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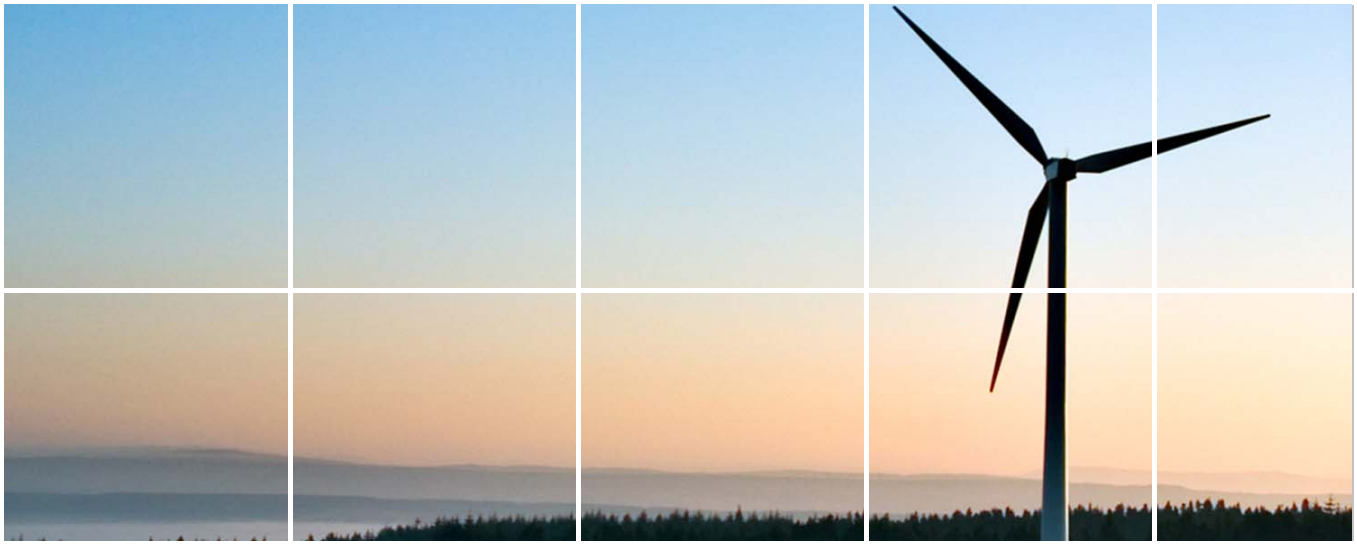

Briefing paper “Sustainable Development and Social Equity”

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Study on the Integrity of the Clean Development Mechanism

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Briefing paper “Sustainable Development and Social Equity”
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1 Summary

The paper explains how sustainable development considerations are currently incorporated in the development of Clean Development Mechanism (CDM) offsetting projects. It clarifies how it is the host country's prerogative to define whether a project contributes to sustainable development and social equity and why this approach often results in the failure of host countries to deliver these results. Several qualitative assessments of projects by Sutter et al (2007), Sirohi (2007), Boyd et al (2009) and UNEP RISO (2006) are examined to confirm this conclusion. The paper also compares the sustainable development criteria defined by six different Designated National Authorities (DNAs). This helped to identify the differences in approaches by each host country. As the DNA criteria are only guidelines, no evidence was found that projects are rejected on this basis by the host countries or by the CDM Executive Board (EB).

Although this paper shows that the CDM governance process largely fails to ensure sustainable development and social equity, it nevertheless provides evidence that the CDM has the potential to encourages them. Some projects which have successfully contributed to sustainable development and social equity are presented as examples.

The limitations of the CDM are highlighted and can be summarised by the following points:

- Complex and conflicting definitions and interpretations of sustainable development;
- Unclear and non-restrictive criteria for the approval of sustainable development and social equity criteria;
- Lack of follow-up on the sustainability aspects defined in the project design document (PDD) during the life time of the project;
- The absence of guidelines on the procedure for carrying out stakeholder consultations;
- The structural challenge of undertaking GHG reduction projects with high sustainable development and social impacts in countries with low carbon footprints.

Large hydro projects are identified as having particularly negative sustainable development and social impacts. The EC demand side intervention using the World Commission on Dams (WCD) criteria is explained and scrutinised. The positive contribution of this demand side intervention is highlighted, and options for improvements and clarifications on the WCD criteria are discussed.

A series of six randomly selected PDD's for large hydro and energy intensive projects were examined. The results show that these categories of projects do little to contribute to sustainable development and social equity. Recognition of a project's attainment of the sustainable developement criteria is not judged on the PDD by the Non-Annex 1 host country delivering the Letter of Approval (LoA) or by the EU member state (for large hydro demand side restrictions). This part of the PDD therefore has limited value.

For the proposed reforms the complexity of defining a common definition for sustainable development is examined. Varying results depending on the chosen definition of sustainable development and social equity are highlighted. The different options for the enforcement of sustainability by the DNA, the CDM EB and the EU (demand side) are studied, looking at the supply side and the demand side. Requirements for further enforcement through the use of the Gold Standard passport, funding for DNA training as well as financial, bureaucratic and political complexities are illustrated. Multiplier and discounting possibilities are examined and the complexities these mechanisms create are described. Other instruments that could help reinforce the sustainable development criteria such as premium pricing, cross subsidisation, minimum percentages, positive and negative lists, accelerated registration procedures or the application of simplified modalities for projects with high sustainable development and social equity criteria are proposed and their positive contributions defined.

