

THE BALI GUIDE ON CDM

Towards a sustainable CDM

Clean Development Mechanism

- Facts and figures
- The good, the bad and the ugly
- Developing Countries perspective
- Proposals for scaling-up and broadening
- Recommendations for a better CDM



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Six recommendations for a better CDM

1. Maintain additionality

Additionality of CDM projects should be kept as the central criterion for climate negotiators and NGOs. The goal of the CDM is to ensure that emission reduction targets are realised in the most cost-effective manner. Only the funding of projects that would not have been realised without the CDM can bring this about. Therefore, HFC and PFC projects should be ruled out.

2. Improve sustainability

- Kick out the quick and easy wins. Projects that combine climate objectives and sustainable development, such as renewable energy projects, should be made more attractive. Also gas-flaring should be banned from the CDM portfolio.
- Promote the Gold Standard or similar standards and criteria. Give extra credits or additional incentives to projects that live up to these standards and punish the projects that score low on the sustainable development scale, e.g. through discounting credits.
- Support DNAs and countries in defining national sustainability criteria and include sustainable development checks in the project design document (PDD). Increase local stakeholder participation and civil society participation in project design and approval.

3. Improve access for LDCs, particularly in Africa

- Create a seed capital fund to promote the development of projects in either LDCs, underused sectors or renewable energy. Combine with ODA.
- Push for a pro-active role of the DNA. Provide training, build capacity and actively distribute know-how amongst DNAs, NGOs, CBOs and the business sector.
- Create a LDC-CDM investment bank or fund to provide discount funds, credits or guarantees for the up-front investment in CDM projects.

4. Expand the scope of the CDM

- Standardise methodologies as much as possible. Automatic approval for below baseline projects. Develop “baskets” of projects that can easily be replicated.
- Give clear guidance for small-scale projects. Make bundling of small-scale projects easier and remove the cap.
- Support DNAs and other parties in actively promoting programmatic CDM in the transport and renewable energy sector.

5. Experiment with promising mechanisms and approaches

- E.g. sectoral CDM in specific sectors such as iron and steel, cement and chemicals and possibly in other energy intensive sectors as well.
- A switch from conventional to **organic agriculture** directly and indirectly reduces the GHG emissions produced by agricultural activities and it will raise the carbon content of the soil. It also has numerous other environmental and social benefits.
- Avoiding deforestation is a plausible option: the many issues that still surround this theme could be resolved.

6. Professionalise and streamline the CDM

- If the mechanism is to grow substantially, it is important that the administrative structure is able to respond professionally. It should therefore have a full-time staff.
- The EB should detail procedures for DOEs and control their performance. A sanction regime should be developed.
- Currently, the project throughput time is often extreme long and the whole process from application to registration and approval is very expensive. It is clear that bureaucracy should be curbed.

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Introduction

At the rate the phenomenon of global warming is developing, it is set to cause immeasurable environmental, social and economic damage. To avoid this scenario, it is essential that the world continues down the road of internationally coordinated climate policy and designs a follow-up to the Kyoto Protocol along similar lines. The issue dominating international climate policy at the moment is an agreement about the climate regime after 2012. The present commitment period of the Kyoto Protocol runs until 2012. Negotiations will have to produce results far earlier, to prevent investors from losing confidence in the carbon market.

Where the funding of climate measures for developing countries will come from is a key issue to address. In the present Kyoto Protocol, the Clean Development Mechanism (CDM) tackles this issue. With the CDM, developed countries can buy emission reductions from developing countries. In this way, developing countries (non-Annex 1 countries) receive payments for emission reductions, and developed countries (Annex 1 countries) can find the cheapest way of realising the emission reductions that they have committed to. After a slow start, the CDM is beginning to gain momentum, but it has some serious drawbacks. Much is open to considerable improvement. **This publication seeks to investigate the pros and cons of the CDM and present recommendations for making it more efficient.**

Industrialised countries have made it clear they want a more binding commitment from developing countries in the second commitment period and beyond (post-2012). Developing countries are reluctant to take on binding commitments, for fear of slowing down their economic development. They tend to give priority to their development needs, with climate policies coming second. They also rightly point out that for hundreds of years, developed countries have been responsible for the bulk of greenhouse gas emissions (GHG emissions, see annex 3)¹. To overcome this deadlock in the negotiations, a clear concept of a robust and fair financing mechanism for climate investment in developing countries would be an asset. This concept should be based on the principle that countries will have to contribute according to their past and present pollution. Developing countries and industrialised countries must both have an interest in the financing mechanism and there has to be a fair and balanced decision-making structure about investment decisions and governance. A good financing mechanism for climate measures in developing countries will be an important step forwards towards a new commitment period.

