options of using: similar projects undertaken in the previous five years, installations or processes in the relevant sector or in similar social, economic, environmental and technological circumstances, whose performance or emissions intensity is in the top 10, 20 or x percent of their category.

In fact, the EB has in the past already moved in the direction of standardising baselines, for example with the approval of methodology ACM 0013 for highly efficient fossil-fuel fired power plants. This methodology establishes the baseline using a benchmark, which is based on the 15% most efficient plants in

the host country that use the same fossil fuel. Moreover, the benchmark includes CDM projects, so that the project type phases itself out over time in a country as the technology becomes common practice through the CDM.

5.1.2 Assessment

Expanding this approach and in particular mandating the EB to develop such baselines on its own initiative would be useful to move towards more objectivity in the CDM. In particular in those sectors with large point sources – power production and industries such as cement, aluminium, iron and steel – the establishment of standardised baselines should be viable. In line with paragraph 48 (c) of the CDM's modalities and procedures (contained in the Marrakesh Accords) the performance of the top 20% of similar project activities conducted in the last five years could be used as basis.

However, defining appropriate standardised parameters like benchmarks would be a complex challenge since it would need to take into account the specific circumstances of a technology, country and sector. The development of methodology ACM 0013 has shown how complex and time-consuming this process can be. Such a shift in approach from bottom-up to top-down methodology development would therefore probably necessitate a further strengthening of the technical capacity at the EB. In addition, the establishment of such benchmarks requires detailed data from the respective industries, which is often lacking and therefore would first need to be collected.

In addition, it bears noticing that additionality testing and baseline setting can never be fully objective. The baseline-and-credit approach of the CDM measures projects based on assumptions about what would have happened in the future under "business as usual" conditions, which is by definition hypothetical. In essence, it is not logically possible to prove a negative, i.e. that something would not have happened without the CDM. Hence, no approach to demonstrating additionality or setting the baseline can ever be perfect. Regulating additionality testing is therefore always a balancing act between accepting non-additional projects and shutting out truly additional projects. Similarly, setting the baseline is always a balancing act between setting it too high or too low. Where this balance should be struck is a policy decision.

5.2 Co-Benefits

5.2.1 Description

The current negotiation text contains three options to address co-benefits of CDM projects:

1) To not take a decision on this issue
2) To request the EB to implement measures to enhance the “visibility” of co-benefits
3) To promote co-benefits with the following measures
   (a) exemption from or postponement of fees
   (b) expedited registration process
   (c) application of simplified modalities and procedures

For option 3, the text contains a draft list of such co-benefits, namely:

(a) energy efficiency
(b) technology transfer
(c) environmental services such as air pollution reduction, improvement of water quality, treatment and reduction of waste, conservation of biodiversity and management of hydrological resources
(d) poverty alleviation
(e) economic growth
(f) social benefits
(g) strengthening of human and institutional capacity

A DOE would validate the achievement of co-benefits.

One option in previous versions of the negotiation text went even further. According to this proposal, projects would have been required to demonstrate specific co-benefits as a requirement for registration. That is, projects that did not demonstrate co-benefits would not have been eligible for registration (UNFCCC 2009b).

5.2.2 Assessment

The list of co-benefits in the current negotiation text is very generic. Comparing this list to the conventional projects assessed in this report, it is apparent that all

of them probably achieve at least some of these co-benefits. In particular "economic growth" would probably apply to all CDM projects. Economic growth is usually measured in terms of growth of GDP, which is essentially a measure of cash flows. It seems very likely that any CDM project that is truly additional will lead to an increase of cash flows compared to the situation without the project. Finally, a project might well score positively in one of the co-benefits listed in the negotiation text but negative in another, for example in terms of social impacts.

The elaboration of co-benefits would therefore need to be more sophisticated. In particular, either the CMP or the EB would need to define specific indicators to measure whether a project is achieving co-benefits. Section 6.1.1.1 will go into more detail on what could be useful indicators.

As for the proposed promotion measures, an exemption from or postponement of fees would set a positive incentive to achieve co-benefits. By contrast, it does not seem clear what could be a useful expedition of the project cycle or simplifications of the modalities and procedures that would not threaten to undermine the environmental integrity of the CDM. The CDM does already have simplified modalities and procedures for small-scale projects. These are:

- Simplified requirements for the PDD
- Simplified methodologies to produce the baseline and the monitoring plan
- The possibility of bundling multiple project activities to form a single project
- The possibility of using the same DOE for validation, verification and certification

The simplified procedure applies for the following project types:

- Renewable energy projects with a capacity of up to 15 MW.
- Energy efficiency projects with energy savings (on either the supplier or the user side) of up to 60 GWh/year.
- Other projects which result in annual emission reductions of no more than 60,000 tonnes CO_2-eq.