2 Introduction to the issue / concern

2.1 Definition and overview of the debate

The Clean Development Mechanism (CDM) was designed with two objectives: to contribute to local sustainable development in the host country and to assist Annex I countries in meeting their emission targets cost-efficiently (Kyoto UNFCCC, 1997).

The Marrakech Accords (UNFCCC, 2001) emphasise that it is the host country's prerogative to define whether a project contributes to sustainable development. In most countries this means that a Designated National Authority (DNA) evaluates project documentation against a set of pre-defined criteria, which tend to encompass environmental, social and economic aspects of sustainability (Schneider and Grashof, 2007). Consequently, non-Annex I countries can define sustainable development criteria for CDM projects in their country according to their own sovereign requirements. The absence of international sustainable development standards combined with a competitive CDM market and little or no price premiums to be gained from investing in projects with higher contributions to sustainable development have resulted in a trade-off in favour of the most cost-efficient emission reduction projects. Neither Annex I countries nor non-Annex I parties have any incentives to implement strict sustainable development criteria (Sutter et al., 2007).

Evidence shows that the CDM often fails to deliver local sustainable development, i.e. improving the social conditions in communities. However, during our research and interviews, we were confronted with some contradicting opinions on sustainable development. For instance some consider that CDM projects in the landfill waste sector have provided significant sustainable development benefits (interview with a DOE manager in March 2011). Other interviewees stated that landfill waste projects pose significant risks (i.e. for the livelihoods of waste pickers) and see these projects as detrimental to sustainable development (interview with a NGO based in Brussels in March 2011). These contradictions can be explained by different interpretations of the definitions of sustainable development and social equity and the distribution of the benefits arising from CDM projects.

2.2 Facts and figures quantifying the scope

Sutter et al. (2007) assessed 16 registered CDM projects with regard to whether they generate real emission reductions and contribute to sustainable development. The results of their peer-reviewed analysis were striking. While in accordance with their assessment criteria they found that 72% of the total credits in the selected portfolio are likely to be additional reductions, their analysis highlighted that less than 2% of the credits generated come from projects that contribute significantly to sustainable development in the host country (Sutter et al., 2007). If six projects (out of the 16 analysed) contributed largely to sustainable development, these projects were all generating the smallest amount of credits totalling only 1.7% of the total portfolio.

Sirohi (2007) examined 65 project design documents (PDD) in India and assessed their contribution to sustainable development. The study concluded that CDM is not contributing to rural poverty alleviation. Nearly all of the projects were business oriented and were not directed to the development of the rural poor. According to Sirohi, even renewable energy projects will have a limited role in supporting those below the poverty line due to their weak resource base. These conclusions clearly illustrate the limited role that CDM projects in India have had in promoting fairness and equity in the local communities.

In a more recent study by Boyd et al (2009), 10 CDM projects were assessed according to their sustainability benefits. From this analysis all of the cases appeared to be falling short in delivering direct local benefits.

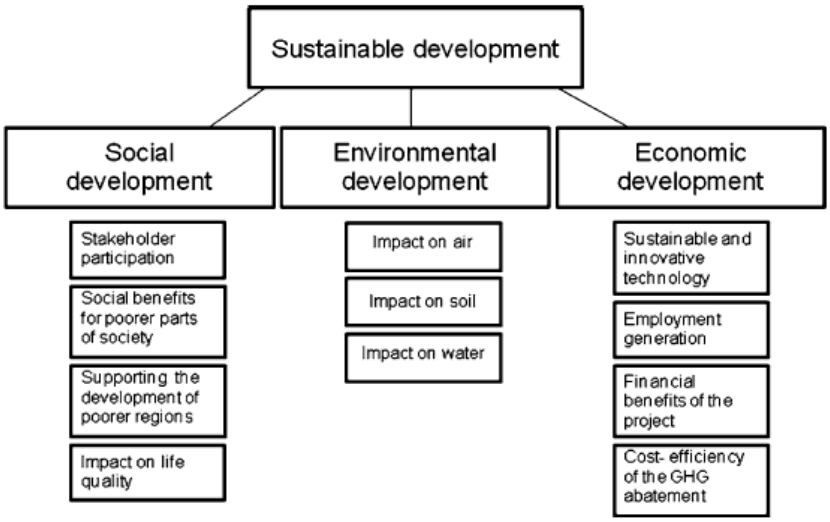
Social equity is one of the pillars defining sustainable development, a prerequisite of the CDM[1] (Thorne et al., 1999). It is interesting to observe to what extent the social dimension has been effectively implemented in CDM projects. The social benefits of CDM projects were analysed by the UNEP RISO Centre in 2006.[2] Some 68% of the projects were found to have delivered employment benefits, 46% boosted economic growth, 44% improved the air quality and only a small number of projects delivered 'other benefits' (Olsen, 2006). A comparison of the sustainable development criteria and of the social equity criteria for the DNA of six different countries can be found in Appendix I. One can observe that there are significant variations in the criteria between the different DNA.

[1] Article 12.2 of the Kyoto Protocol: 'the purpose of the clean development mechanism is to assist countries not included in Annex 1 in achieving sustainable development...'
[2] This concerns all CDM projects in the pipeline of 3 May 2006.

3 Main metrics for measuring/explaining the concern

The sustainable development benefits of CDM projects **have been analysed by several authors using different methodologies**. **Checklists and multi-criteria assessments are the most common methodologies**. While the former is a qualitative method, the latter combines a qualitative and quantitative analysis and is more elaborate (Olsen et al. 2008, Alexeew et al., 2010).