Developed countries have stated their views on carbon finance for developing countries, and their position on the way forward with the international climate negotiations have been published widely. Developing countries' views and positions on the issue of carbon finance are less well-known. **In this publication particular attention will be paid to the views of developing countries.**

¹ There are different greenhouse gases and each has a different global warming potential. To make things easier, they are all expressed in the unit tons of CO₂ equivalence. In this text we use also tons of CO₂ to denote CO₂ equivalent.



Facts and Figures about the CDM

What is the CDM?

One of the critical elements entailed in the agreements that helped to get the Kyoto Protocol ratified was the option of realising emission reductions there where they are cheapest. For foreign emission reduction projects of developed countries (the so-called Annex 1 countries), there are two flexible mechanisms in the Kyoto Protocol: Joint Implementation and the Clean Development Mechanism. The CDM is intended for investments in **developing countries**. Industrialised countries are allowed to realise part of their mandatory emission reductions in developing countries, provided that these projects reduce or avoid greenhouse gas emissions **and** contribute to sustainable development in the host countries.

The CDM is designed to finance projects of private parties, which have to be formally approved by the UN body supervising the CDM, the Executive Board (EB). Based on an elaborate project description, the emission reductions to be generated by a project are established. The proposed technology is compared with existing technology, which constitutes a baseline. The difference in emissions between the two technologies can then be sold. Projects are only registered and approved if the methodology used to calculate the future emission reductions is recognised by the Executive Board. For every project, a new methodology and baseline has to be developed, which makes validation, registration and eventual approval of the proposal an expensive and time consuming procedure.

To avoid giving climate funding to projects that would have been developed anyway, rules have been laid down to ensure so-called project additionality. Additionality ensures that a project achieves emissions reductions that would not otherwise have occurred. It is a requirement for every project. This means that a highly profitable project is not considered additional. After all, if there is so much profit to be made, some private investor could easily be found. If a project is already included in government plans and budgets it is not considered additional either, because the government would have funded and implemented it anyway.

There are two project categories defined in the CDM: normal projects and small-scale projects. For small-scale projects a simplified procedure exists. It is also possible to bundle several small-scale projects, just as long as they don't exceed the limit for small-scale projects (15 megawatt or 15.000 t CO₂ per year). The projected emission reductions are verified once the project has been implemented, after which the UN awards Certified Emission Rights (CERs)² to the financing party (be it an Annex 1 country or an industrial company with an emission ceiling and an emission reduction target).

² Emission reductions granted by the CDM are Certified Emission Reductions (CERs). 1 CER is equivalent to 1 ton of CO₂ and has a certain price which is agreed upon by selling and buying parties.

Apart from the emission reduction goal, the CDM has a sustainable development goal. The realisation of the sustainability goals is monitored by the designated national authority (DNA) of the host country, not by the Executive Board.