The thresholds must not be exceeded by a CDM project bundle as a whole. Also, projects that promise annual emission reductions of less than 15,000 tonnes of CO_2-eq. are exempt from the registration fees levied by the CDM EB.

The rationale for these simplifications was that the normal CDM project cycle involves high transaction costs that are difficult to bear for small projects. At the same time, if a small-scale project is registered even though it is actually not additional, the environmental damage is limited. By contrast, relaxing the

requirements for large projects on account of their co-benefits may lead to correspondingly high amounts of non-additional CERs being generated.

Hence, any simplification of CDM procedures should be based on a consideration of their potential climate impact. If simplifications can be made without endangering the CDM's environmental integrity, it does not seem clear why such simplifications should apply only to projects with co-benefits and not to all projects.

5.3 Multiplication and Discount Factors

5.3.1 Description

So far, each tonne of emission reductions under the CDM is rewarded with one CER. The current negotiation text contains a proposal to introduce multiplication and/or discount factors, that is, to increase or decrease the number of CERs issued. The negotiation text contains two options: to not take a decision on this issue or to request the Subsidiary Body for Scientific and Technological Advice (SBSTA) to elaborate a recommendation for multiplication/discount factors. The text does not specify on what basis multiplication or discount factors should be applied. Three options are possible:

- Discounting with the aim to improve the environmental integrity, i.e. to compensate for non-additional projects or even achieve a net atmospheric benefit
- Discounting and/or multiplication factors to penalise undesired projects and/or promote desired projects, for example projects that demonstrate co-benefits
- Discounting and/or multiplication factors to improve the regional distribution of projects. For instance, projects in more advanced countries might be discounted whereas projects in Least Developed Countries (LDCs) might receive multiple CERs for their emission reductions.

5.3.2 Assessment

As discussed above with regard to standardised baselines, no approach to demonstrating additionality and setting the baseline can ever be perfect. Discounting is a possibility to address this problem at the aggregate level for the mechanism as a whole: if one estimates that x% of all CERs are not additional, one could discount CERs by that percentage. If the discount rate is set higher, even a net environmental benefit may be possible.

The problem with this approach is that it would hurt the truly additional projects, which actually do depend on the CER revenue to become viable. By contrast, non-additional projects would only have their windfall profits reduced and could still be brought forward. Therefore, discounting is not the ideal instrument to screen out individual non-additional projects. Nevertheless, since even truly additional projects do not achieve a net atmospheric benefit, this trade-off seems acceptable in the interest of the mechanism's overall environmental integrity.

In principle, discounting and multiplication factors might also be a viable approach to promoting desired projects. However, the multiplication of CERs would lead to higher increases of emissions in the industrialised countries than are being reduced in developing countries. To maintain climate integrity, such multiplication of CERs would therefore need to be balanced by equivalent discounts of CERs in other projects. The proposal in the negotiation text does indeed contain a provision according to which the total quantity of CERs issued would not be allowed to exceed the total quantity of reductions. However, implementing this provision would require a very complex accounting mechanism to balance out multiplications and discounts. It would also raise the question what should happen in case the discounts are not sufficient to balance out the multiplications. Introducing multiplication factors to promote sustainable projects or regional diversification is therefore not a recommendable avenue.

5.4 Positive or Negative Lists

5.4.1 Description

As noted, while not present in the current negotiation text, previously the text contained an option to introduce positive or negative lists of project types. According to the older negotiation text, establishing a positive list would have meant to establish a list of project types that would have been assumed to be nearly always additional and thus would not have been required to undergo project-by-project additionality testing.

A negative list would exclude specific project types that are assumed to nearly always be non-additional from eligibility. Currently, the CDM excludes nuclear power projects. Establishing a negative list would mean to go further down this route by adding more project types.

5.4.2 Assessment

From the perspective of environmental integrity, it does not seem recommendable to simply assume a specific type of project to be always additional. Whether a project is viable or not is always a matter of its specific circumstances.

A central feature of the GS is a positive list in another sense: The restriction of eligibility to renewable energy and demand-side energy efficiency projects.

Positive or negative lists in principle appear as a very easy way to rule out project types that are generally seen as undesirable. As seen in the discussion of the EBRD and IFC standards (see section 3.2), establishing an exclusion list to screen out the most negative types of activities is a practice that is followed by major international organisations.

However, while such lists may be useful to prevent harmful projects, their use to promote good projects seems limited. It might be too simplistic to assume that certain project types are generally positive as a matter of principle. For instance, renewable energy projects can easily involve evictions of local population if no safeguards are in place. The actual impact is therefore always a matter of the specific project situation.