For Alexeew et al. (2010) meeting the criteria of sustainable development encompasses the following dimensions and elements:



This matrix is useful but fails to cover all the socioeconomic and environmental impacts. Important topics such as biodiversity or safety are not directly assessed using this fourteen point criteria. Alternative tools have been developed to assess the contribution to sustainable development through proxy variables. For instance, Sutter and Parreño (2007) used the impact on air as a proxy for the environmental co-benefits, job creation as a proxy for the social impact and the ownership of the project (national or foreign, public or private) to assess whether the host country will directly benefit from sales of certified emissions reductions (CERs). While, this is an easier way to compare projects, such an approach fails to cover all project impacts. Using their simplified approach, Sutter and Parreño concluded that landfill projects had little environmental benefits aside from avoiding greenhouse gas (GHG) emissions. However, if soil and water impact had been assessed as well as air pollutants, the project's impact on the environment would have been considered far more positive.

Sustainability methodologies vary depending on the type of projects they analyse (e.g. energy projects vs. waste sectors projects) and vary depending on whether the assessment of impacts is applies at **project/local, regional or national level**. For example some projects (e.g. a dam or a wind farm) can have a negative impacts at a local level while having a positive environmental impact at a regional or national level. Further difficulty with the concept of sustainable development is the **trade off between strong and weak sustainability concepts whereby a judgement on the balance between economic, social and environmental capital is required**.

Some authors prone a "do no harm" assessment as used by the Gold Standard (see Annex H of this standard) which involves eleven questions covering human rights, resettlement, removal of cultural

heritage, freedom of association, compulsory labour, child labour, discrimination, healthy work environment, precautionary approach in regard to environmental challenges, degradation of critical natural habitats, corruption. This method fails to cover all the environmental aspects but ensures the minimum criteria are met.

In summary:

- When analysing sustainable development in the CDM, checklists and the multi-criteria assessments are the most common methodologies;
- Sustainability methodologies vary depending on the type of projects they analyse (e.g. energy vs. waste sectors) and whether the assessment of impacts applies at project/local, regional or national level;
- Complexity of trade off between economic, social and environmental capital when defining sustainable development;
- Other approaches such as “do no harm” assessment as used by the Gold Standard fail to cover all the environmental aspects.

4 Assessment of the merits

CDM projects can provide sustainable development benefits. For example, the Gold Standard CER schemes have shown that projects supporting sustainable development and GHG reductions are possible.

Several registered projects, particularly in the rural energy sector, demonstrate that the system can contribute to GHG emission reductions while promoting sustainable development and social equity. CDM project number 2307 (Federal Intertrade Pengyang Solar Cooker Project) is one example that illustrates that the system is not inevitably flawed and does contribute to sustainable development. According to one market participant, **the World Bank Community Development Carbon Fund Project Portfolio has also shown that combining sustainable development and social equity** dimensions with GHG reductions is possible within the current CDM. **The Gold Standard VER scheme has also demonstrated that the promotion of sustainable development in rural communities and GHG reductions are two objectives that can be achieved simultaneously** (see for instance GS VER project 407 Gyapa Improved Stoves in Ghana).

In summary:

- CDM projects have shown that it is possible for them to deliver sustainable development benefits;
- The Gold Standard CER and VER schemes have been successful in ensuring carbon reduction projects also contribute to sustainable development

5 Assessment of the limitations

5.1 Unclear definition of sustainable development

The difficulty of defining "sustainable development" and the host party prerogative to confirm whether a CDM project activity is contributing towards sustainable development has meant that concerns over the achievement of this objective have often been marginalised (Sutter et al., 2006; Boyd et al., 2009; Alexeew et al., 2010). **The definition of sustainable development is very subjective** and in the perspective of certain developing countries it might be more about economic growth, equity issues and energy independence (Cole, 2007). China for example may consider super critical coal-fired power plants particularly important in contributing to sustainable development whilst another country would not. CDM projects have treated sustainable development in divergent ways across geographical regions: in Peru sustainable development criteria are prioritised by the DNA, while in Brazil and India they are a less clear priority (Cole, 2007).

5.2 Non-ambitious sustainability criteria and poor criteria application (both in Annex I and non-Annex I countries)

As shown by Wolfgang et al. (2009), most **host countries have a general list of non-binding guidelines** rather than clear criteria. Most DNAs are more concerned that the project is developed in their country and that it brings in the related revenues than by the sustainable development criteria (interview with an international environmental NGO in March 2011). Many countries have published project eligibility guidelines that, a priori, exclude projects that are not likely to deliver domestic sustainable development benefits. But in most cases these guidelines are vague and not stringently applied (Gillenwater, M. and S. Seres, 2011). A global business review claims that the development of projects with low or no social dimension is mainly due to the host country showing more interest in technology transfer than in the various sustainability aspects (Kalpagam, 2007). Developing countries have few incentives to apply stringent criteria for sustainable development since they are effectively competing for CDM projects with other developing countries.

In parallel, it is also interesting to notice the negligence of sustainable development criteria by Annex I countries. For example, an analysis of the Finnish climate policy (Teräväinen, 2009) identified various weaknesses:

- The disregard of environmental and social aspects of sustainability;
- A strongly nationally oriented approach to promote national technology, using the CDM as an opportunity to boost exports;
- A lack of attention to the development needs at the local level.

On the other hand, some countries have voluntarily taken the other path and pledged to include further sustainable development aspects in their CDM selection criteria. In Belgium for example, the promotion of sustainable development is one of the most important criteria in the decision to purchase CERs (Wolfgang et al., 2009). Certain funds such as the World Bank's Community Development Carbon Fund also insist on sustainable development requirements in their project financing criteria.