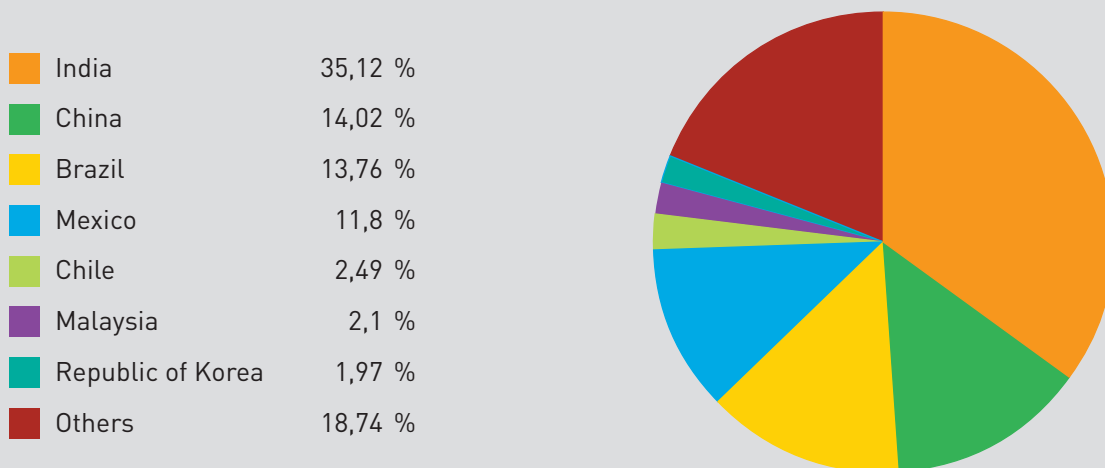
Some figures

Since the ratification of the Kyoto Protocol in 2005, 763 Clean Development Mechanism projects have been approved³ with an annual Average of 162,227,461 Certified Emission Reductions (CERs). More than 1400 additional projects are in the pipeline. Together, these 2100 projects would reduce over 2,200 Mtons of CO₂ between now and the end of 2012. For comparison: in 2004 the EU emitted 3,506 Mton of CO₂ and around 725 Mtons of other green house gases.

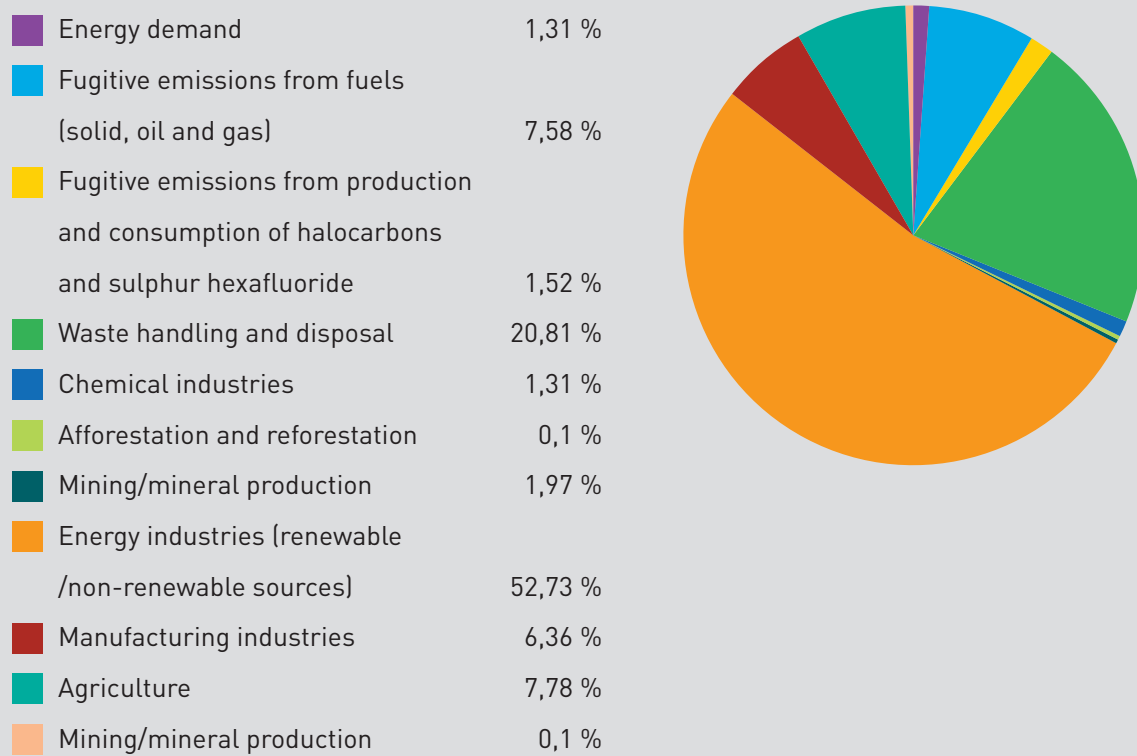
In absolute numbers, India is the big winner with 268 CDM projects. With 107 projects, China takes second place, narrowly beating Brazil who has 105. With 90 projects, Mexico takes fourth place and has a giant head start on the rest of the platoon.