In addition, it is very difficult in practice to agree on which project types should be on such lists. The exclusion of nuclear power was in fact only possible after a huge controversy and the formulation in the Marrakesh Accords is actually rather weak: Annex I countries are “requested to refrain” from using CERs from nuclear projects. The difficulty is also illustrated by the current controversy on whether to include carbon capture and storage (CCS) in the CDM. While some countries are strongly in favour of inclusion, others are strongly against. Some countries such as Japan have a general position that no technology should be discriminated against.

It is therefore recommendable to solve problems related to particular project types not at the level of the CDM but at a higher level. For example, emissions of industrial gases seem to be a good candidate for being tackled through NAMAs, as are currently being negotiated for developing countries under the UNFCCC. Usually, these gases can be reduced through relatively simple end-of-pipe solutions, which could be mandated by regulations in developing countries. Industrialised countries could compensate developing countries for the associated costs through fund-based financing approaches.

6 Recommendations

According to the Kyoto Protocol, the CDM has two goals:

- to promote sustainable development in the host countries and
- to aid Annex I countries in achieving their targets cost-effectively.

In practice, the two goals can be contradictory, especially if they are being pursued with differing stringency. This is currently the case:

First, in the carbon market, only the emission reductions are given a monetary value. An exception is the CDM GS, which attempts to give a monetary value to sustainable development benefits as well. The label was introduced with the hope that buyers will be willing to pay higher prices for certified high-quality projects. Yet in practice, the GS has so far attracted only a limited interest from buyers. Moreover, demand for GS credits is coming mainly from the voluntary market. Compliance buyers mostly give sole priority to the CDM's second objective, mainly with the intention to lower compliance costs.

Second, while safeguarding the CDM's environmental integrity in terms of emission reductions is centralised under the EB, safeguarding the contribution to sustainable development is decentralised and left to each host country individually. Nevertheless, as is apparent from the literature and the analysis undertaken in this study, even the environmental integrity of the CDM leaves much to be desired.

The following presents our recommendations for how to improve the CDM's environmental integrity and contribution to sustainable development.

Improvement of the CDM's environmental integrity should be a priority under the UNFCCC. The CMP and the EB should significantly strengthen the CDM's modalities and procedures and the EB's guidance.

Regarding sustainable development, we in essence suggest to introduce an additional **set of modalities and procedures** which would safeguard enhanced sustainable development benefits and improve the environmental impact of the CDM projects. These include

- Criteria and indicators for assessing the environmental, social and economic impact of a project
- Detailed requirements for stakeholder involvement
- Monitoring of the newly introduced elements
- An independent assessment process

The introduction of these modalities and procedures could be pursued with **different levels of ambition**. Here, we differentiate three approaches:

- An ambitious approach, that is, adopting mandatory modalities and procedures to make sure that projects achieve sustainable development benefits
- A “do no harm”-approach, which would imply adopting mandatory modalities and procedures to make sure that at least projects have no negative impacts
- Developing voluntary modalities and procedures for assessing sustainable development benefits, in line with the current negotiation text on promoting co-benefits

A third angle to look at the recommendations is the **level at which action is taken** to implement the new requirements. Action would ideally be taken by the **UNFCCC**: the CMP would adopt additional modalities and procedures, which would then be operationalised by the CDM EB. If this cannot be achieved, we suggest that **individual countries** or groups of countries, such as the **EU** or the **EU and the USA** together, introduce their own additional requirements for importing CERs into their respective emissions trading systems and for their own purchases.

The following recommendations are structured according to this latter differentiation: first, we look at the UNFCCC level and examine which modalities and procedures could be introduced under which approach. Second, we explore the options groups such as the EU or the EU and the USA could pursue to improve sustainable development and environmental benefits of CDM projects.

Evidently, the introduction of new standards would increase the costs of developing CDM projects. The analysis of the CDM Gold Standard suggests that the additional effort required should be quite manageable. Nevertheless, if strengthened standards drive up prices for the whole mechanism, as would be the result of mandatory standards, it can be expected that a higher share of the required reductions would be met through domestic action rather than offsetting.

6.1 Recommendations for Regulations under the UNFCCC

At the UNFCCC level, we first develop modalities and procedures to improve the sustainable development component of the CDM. Afterwards, we look at possible improvements of the CDM’s environmental integrity.

6.1.1 Improving the CDM's Contribution to Sustainable Development

The DNAs analysed in this study generally do not conduct a very detailed analysis of a project's contribution to sustainable development. The national criteria are usually qualitative guidelines that are rather vague and leave much leeway for interpretation. Project developers can easily avoid giving concrete and verifiable details and stay at the level of very general statements. One exception is Panama.