5.3 Contradictions between PDD (*ex ante*) and reality (*ex post*)

Our literature review and interviews with experts reveal that it is misleading to assess project contribution towards local sustainable development based on the project documentation. This is because local issues and other development issues may remain invisible and neglected in the report (Boyd et al. 2009, Lohmann, 2006,). This is explained by the lack of importance attributed to sustainable development in the current CDM project validation and registration process. As pointed out by an NGO no project has ever been rejected as a result of not meeting sustainable development criteria. Sustainable development in the PDD validation and registration is of little importance and is often very general and vague. Without clear guidance on how to evaluate sustainable development considerations in the project validation for the DOE, the process becomes highly subjective and leaves too much room for interpretation – for both applicants and evaluators. This makes it easy for project developers to comply with the CDM requirements.

Furthermore there is no **follow up over time by the DNA or the designated operational entity (DOE)** to ensure that the claims in the PDD are applied in reality in the project. Once a LoA is given, the project goes ahead with no verification of the claims. Thus a project that fails to deliver for example on the employment opportunities or other socioeconomic benefits described in its PDD will not be sanctioned at the validation (prior to registration) or verification (prior to issuance) stages by the DOE or any other authority (Boyd et al. 2009). The DOEs are required to review documentation but they have no mandate to validate compliance with host country DNA environmental or sustainability criteria making this task pointless. This leads to claims of sustainable development benefits that are never evaluated.

5.4 Mandatory stakeholders consultation

According to Wolfgang et al. (2009), the stakeholder consultation is often rudimentary. There are no clear international requirements for how to conduct stakeholder consultations (i.e. preparation of the consultations, who to involve, how to contact stakeholders, and how to present the project in a non-technical manner and appropriate local language). An exception is the Brazilian example with its obligation to inform at least ten stakeholder groups including the Brazilian NGO forum. However, the lack of knowledgeable capacity within civil society in certain developing countries makes this example difficult to generalise in all non-Annex I countries.

The number of projects that actually adapted their activities following the stakeholder consultation is extremely limited. From a study of numerous projects, researchers found that “not a single project [in their sample] was changed, at least not the activity itself” (Wolfgang et al., 2009).

5.5 Potential for emission reductions (and CDM projects) in the poorest areas

According to some stakeholders, the CDM is structurally incapable of channelling investments to the most needy as the world’s poorest people have very low carbon footprints Pottinger, L. (2008). However, others see this differently and according to Sirohi (2007), a “win–win” strategy for the CDM to emerge as a poverty alleviation instrument should be aimed at the rural communities and designed to accelerate agricultural growth in the rain-fed regions of the country”.

5.6 Lack of sufficient financial incentives

No financial incentives exist that encourage project developers to invest in projects with a clear contribution to Sustainable Development. “The financial incentives need to be attached not only to GHG emission reductions, but also to local sustainable development benefits” (Olsen KH 2008)

In summary:

- Complexity of defining sustainable development, lack of clarity and stringency in the current approach;
- No project ever rejected at validation due sustainable development criteria;
- Lack of follow up of the PDD criteria ex post validation;
- Stakeholder consultation have shown to have very little or no influence on project activities;
- Lack of any extra financial incentives to encourage projects which specifically support sustainable development.

6 Project based application of concepts and analysis

6.1 Issues and concerns

Observers point out that large projects, especially hydro or large industrial projects, have lower or no sustainable development benefits compared to smaller projects (interview with NGO in March 2011). Thus sustainable development is limited by the fact that 92% of CERs predicted for 2012 arise from projects avoiding more than 50,000 tonnes of CO_2e annually (IGES 2011).

Large hydro dam projects have been the primary focus of critiques from various NGOs due to instances or allegations of their negative social and environmental impacts. Large hydro projects have been subject to demand side regulation by the European Commission whereby operators covered by the EU ETS (see infra) are subject to certain restrictions and specific criteria.

Barbara Haya (Haya 2007) stated that "the CDM is blindly subsidising the destruction of rivers". It is claimed that large dams impose significant environmental and social damage. According to Haya's report, the 880 MW Campos Novos Dam in Brazil displaced 3,000 people, many of whom have not received promised compensation. Local project opponents were also subjected to arbitrary arrests and police violence.

The only condition the CDM EB set on hydro projects is that they need to have a power density factor higher than $4W/m^2$. This means that the size of the reservoir must be limited in relation to the project energy generation capacity and acts as an indicator to ensure low methane emissions from biomass decomposition in the reservoir. This condition does not stop dams with large reservoirs applying for CDM registration as long as they also have large generating capacities.

The World Commission on Dams (WCD) strongly believes further action is required to prevent the damaging impact of large hydro projects on local communities, ecosystems and sustainable development and developed guidelines (DEFRA, 2009). The WCD recommendations point out five core values that must be met when planning, carrying out and running dam projects. These criteria are equity, sustainability, efficiency, participatory decision-making and accountability.

Issues were also raised in regards to the categorisation of hydro projects into large and small scale projects, which determines whether or not a plant is considered as having a negative sustainable impact or not. One author pointed out that a "large" project can have minimal socio-environmental impacts, whereas the cumulative effect of multiple "small" projects can cause significant degradation (Saili, 2010).