From the 763 CDM projects, only 21 were implemented in Africa. From those 21, only 13 are located in sub-Saharan Africa. 10 out of these 13 are in the Republic of South Africa. The poorer African countries and the Least Developed Countries (LDCs) in general have hardly benefited from the CDM at all.

Registered project activities by host party. Total: 763



Distribution of registered project activities by scope



When we analyse the registered projects by scope, it can be noted that only a limited number of projects (1.31%) are in the area of energy efficiency. Renewable energy does not score particularly high either with some 25%. The remainder of energy industries are projects for more efficient coal technologies and other efficiency measures within fossil fuel energy generation. Manufacturing industries and chemical industries include the reduction of HFC23 emissions. These are things that could be realised easily **and cost-effectively** without CDM funding, which calls the additionality of these projects into question. See Chapter 2.2 and 2.3.



The Good, the Bad and the Ugly

The original goals of the CDM have been twofold from the beginning:

1. to reduce emissions and
2. to promote sustainable development in developing countries.

As mentioned before, the CDM was off to a slow start and is now gaining momentum. It helped realise a considerable amount of emission reductions and double that amount is still in the pipeline. Present and expected future reductions combined will amount to a substantial cut in GHG emissions. Yet it is a relatively small contribution when compared to what is necessary to prevent a more than 2 °C rise in temperature. The CDM will never be able to produce more than a small part of the reductions that are actually needed.

Still the CDM is an important mechanism. It theoretically provides developing countries with the possibility to finance renewable energy generation and several other development related activities. There have been discussions about additionality when it comes to the first goal. To avoid giving credits to projects that would have been developed without CDM funding, rules have been specified to ensure additionality. In other words, to ensure that the project will reduce emissions that would not otherwise have occurred.

Official guidelines have been designed by the CDM Executive Board to facilitate uniform assessment of additionality. Nevertheless, some experts hold the view that some 50% of CDM projects should actually not have passed the additionality check. This means there is definitely room for improvement in this area.

Sustainable development, the second goal, has in our opinion been the less successful component of the system. Although many projects definitely have had a positive effect on sustainable development, a great number of them have had no or even a negative effect.

If existing CDM projects are judged along the lines of additionality, contributions to sustainable (local) development and stakeholder consultation, a very diverse picture appears: there are good projects, there are bad projects and then there are the really ugly projects. Below you will find some examples of all three categories.

Usually, the bad and the ugly carbon credits are cheaper than the credits gained from good projects. This means there is no financial incentive to favour good projects over bad ones. In fact, quite the opposite is true. The opposition against cheap credits with no sustainability centres around the topics of gas flaring, HFC23 and N₂O projects. Large hydropower projects have been criticized because of disputable carbon reductions and because of absence of social and environmental sustainability.

Also, the CDM does not contribute enough to facilitate the developing countries' transition towards renewable energy. Renewable energy CDM projects make up some 25% of the CDM portfolio. The expectation is that this will not change as long as quick wins are eligible for CDM funding.

2.1 CDM: The Good Examples

The CDM can play a substantial role in greenhouse gas emission reduction. Many projects involving energy production, housing, waste treatment and other technologies illustrate this. These clean and sustainable projects contribute to global GHG emission reductions and support local sustainable development. Besides solar power, wind power and hydroelectric power initiatives, there are projects for domestic biogas installations, clean biomass initiatives, energy crops, as well as projects in housing renovation, waste treatment, and agriculture. A good CDM project is truly additional, contributes to sustainable development and is executed in a participatory manner.

Below we present two of the many good CDM projects in existence.

Windmills in Mongolia

In Huitenqxile in Mongolia (China) a windmill park reduces the emissions of CO₂ with 50.000 tons annually.

The Huitenqxile Windmill Park consists of 22 windmills, 12 of which have a 900kW capacity and 10 a 1500 kW capacity.