In addition, the DNAs usually do not have much capacity for checking the descriptions and claims in the PDDs. The assessment is normally restricted to a desk review of the documents and an interview with the project developers, but does not include on-site verification of the veracity of the statements. DNAs have indicated that such a more detailed involvement would be too costly or require more human resources in DNAs. DNAs could in theory recoup these costs through the fees they charge for project approval, but care would need to be taken not to raise fees to a prohibitive level.

To remove these competitive constraints and increase transparency, the CMP and the EB should ideally develop international regulations on the sustainable development assessments. In addition, a more internationalised approach could be especially helpful for host countries with low domestic capacity to make sure that projects do in fact contribute to their sustainable development.

However, developing countries have in the past resisted the introduction of mechanisms to assess projects' contribution to sustainable development at international level. Similarly, the negotiation text under the AWG-KP initially contained an option to make achievement of co-benefits mandatory for CDM registration, but this proposal has now been reduced to promoting co-benefits and is still bracketed.

On this basis, the following approaches appear possible:

- Adapting an ambitious approach, that is, adopting mandatory modalities and procedures to make sure that projects achieve positive sustainable development benefits
- Adopting a "do no harm"-approach under the UNFCCC, that is, adopting mandatory modalities and procedures to make sure that at least projects have no negative impacts
- Developing voluntary modalities and procedures for assessing sustainable development benefits in line with the current negotiation text on promoting co-benefits

- Taking no decision under the UNFCCC, that is, retaining the status quo

In terms of the substance, the first three approaches need not necessarily be much different from each other. For example, a “do no harm”-approach would need to ask many of the questions as an ambitious approach as regards impacts on air and water quality, labour conditions etc. Under both approaches, meaningful stakeholder involvement, regular monitoring and independent third-party assessment should be required to make sure that the claims made by project proponents do indeed reflect the actual situation. Similarly, if criteria are purely voluntary, one can make the case that they should then be especially strong to denote real best practice. The main difference would be that under a voluntary or ambitious approach some additional criteria could be developed to assess whether there are positive impacts. For example, technology transfer could be a positive impact, but lack of technology transfer does not mean that a project has a negative impact. Therefore, the different approaches often overlap, while in other cases they show dissimilarities.

In all three approaches the proposed modalities and procedures should contain the following elements:

- Criteria and indicators for assessing the environmental, social and economic impact of a project
- Detailed requirements for stakeholder involvement
- Monitoring
- An independent assessment process

Table 25 summarizes the different steps, which could be taken at UNFCCC level.

Table 25: Options under a UNFCCC Approach

	Ambitious Approach	**Do no Harm Approach**	**Voluntary Approach**
Environmental, Social and Economic Impacts	Do No Harm Criteria and Indicators on environment and social aspects Plus criteria to assess positive project impacts	Do No Harm Criteria and Indicators on environment and social aspects	Do No Harm Criteria and Indicators on environment and social aspects Plus criteria to assess positive project impacts
Stakeholder Involvement	Active Invitation of relevant groups, two rounds of consultations, specific documentation requirements, grievance mechanism	Active Invitation of relevant groups, two rounds of consultations, specific documentation requirements, grievance mechanism	Active Invitation of relevant groups, two rounds of consultations, specific documentation requirements, grievance mechanism
Monitoring	Sustainable development monitoring plan to assess compliance with safeguards Plus assessment of sustainable development benefits	Sustainable development monitoring plan to assess compliance with safeguards	Sustainable development monitoring plan to assess compliance with safeguards Plus assessment of sustainable development benefits
Independent Assessment	DOEs assess compliance with the relevant additional criteria	DOEs assess compliance with the relevant additional criteria	DOEs assess compliance with the relevant additional criteria

Source: Wuppertal Institute

6.1.1.1 Criteria and Indicators for Environmental, Social and Economic Impacts

Do no Harm Safeguards

As a minimum, the CDM process should ensure that projects do not have negative consequences, like in the case of the Indian steel mill project emitting fly-ash. As the CDM is a mechanism that was created by the international community, it should be the responsibility of the international community to prevent such negative impacts.

The CMP or the EB should therefore adopt international safeguard criteria and indicators for their assessment. The project participants should be required to submit a description in how far each criterion is relevant to the CDM activity, an assessment of the gravity of the risks, and appropriate mitigation measures in case of grave negative impacts. As noted above, if only a voluntary approach can be agreed on internationally, the criteria could nevertheless be the same.

Table 26 provides a list of suggested criteria and indicators based on the various national and international standards assessed in this report.