For social equity concerns, some project types, in particularly cement projects and hydro projects, are identified as having below average levels of social benefits (Olsen, 2006 and Haya, 2008). Fuel switching projects also tend to have no recognised direct employment or social benefit (Boyd et al., 2009). As said, many criticisms are also made on the social impact of large-scale dams (Lohmann, 2006). The above tend to generally be large scale projects however a CD4CDM report came to the conclusion that the type of project, more than the size of a project affects the social dimension (Olsen, 2006).

6.2 Responses to the concerns

As a response to the concerns, the WCD released a report which included a set of conditions for dam planning and implementation (WCD, 2000). However currently these conditions are not part of the UNFCCC CDM assessment during the validation and registration phases of a CDM project activity.

The regulation of large hydro is however influenced by the EU's Emissions Trading System (EU ETS) on the demand side. In 2004, the linking directive (Directive 2004/101/EC) regulated the use of CERs in the EU ETS and included provisions on the use of credits from hydro projects with a capacity exceeding 20MW. Article 11b (6) of Directive 2003/87/EC requires Member States writing a LoA to ensure compliance of CDM/JI hydro project activities with the relevant international criteria and guidelines, including those contained in the WCD 2000 Report.

EU member states only clarified the interpretations of WCD compliance in 2009. Until the 1st of April 2009, Member States approval of large hydro CDM projects was according to their own internal guidelines. The differences in scope, procedures and requirements created uncertainty for project developers. From 1 July 2009, following a transition period (1 April – 1 July 2009), Member States voluntarily adopted harmonised guidelines and templates for the assessment of projects' compliance with Article 11b(6). According to the Commission's view, this is a living document with planned reviews and the possibility for revisions. Since the harmonisation is voluntary, European Climate Exchange's Director of Market Development was still concerned in June 2010 "that it would not be possible to guarantee that all member states would abide by the new rules" (International Rivers, 2010). 12 CDM projects demonstrated compliance with the EU ETS Directive from July to November 2009. These projects comprised an issuance potential of 2.8 million CERs by the end of 2012 (Saili, 2010).

Critics of the current classification believe that it is fundamental to reconsider the categorisation between "large" and "small" to accurately reflect the technical/scientific nature of the renewable energy technologies and highlight the sustainability choices that societies must make according to current and future needs. Better categorisation could consider "reservoir (including pumped storage)", "run-of-river", and perhaps an "off-grid" annotation for both as relevant.

The above issues have led to the need to evolve towards clearer guidelines. In 2007, the Hydropower Sustainability Assessment Forum (HSAF) was set up, composed of representatives and stakeholders from governments (including EU Member States) in order to provide the carbon market with a workable tool for the assessment of large hydro projects. HSAF released the final version of the Hydropower Sustainability Assessment Protocol in early 2010. A follow-on phase for the HSAF is focusing on the pathways forward for the Protocol (IHA, 2010). However, according to International Rivers, the IHA Protocol does not define any minimal requirements of sustainability or a bottom line of acceptability for hydropower projects (International Rivers, 2010).

6.3 Analysis of a sample of projects

We also carried out a project by project analysis of the sustainable development factors for nine PDDs (three hydro power projects, three cement manufacturing projects and another three iron and steel manufacturing projects). The results are presented in Table 1 below. Though this exercise was not an extensive analysis due to time restrictions, this review of a random sample of nine PDDs evaluats the direct and indirect sustainable development benefits of these projects (employment, environment, economic, technology transfer and health benefits) using the Michaelowa et al. (2006) assessment tool used for energy efficiency projects.

Table 1 shows that besides conserving resources, large scale cement, iron and steel manufacturing projects do not result in obvious contributions to sustainable development. Some benefits were achieved in socio-economic terms such as reduced power consumption from the grid and the creation of a limited number of direct and indirect employments during the project construction and operation phase, though not to the extent that it could help alleviate poverty.

As far as large hydro projects are concerned, we noted that the 1st July 2009 EU Member State adoption of harmonised guidelines did not bring any obvious evolution on the sustainable development criteria found in the PDDs. This was expected as the EU Member States did not make these changes with an objective to influence the PDD. Nonetheless of the two hydro projects analysed that were registered after the 1st July 2009, Sichuan hydroelectric plant, late 2009 and mid-2010 Félou hydroelectric plant, mid-2010 were approved respectively by the Netherlands' and Spanish DNAs.

We concluded that no clear evidence was found in the PDD analysed to reinforce the idea that sustainable development is of significant importance in the validation or registration of these CDM projects.