Table 26: Suggested Do No Harm Criteria and Indicators

Criteria	Possible Indicators
Environment	
Air quality	Concentrations/emissions of NO_x, SO_x, lead, CO, ozone, POPs, mercury, CFCs, halons, NH_3 etc.
Water quality and quantity	Levels of biological oxygen demand, biochemical oxygen demand, thermal pollution, mercury, NO_x, SO_x, POPs, lead, coliforms, etc.
Soil condition	Levels of lead, NO_x, SO_x mercury, cadmium, etc.
Other pollutants	Level and frequency of noise etc.
Biodiversity	Number of affected or threatened plants, animals and natural habitats, occurrence of non-native species etc.
Social	
The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in any Human Rights abuses.	
The project respects property rights and other national legislation.	
The project does not involve and is not complicit in involuntary resettlement.	
The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage.	
The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.	
The project does not involve and is not complicit in any form of forced or compulsory labour.	
The project does not employ and is not complicit in any form of child labour.	
The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.	
The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments.	
The project does not involve and is not complicit in corruption.	
The project does not lead to a net loss of employment.	

Source: Wuppertal Institute

Further safeguards should be developed for specific project types. For example, as foreseen in the GS, relighting project activities that imply the substitution of incandescent light bulbs by CFLs should provide a detailed description of how the CFLs will be collected and disposed of or recycled, with a particular attention to the mercury contained in the CFLs. Similar provisions should be foreseen for all projects with life-cycle impacts that go beyond the project boundaries.

In particular with regard to the social safeguards, these would for the most part not even be new requirements. Most countries have ratified the human rights treaties, which the suggested safeguards are derived from. Through these treaties, countries are legally bound to respect, protect and guarantee human rights. The issue is therefore not one of establishing additional criteria but rather one of achieving coherence between different policy fields and ensuring their implementation.

Criteria for Measuring Positive Contributions to Sustainable Development

As regards the assessment of a positive contribution to sustainable development, either as mandatory requirements or as voluntary criteria, a matrix approach with verifiable indicators such as the one used by the CDM GS is clearly superior to vague qualitative guidelines without concrete indicators, as were found in most host countries. As noted, many of the questions to be asked on whether a project has positive benefits would be the same as when asking whether it has negative impacts. But there are also aspects that are not relevant in a “do no harm” assessment, for example potential pro-poor impacts or technology transfer. The suggested criteria and indicators in Table 27 should therefore be seen as complementary to those listed in Table 26 above.

Project proponents would assess their projects against these indicators. The relevant parameters may vary from project to project. Project proponents should transparently justify their choice of which parameters they think are relevant for their specific project.

Table 27: Suggested Criteria and Indicators to Assess Positive Project Impacts

Criteria	Possible Indicators
Social	
Quality of employment	Wage level, required skill level of jobs created etc.
Livelihood of the poor	Quantified access of people to health services, sanitation, waste management, etc.
Access to affordable clean energy services	Change in traditional fuel consumption, electricity consumption per person, etc.
Human and institutional capacity	Quantified access to education and skills, changes in income and asset distributions by region, ethnicity, religion and socio-economic groups
Gender equality	Changes in female enrolment in schools, female literacy rate, female earned income, number of jobs and positions for women, women in government or other decision-making bodies
Social well-being of communities	Costs and benefits are equally shared among community groups and members
Economy and Technology	
Quantitative employment and income generation	Number of jobs created, level of income from the project, etc.
Balance of payments and investment	Amount of domestic and foreign direct investment
Technology transfer and self-reliance	Use of previously not available technology, number and nature of training activities and number of participants
Adaptation to climate change	Use of new harvesting techniques, new business approaches, protection of facilities and/or infrastructure against heavy weather events

Source: Wuppertal Institute

6.1.1.2 Stakeholder Involvement

CDM projects may significantly affect the livelihoods of local populations. It should therefore be a matter of course to involve them in the decision on whether to approve a project and how to design it. Again, it is the responsibility

of the international community to ensure that the mechanisms it creates safeguard the rights of those that are affected by them.

The CMP should therefore establish clear international requirements for how to conduct stakeholder consultations. The following modalities and procedures are recommended based on the standards examined in this report. Again, a purely voluntary approach need not differ in terms of substance.

Preparation

The stakeholder consultation should be required to be conducted during the design phase of the project, at a point in time when the proponents are still genuinely open to making changes to the project. The project proponents should actively invite participation through appropriate media such as local bulletin boards, newspapers and other appropriate media. In addition, invitation letters should be sent at least to the following stakeholders:

- Local people impacted by the project or their official representatives
- Local policy makers and representatives of local authorities
- An official representative of the DNA of the host country of the project
- Local NGOs working on topics relevant to the project

Ideally, invitation letters would already include a non-technical summary of the project activity, as well as information on the safeguards and/or sustainable development indicators used to assess the project activity. This will allow stakeholders to better prepare for the consultation meeting.