Table 1: Selected CDM projects for sustainable development review

Project	Project Number	Date	Project summary	Environment and development benefits						
				Environ-ment	Econo-mic	Tech Transfer	Health	Employ-ment	Other social	Educa-tion
HKMPL iron manufacturing plant (India)	4196	25/03/2011	Waste heat recovery of the flue gas generated during manufacturing process to preheat the incoming raw material i.e. iron ore and dolomite mixture at the HKMPL iron manufacturing plant	(v)	(v)-			v-		
Semen Gresik cement plant (Indonesia)	3726	25/02/2011	Partial substitution of fossil fuels (coal) with surplus biomass residue in 3 existing cement kilns	(v)	v	V		v-, (v)-		(v)-
Félou hydroelectric plant (Mali, Senegal, Mauritania)	3090	06/05/2011	62.3 MW run-of-river hydroelectricity project that does not include a reservoir. The project incorporates an existing weir of an old 600 kW hydroelectric facility on the Senegal River in Mali.	(v)	(v)			v-	(v)-	
Kaeng Khoi cement plant (Thailand)	2697	12/04/2010	Waste heat recovery from clinkering process and utilisation for power generation at Kaeng Khoi Cement Plant. No electricity is exported to the grid.	(v)	(v)-			v-		
Sichuan hydroelectric plant (China)	2880	14/12/2009	228 MW run-of-river hydroelectricity project that includes a reservoir with a surface area of 2 km^2. It is connected to the Central China Power Grid which is predominantly coal-fired generation.	(v)	(v)			V		
Bayi steel manufacturing plant (China)	2506	30/12/2009	Waste heat recovery from red-hot coke form four coke ovens for on site process heat source and power generation.	(v)	(v)-	v-		V		
Cementos cement plant (Peru)	1902	10/11/2008	Switching the mix of fossil fuels (i.e. coal, fuel oil n.6, petcoke and diesel) to natural gas in two cement kilns	(v)			(v)-		(v)-	
Xiaoxi hydroelectric facility (China)	1749	19/12/2009	135 MW hydroelectricity project that includes a reservoir with a surface area of 10 km^2. It is connected to the Central China Power Grid	(v)-		(v)-		v-		
RSP iron & steel plant (India)	0864	06/07/2007	Waste heat recovery of the LD gas generated to preheat the incoming raw material. It displaces electricity generated from coal and fuel oil.	(v)	(v)-	v-		v-		
			v: direct benefits; v-: little benefits; (v): indirect benefits; (v)-: little indirect benefits							

7 Brief status of the current reforms and proposed reforms to address the concern

7.1 Common interpretation of the definition of "sustainable development" in the context of the CDM

The first issue involves **finding a common and workable interpretation of the concept of sustainable development** in the context of the CDM. This applies both to the supply side and the demand side. In particular, it is important to consider whether sustainable development objectives are to be met at a local, regional or national level. A balance between considerations for sustainable development at a country level as often defined by the DNA and sustainable development at a local project level in the vicinity of the project as often defined by the NGOs needs to be found.

Reform suggestions from our interviews with market participants in March 2011 include requiring projects to prove that they **adhere to a general standard such as the Global Compact Principles** (see text box below). However, some consider that it would be politically impossible to impose a standard on host countries without infringing on their sovereignty. Validation of the projects to such a standard could be carried out through an independent assessment process to make sure that the claims made by project proponents do indeed reflect the actual situation (DOE assessment) or by the DNA.

Ten Universal Principles of the Global Compact:

Principle 1 – Businesses should support and respect the protection of internationally proclaimed human rights.
Principle 2 – Businesses should ensure that they are not complicit in human rights abuses.
Principle 3 – Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
Principle 4 – Businesses should uphold the elimination of all forms of forced and compulsory labour.
Principle 5 – Businesses should uphold the effective abolition of child labour.
Principle 6 – Businesses should uphold the elimination of discrimination in respect of employment and occupation.
Principle 7 – Businesses should support a precautionary approach to environmental challenges.
Principle 8 – Businesses should undertake initiatives to promote greater environmental responsibility.
Principle 9 – Businesses should encourage the development and diffusion of environmentally friendly technologies.
Principle 10 – Businesses should work against all forms of corruption, including extortion and bribery.

7.2 Ensuring enforcement of the sustainable development criteria over time

Ensuring enforcement over time of the sustainable development criteria using the project validation and verification procedures to check the sustainable development aspects is seen by many as a required improvement. The Gold Standard and their passport system or a similar type of procedure could be used as a reference point. Such requirements would, however, mean significant increases in validation and verification costs as well as validation and verification time requirements,

which could result in longer delays (Gillenwater, M. and S. Seres, 2011). Other suggestions involve a **"do no harm" / harm assessment in the validation process**. The merits of a "do no harm" assessment is that it ensures that at the least the projects have no negative impacts. However defining this criteria is also complex and means that the project should simply adhere to international laws. A "do no harm" approach would still require many questions regarding impacts on air and water quality, labour conditions, etc (Wolfgang et al., 2009). A more local approach to judging sustainable development is also suggested whereby the DNA would set the criteria but they would have to ensure it is binding and provide more transparency on how they verify this criteria than is currently the case. If the DNA were to assume the role of enforcing sustainable development more seriously they would require extra funding for training. Other reform proposals include a combination of a top down "do no harm" approach or demand side criteria and a bottom up local approach.

7.3 Implementing discounting or multiplier of CERs depending on the sustainable development impact of the project

A differential discounting or multiplier of CERs, dependent on the projects' impact on the sustainable development of the host country, would give projects with sustainable development benefits a further monetary value. This could be achieved by **supplying a higher number of CERs to projects with more positive impacts** and thus economically favouring the development of projects with co-benefits (Schneider 2007). Implementing this provision, requires an uncontroversial methodology for assessing each impact. A zero sum game whereby the quantities of CER delivered from poor sustainable development projects are discounted and CER from high sustainable development projects are multiplied could be considered. However this would require a **very complex accounting mechanism to balance out multipliers with discounts**. It would also raise the question on what should happen in case of discounts being insufficient to balance out the effects of the multipliers (Wolfgang et al. 2009). Any decision on the values assigned to these multipliers would be highly contested by project developers. Appeals would also be frequent thus making the process very complex. A demand-side assessment would also face similar issues, as the lack of data would create further problems. Moreover, according to a manager in an environmental NGOs interviewed in March 2011, discounting has the perverse effect of accepting the registration of projects with few sustainable benefits. According to Enel S.p.A (2010), EU demand-side multipliers would jeopardise both market dynamics and participants' support to the EU ETS. The introduction of **multipliers would inevitably lead to a fragmentation of the market, adding complexity to transactions**. Fragmentation typically opens doors to fraud and abuse while complexity puts off smaller compliance entities from making use of the flexible mechanisms.