The PDD should contain a list of who was invited, by what means and on which date, as well as who actually participated. Following the Brazilian example, it should be required to attach copies of the invitation letters to the PDD, as well as copies of other means used to invite participation, such as newspaper advertisements etc.

To allow stakeholders to better understand the project, a non-technical summary of the project should be required to be provided in an appropriate local language.

First Round or Rounds of the Stakeholder Consultation

The first round should be conducted before the PDD is submitted for validation and include at least one physical meeting. The meeting should be required to be conducted in an appropriate local language and include at least the following agenda items:

- Presentation of the project
- Stakeholders score the project against the safeguards and sustainable development indicators, depending on whether an ambitious or a “do no harm”-approach is agreed under the UNFCCC, as far as possible
- How to monitor compliance with the safeguards and the achievement of co-benefits

Follow-Up to the First Round(s)

The project proponents should be required to publish a non-technical report on the meeting or meetings within one month. This report should include all comments made and indicate how they will be taken into account in the project design. If some safeguarding criteria or sustainable development indicators receive negative assessments from the stakeholders without them being sufficiently balanced by mitigation measures, the assessment should be revisited. This should be done in consultation with the validating DOE.

Second Round of Stakeholder Consultation

The purpose of the second round would be to discuss with the stakeholders whether their comments from the first round have been addressed appropriately. The second round should include all stakeholders that participated in the first round or rounds and cover all issues addressed during the first round. This may include another physical meeting, but not necessarily. If no physical meeting is conducted, all the documentation needs to be made easily available through appropriate means, such as depositing hardcopies in local post or government offices.

The second round could be conducted in parallel to the validation but should be open for at least two months before the validation is finalised. The PDD should be required to document how the second round was conducted, what comments were received and how they were taken into account.

Grievance Mechanism

To guard against the possibility that negative impacts become manifest during project implementation that were not visible in the design phase, both an ambitious approach and a “do no harm”-approach should include the possibility for the local stakeholders to lodge complaints. A step-wise approach could be taken:

- As a first step, stakeholders should be able alert the DOE responsible for verification of their grievances. If the DOE finds the grievance to be valid, the DOE should withhold verification until the grievance has been resolved.

- If involving the DOE does not lead to a resolution, stakeholders should be able to appeal to the host country DNA. If the DNA finds the grievance to be valid, it or other appropriate national authorities should take steps applicable under national law to resolve the grievance.
- If involving the DNA does not lead to a resolution, stakeholders should be able to appeal directly to the EB. If the EB finds the grievance to be valid, it should suspend all further issuance of CERs to the project until the grievance has been resolved.

Information on the possibilities to file complaints should then also be a mandatory agenda item in the stakeholder consultation.

6.1.1.3 Monitoring

Improving the CDM's contribution to sustainable development should include establishing mechanisms to make sure that compliance with safeguards and, in a case of an ambitious approach or voluntary guidelines, claimed sustainable development benefits are actually achieved. These aspects should therefore be monitored in addition to the emission reductions.

The project participants should be required to submit a sustainable development monitoring plan as part of the PDD. The monitoring plan should cover compliance with the safeguard criteria and, if applicable, all sustainable development indicators. This should include project type-specific standards where applicable, such as the life-cycle standards discussed above. The plan should include the following elements

- A description of how the criteria and indicators would likely change in the baseline scenario
- A description of how the criteria and indicators are likely to change with implementation of the project
- A description of how the criteria and indicators will be monitored
- Where the project foresees to take mitigation measures to address negative impacts that were identified during the sustainable development assessment, the monitoring plan would also need to describe how the implementation of the mitigation measures will be monitored.

In addition to the general public commenting period that applies to monitoring reports under the CDM, the sustainable development monitoring report should also be specifically submitted to the stakeholders that were involved in the ex ante stakeholder consultation.

6.1.1.4 Independent Assessment

Compliance with the above requirements should be validated and verified by the DOEs. Again, this should hold irrespective of whether a voluntary, do no harm or ambitious approach is taken. Such an approach would not necessarily mean to replace the role of the DNAs. Rather, it could serve to improve the process, while the final determination whether a project contributes to sustainable development could still be left to the DNA. This would mirror the approach usually taken with regard to the climate benefits of a project, where many DNAs also require submission of a validation report as a pre-condition for issuing a letter of approval.

6.1.2 Strengthening the Environmental Integrity of the CDM

All projects examined in this study had significant shortcomings as to the transparency and credibility of the additionality assessment, mirroring the results from other studies (e.g. Michaelowa/Purohit 2007; Schneider 2007; Wara/Victor 2008). These shortcomings highlight areas that need to be significantly improved to safeguard the CDM's environmental integrity.

Specification of "First of its Kind" and "Common Practice"

Many PDDs assessed in this study used arbitrary definitions for types of technologies and projects that were narrowed down so much that they were able to present the project as not being common practice or even "first of its kind" even though several similar activities had in fact already been implemented. The EB should therefore revise the guidance to specify which technologies a project should be compared with, what are threshold for comparability, e.g. deviations in terms of installed capacity, and how many similar projects may already have been implemented for a project to still be able to be considered as "first of its kind".

In addition, already implemented CDM projects should be included in the common practice analysis. The examples of wind power projects in China and India showed that massive wind power development is underway but projects are still able to claim that they are not common practice since almost all wind projects are applying for CDM registration. Under the current CDM rules wind may become an important power source but nevertheless never be considered common practice under the CDM. Therefore, existing CDM projects should be included in the common practice analysis after a certain period of time or when a number of CDM projects of a specific type has been implemented.

Further Specification of Investment Parameters

Further guidance should be developed to ensure that the investment analysis is conducted in a more consistent manner. This should include:

- What data should be provided
- How the credibility of data should be confirmed
- How benchmarks such as hurdle rates should be derived
- How the sensitivity analysis should be undertaken, in particular as regards which parameters should be varied to what extent

Standardised Baselines

The EB should be mandated to develop standardised baselines on its own initiative rather than having to wait for methodology proposals from projects. Paragraph 48 (c) of the CDM's modalities and procedures (contained in the Marrakesh Accords) does already give the option to use the performance of the top 20% of similar activities conducted in the previous five years as basis. In particular in those sectors with large point sources – power production and large industries such as cement, aluminium, iron and steel – the establishment of standardised baselines should be viable.

Discounting

Additionality testing and baseline setting can never be fully objective. To compensate for the non-additional projects that will inevitably get through even with strengthened additionality testing and baseline setting, CERs should be discounted. The discount rate should be based on a robust assessment of the fraction of CERs that are likely to be non-additional. Based on past studies on additionality, the discount rate would need to be in the order of 25-50% to truly safeguard the CDM's environmental integrity (see e.g. Michaelowa/Purohit 2007; Schneider 2007; Wara/Victor 2008).

6.2 Regulations Within the EU or Other Groups of States as a Fallback Option

If reforms of the CDM at the international level fail, a fall-back option would be to impose additional requirements on the use of the CDM in the national regulations of buyer countries. During the negotiations on the EU climate and energy package in 2008 there was already a discussion on whether to restrict the use of the flexible mechanisms to "Gold Standard-type" credits (Sterk and Wang-Helmreich 2008). Similar discussions are currently taking place in the

USA, where there is widespread discontent with the current CDM (Sterk and Kruger 2009).

The EU and the USA combined account for about 60% of total current Annex I emissions. Among non-EU Annex I countries, only Australia, Canada, Iceland, Japan, New Zealand, Norway, Switzerland and the USA have introduced or are seriously considering emissions trading programs. Among these, the EU and U.S. combined account for almost 80% of current emissions (UNFCCC 2009c).

The EU and USA are also set to account for the lion's share of demand for offset credits from developing countries in the post-2012 regime. Russia and Ukraine, the other two large Annex I countries, will probably not become buyers due to their massive bankable surplus of assigned amount units and substantial low-cost domestic reduction potential. Hence, if a combined EU-US market was established, the "global carbon market" would essentially be synonymous with this transatlantic market and would provide the backbone for the overall international climate regime. With this in mind, the European Commission has suggested the creation of an EU-US working group on the design of carbon markets (European Commission 2009).

While current emission trading plans in the USA have some differences to the EU ETS, including on the use of offsets, strong voices in both the EU and the USA have been critical of the Kyoto Protocol's offset mechanisms. It might therefore be possible to reach a shared US-EU view on the international mechanisms. Such a shared view could also be very powerful in moving the UN negotiations towards reform of the mechanism (Sterk and Kruger 2009).

Alternatively, the EU could act on its own. Again, from a substance point of view no distinction appears reasonable depending on whether there is a concerted EU-US approach or a unilateral EU approach.

Measures could be taken at two levels:

- Eligibility of CERs in domestic emission trading schemes
- Action by buyer governments

In terms of measures, the following options are conceivable:

- Adoption of negative lists
- Adoption of modalities and procedures on project quality
- Discounting CERs used in domestic emission trading systems

Here as well, an ambitious, a "do no harm" or a voluntary approach could be taken. Under the first two approaches, eligibility in emission trading systems and purchases by governments could be tied to specific criteria on project

quality. Under a voluntary approach, measures could be elaborated to promote projects that demonstrate co-benefits.

Table 28 summarizes the different options for the two levels.