7.4 Tax on large projects and/or premium prices for projects with strong contribution to sustainable development

Rather than using a multiplier some stakeholders proposed a per tonne levy on larger projects to create a cross subsidisation system whereby **larger projects could help support smaller sustainable development projects**. However this concept assumes that all small-scale projects are more costly and have enhanced sustainable development benefits, which is not necessarily the case. Supporting small scale projects may not always be desirable in regards to global or national sustainable development benefits which seek to maximise GHG emission reductions.

Sutter et al (2007) also consider the idea of a premium price for projects with a strong contribution to sustainable development as an interesting alternative to increase the share of such projects. Premium standards, such as the Gold Standard, would be used to define this category. One could also consider fixing a minimum percentage share of credits that would have to come from premium type projects with sustainable development benefits. This could be done through the EU ETS on the demand side, which might be more politically feasible. However the implementation of demand side criteria has

proven complicated and for large hydro projects many considered the WCD's requirements to be more of a guideline than an enforceable standard.

7.5 Implementing positive/negative lists

Producing positive or negative lists of project types, where projects with high sustainable development aspects could automatically claim additionality. The Gold Standard itself is a type of positive list allowing only renewable energy and end-use energy efficiency projects. The Gold Standard considers these projects as most important for climate change mitigation and most likely to contribute to sustainable development. It screens out projects that are seen to have limited potential to contribute to those objectives. However, Wolfgang et al. (2009) considered that this could be an arbitrary definition of sustainable development, as transport and waste management practices are certainly other types of project that could contribute to sustainable development. The Gold Standard also created a negative list by restricting hydro projects which are larger than 20MW. More recently, however, they have removed this decision as it is understood that certain large hydro projects can be more efficient than many small hydro projects as long as they are carefully screened. The UNFCCC also initially restricted nuclear and carbon capture and storage (CCS). More recently at the 16th Conference of the Parties at Cancun in 2010, the UNFCCC have accepted CCS. These are good example of how negative lists can evolve and are subject to interpretation.

7.6 Other proposals for promoting projects with co-benefits

Other proposals for promoting projects with high co-benefits in terms of sustainable development include expedited registration process or **application of simplified modalities and procedures** (Wolfgang et al., 2009). Also note that the development of Programme of Activities (PoA) or other small project facilitating initiatives (e.g. suppressed energy demand[3]) could help see CDM further contribute to projects with strong sustainable development aspects without having to carry out all the above reforms. These programmes allow the development of very small projects, often in rural or isolated areas where carbon finance has rarely been used and where sustainable development elements are far greater (Boyd et al., 2010).

In summary:

- Finding a common and workable interpretation of the concept of sustainable development;
- Adherence to a general standard such as the Global Compact Principle;
- Ensuring enforcement over time;
- "Do no harm" assessments;
- Differential discounting and multipliers to encourage further sustainable development;
- High complexity and risks of using discounting and multipliers;
- Tax mechanisms and cross subsidisation between projects with high and low sustainable development contributions are complex
- Positive/negative lists and complication of such an arbitrary decision;
- Application of simplified validation modalities for projects with high sustainable development benefits.

[3] Note that this is a discussion point of the additionality briefing paper

8 Conclusion

The adherence to sustainable development and social equity criteria of individual projects in the CDM is a sovereign decision taken by the host parties and implemented through the delivery of a LoA to the project. The Sustainable Development criteria is defined and set individually by the DNA's of the non-Annex 1 countries. They often consist of predominantly weak guidelines, and there is little conclusive evidence that these requirements are met prior to the delivery of the LoA. Host countries also fail to monitor sustainable development and social equity commitments over time. The LoA is delivered at the start of the project and no ex post verification is carried out over the life of the project. Beyond the initial LoA, the DOE project validation and the CDM EB project registration play no role in ensuring sustainable development and social equity are enforced by the project developers. Hence, to our knowledge no CDM project has ever failed validation due to sustainable development and social equity requirements. The Marrakech rules and procedures for the CDM foresee the need for projects to carry out stakeholder consultations but these are often applied rudimentarily in the PDD with no real impact on the project implementation in terms of sustainable development or social equity.

Globally research has shown that only a very small percentage of the current CDM projects deliver on sustainable development and social equity benefits. We found, from the energy intensive and large hydro projects examined as well as the sixteen projects analysed, that large projects tend to provide less sustainable development benefits or social benefits than smaller rural energy type projects. However, when considering sustainable development at a national level rather than a regional or local level, this notion does not hold. The complexity of the sustainable development issue is related to agreeing on a clear definition of sustainable development and enforcing it. Different definitions have been made but there is no overall conclusion. Sustainable development and social equity are always subject to interpretation and subject to a trade off between country wide benefits not always being compatible with local benefits in the vicinity of the project but also between the three dimensions of sustainable development (economic, social and environmental). It is proposed that common definitions of sustainable development could be found and applied to the CDM project validation. The example given is the Global Compact Principle but others exist. The criteria selected could either seek to ensure the rigorous application of sustainable development or could apply a less constraining "do no harm" test.

Using demand side restrictions such as those put in place at the UN (e.g. nuclear) and through the EU linking directive to restrict CER from large hydro projects has shown to be effective when the rules are clearly defined. Such restrictions could be particularly useful to ensure projects provide sustainable development benefits or as a minimum cause no harm. However these initiatives will only be effective to the extent that the criteria defining the projects sustainability or social equity are carefully defined, measured and enforced. Some stakeholders question the validity of the current WCD criteria for large Hydro Projects.