Table 28: Options for Groups of States or Individual Countries

	Ambitious Approach	**Do no Harm Approach**	**Voluntary Approach**
Domestic ETS	Negative Lists Modalities and Procedures Requiring Positive Impacts Discounting CERs	Negative Lists Modalities and Procedures to Prevent Negative Impacts Discounting CERs	Modalities and Procedures to Promote Projects with Positive Impacts
Buyer Governments	Negative Lists Modalities and Procedures Requiring Positive Impacts	Negative Lists Modalities and Procedures to Prevent Negative Impacts	Giving Preference to Projects with Positive Impacts

6.2.1 Adoption of Negative Lists

If the problems related to some project types, for example HFC and Nitrous oxide (N_2O) projects, cannot be resolved under the UNFCCC, countries could opt to exclude CERs from these project types from their national emission trading systems and governmental purchasing programmes. However, it is likely that all major existing HFC and N_2O-emitting facilities in developing countries will soon be registered under the CDM. Excluding these projects would therefore probably not have an impact on the CDM project portfolio.

6.2.2 Adoption of "Do no Harm" or Sustainable Development Requirements

Countries could opt to impose additional requirements on projects in addition to those applicable under the UNFCCC. These could be either do no harm safeguards or requirements to show a positive contribution to sustainable development. The modalities and procedures suggested above for an UNFCCC

approach could in principle equally be used for an unilateral approach. Such requirements could apply to both domestic emission trading systems and governmental purchasing programmes.

The feasibility of such an approach is demonstrated by the fact that the EU has already taken this approach with respect to hydropower projects with an installed capacity above 20 MW. Here, the EU requires that projects respect the standards developed by the WCD. To demonstrate compliance, project proponents need to submit a compliance report based on a template that was agreed on between the EU member states. These reports need to give detailed information regarding compliance with the seven strategic priorities defined by the WCD and need to be validated by a DOE.

The possibilities of this approach are also demonstrated by the Belgian JI/CDM Tender programme. In Belgium, sustainable development is one of the scoring criteria in the decisions on purchasing CERs. The analysis is based on the original GS sustainability matrix version 1. Project developers score the impact of their projects on the GS matrix, and the DOE assesses and validates this analysis. In addition, RPIs for the impact of the project on sustainable development are determined. The scoring and monitoring is evaluated and has to obtain minimum scores in order to be selected for contract negotiations. A monitoring report has to be submitted annually so that the Belgian buyer can follow up the project and its impact. Furthermore, Belgium requires the right to make unannounced visits to the project, especially in case they are informed of any abnormalities, for example by NGOs, trade unions or Belgium's diplomatic network.

Taking this route within the EU ETS, for example, would create a new type of CERs: EU ETS-eligible CERs. If supply of these is short, they could fetch a higher price than other CERs. This could have an impact on the CDM portfolio as a whole since the prospect of getting a higher price for EU ETS-eligible CERs would constitute an incentive to conform with EU requirements. This effect would be especially strong if the EU could develop a harmonised approach with the USA. But even if acting unilaterally, the size of the EU ETS should be sufficient to have an impact on the global market.

6.2.3 Giving Preference to Projects with Positive Sustainable Development Impacts

If the adoption of binding project requirements is not possible, governments could opt to give preference to projects that demonstrate positive impacts. Again, the criteria to measure positive impacts could be the same as those suggested above for the UNFCCC approach. Preferential treatment could take

place through buyer governments or at the level of domestic emission trading systems.

Action by buyer governments would be easier to implement. First, when choosing which CERs to buy, governments could put a priority on projects that demonstrate positive impacts. Second, governments could pay a higher price for CERs from such projects than for normal CERs.

Action at the level of domestic emission trading systems would entail giving preferential access to CERs from projects that demonstrate positive impacts. This could take the form of a special quota for such CERs. There is some precedence for such an approach in the rules for the EU ETS for the period after 2012: CERs from projects conducted in LDCs and registered after 2012 can be used, while use of 'conventional' CERs is subject to quantitative restrictions. Thus, the idea would be to define a separate quota for projects with demonstrable positive impacts that would go on top of the allowed use of "conventional" CERs.

6.2.4 Discounting CERs Used in Domestic Emission Trading Systems

The additionality question should ideally be resolved at UNFCCC level, including through the measures discussed in section 6.1.2. However, if CDM reform does not proceed satisfactorily, there would be a case for departing from the principle that all tonnes are equal. To safeguard the integrity of the EU ETS, the EU could choose to not accept CERs on a 1:1 basis in the EU ETS but to apply a discount. As suggested for discounting under the UNFCCC, the discount rate should be based on a robust assessment of the fraction of CERs that are likely to be non-additional.

In this area harmonisation with the USA would be particularly promising. The emission trading bill that is currently making its way through the US legislative process foresees applying a 20% discount to international offsets from 2018.

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8 Annexes

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