Other approaches such as using a validation requirement similar to the Gold Standard Passport at the project validation and verification level or ensuring further sustainable development enforcement by the DNA are examined but are considered difficult to implement due to the extra complexities and costs incurred. It was also observed that DNA provides insufficient guarantees to implement such an initiative. Multiplier mechanisms, whereby higher monetary value is given to projects with superior sustainable development and social equity contributions, are proposed but they create to many complexities in an already complex market. A complicated balance between multiplier and discount would make this option difficult to apply in practice. Other mechanisms on the demand side that enforce a minimum percentage of certain project types or a premium prices for certain projects are also considered complicated. The briefing sheet proposes a tax system or levy system whereby projects that provide less sustainable development benefits support projects with higher sustainable

development criteria. Finally positive and negative lists are proposed as another solution. However defining positive project types and negative project types is difficult due to different interpretations of sustainable development and social equity for establishing such a list and the difficulty in accounting for project-specific factors. Simplified validation modalities and other mechanisms such as PoA that increase the implementation of projects with higher sustainable development impacts are proposed as a solution.

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10 Appendix A

Country	SD requirements for granting a LoA	Categories
China	Qualification of the project owner PDD quality Baseline methodology and emission reduction CER Price Funds and technology transfer Crediting period Monitoring plan Contribution to sustainable development	
India	Sustainable development indexes	Social effect Economic effect Environmental effect Technical effect
	Additionality	Emission additionality Financial additionality
	Baseline	Accurate, transparent, and manoeuvrable Conservative estimation Methodology reliability etc
Brazil	Local environmental sustainability Development of working conditions and the net generation of jobs Income distribution Training and technological development Regional integration and articulation with other sectors	
Philippines	Economic aspect	Promote economic development Set up compensation mechanism Offer new funding sources
	Social aspect	Offer education and training Offer resources and services for disadvantaged group. Promote local participation in project activities
	Environmental aspect	Improve local environment quality Compliance with environment policies and standards Promote the sustainable utilisation of

		natural Resources
Cambodia	Environment protection and improvement	Global climate change mitigation Air pollution alleviation etc.
	Improvement of income and living quality	Poverty relief Infrastructure construction in communities etc
	Technology transfer	Appropriate technology transfer Capacity building
	Economic effect	Involving local industries and businesses Reduce the dependence on fossil energy
Thailand	Natural resources and Environment	Air pollution Other pollutions Natural resource
	Economy	Income of interesting parties Energy Local participation
	Society	Public participation Public healthcare
	Technology	Technical development Technical training of manpower etc
Indonesia	Environment	Sustainable Local healthcare and safety
	Economy	Local welfare
	Society	Local government's participation Social harmony
	Technology	Technology transfer

Source: CDM Project Management Centre Energy Research Institute of NDRC, China (2009)

11 Appendix B

Table: List of the selected large-scale registered CDM projects for sustainable development review.

#	*Title*	*Date of registration*	*Host country*	*Other parties*	*Industry*	*Technology*	*Methodology*	*Amount of reduction (tCO_2e/annum)*
1	Waste heat utilization for charge pre-heating in a sponge iron manufacturing process of HKMPL,India	25/03/2011	India	NA	Iron manufacturing	Waste heat utilisation for pre-heating of raw materials in sponge iron manufacturing process	AM0066 ver. 2	18,130
2	Partial substitution of fossil fuels with biomass at Semen Gresik cement plant in Tuban	25/02/2011	Indonesia	United Kingdom of Great Britain and Northern Ireland	Cement	Partial substitution of fossil fuels with alternative fuels or less carbon intensive fuels in cement manufact	ACM0003 ver. 7	222,977
3	Félou Regional Hydropower Project	6/05/2010	Mali, Senegal, Mauritania	Spain	Hydropower	Grid-connected electricity generation from renewable sources	ACM0002 ver. 8	188,282
4	Siam Cement (Kaeng Khoi) Waste Heat Power Generation Project, Thailand (KK6 Project)	12/04/2010	Thailand	NA	Cement	Waste heat recovery and utilization for power generation at cement plants	AM0024 ver. 2	29,354
5	Sichuan Jiulong Pianqiao Hydropower Project	12/12/2009	China	Netherlands	Hydropower	Grid-connected electricity generation from renewable sources	ACM0002 ver. 7	903,914
6	Bayi Steel CDQ (1#, 2#) and Waste Heat Utilization Project	30/11/2009	China	Spain, United Kingdom of Great Britain and Northern Ireland	Steel manufacturing	Waste energy recovery process	ACM0012 ver. 3	271,355
7	Fuel Switching at Atocongo Cement Plant and Natural Gas Pipeline Extension, Cementos Lima, Peru.	10/11/2008	Peru	United Kingdom of Great Britain and Northern Ireland	Cement	Partial substitution of fossil fuels with alternative fuels or less carbon intensive fuels in cement manufacture	ACM0003 ver. 5	269,851

8	Xiaoxi Hydropower Project	19/12/2008	China	Germany	Hydropower	Grid-connected electricity generation from renewable sources	ACM0002 ver. 6	437,113
9	Waste heat recovery based captive power project in RSP's integrated Iron & Steel plant	6/07/2007	India	NA	Iron and steel manufacturing	Waste heat for power generation	ACM0004 ver.2	8,536

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