Combined they produce 25.8 MW. The project supports the Chinese government's intentions of engaging in commercial renewable energy production and speeding up wind energy production, while at the same time contributing to the reduction of coal based electricity production. Furthermore, it creates employment. The project is funded by the Netherlands, who will eventually be the recipient of the annual emission reductions of 50.000 tons of CO₂.

Hydropower in Guatemala

In a valley near the lake of Atitlán in Guatemala, a small hydropower plant was constructed. This clean and small-scale energy source provides the electricity for two small villages, and is mainly used for lighting. Also, a few electrical engines owned by small workshops and a grain mill are powered by the plant. The reforestation of a mountain slope guarantees a steady flow of water and prevents drought, erosion and inundations.

A local organisation, Fundación Solar, supported by Hivos, implements the project. The income garnered from the CDM certified emission reductions contributes to the financial feasibility of the project.

There are many examples of other acceptable projects, such as the Gold Standard projects.

The Gold standard

» See <http://www.cdmgoldstandard.org/index.php>

The Gold Standard is a quality standard for CDM, JI and voluntary offset projects, which ensures that a project is truly additional, sustainable and executed in a participatory way. With the extra quality check, it is hoped that Gold Standard projects will fetch premium prices and thus promote high quality projects. The Gold Standard was created to ensure that carbon markets work towards a long-term climate solution and stimulate local sustainable development. Gold Standard projects focus exclusively on renewable energy and energy efficiency projects in order to reduce emissions at the source. Renewable energy and energy efficiency projects with sustainable development benefits are eligible. Unfortunately, no more than a handful of CDM projects live up to the Gold Standard.

The Gold Standard is now endorsed by over 44 non-governmental organisations worldwide. The Gold Standard is built into the regular CDM and JI project cycle, and adds three special screens for quality control:

1. Does the project use renewable energy or energy efficiency technologies?
2. Does the project go above and beyond a “business as usual” scenario?
3. Does the project promote sustainable development?

The main difference between Gold Standard projects and ordinary CDM projects is the implementation of two obligatory consultations to ensure the participation of the local stakeholders: the “Initial Stakeholder consultation” and the “Main consultation”.

The Gold Standard is a great initiative which sets a good example for future CDM projects. At the same time, not all CDM projects can be expected to live up to the Gold Standard. If only Gold Standard projects were approved, many valuable current CDM projects would not have made the grade. Most likely, the CDM would have failed to generate a significant reduction in greenhouse gases and the target of maximum 2° C temperature rise in 2050 would be impossible to meet.

2.2 CDM: The Bad Examples

Bad CDM projects do not contribute to sustainable development and are top-down projects without stakeholder consultations. Examples of these are:

- projects where the local population is not consulted and/or displaced without compensation;
- projects that are not additional, that would have been realised without CDM funding;
- projects that do not internalise the indirect effects;
- projects with a questionable contribution to sustainable development.

Chile Methane Recovery Project (Agrosuper – TEPCO)

In Chile several pig farms on a bio-industrial scale are receiving emission reduction credits for transforming the methane emissions from manure into biogas or electricity, or simply flaring it off. The pork industry is an economically feasible activity as it is and this additional device makes it even more profitable. At the same time, investments in the production of biogas and electricity would not have been feasible. With the additional CER income it is. Still additionality is questionable. It does reduce emissions, for methane is a more powerful greenhouse gas than the CO₂ it is transformed into, but it is hard to argue that the pork bio-industry as such is a sustainable operation.

Carbon Capture and Storage

While carbon capture and storage is not yet a reality, this could in the future become a really bad example.

Empty natural gas fields could theoretically be used as storage areas for CO₂, which would lower the CO₂ levels in the atmosphere. The technology is as yet unproven, however, and it is unclear whether CO₂ might somehow leak out. Also, it takes quite a lot of energy to pump the gas into the substrate in the first place. If implemented on a large scale, storage could buy us time, but it is hard to see what contribution this would make to sustainable development. There is no incentive to conserve energy.

2.3 CDM The ugly examples

Ugly CDM projects have no or even a negative effect on sustainable development, are questionable when it comes to additionality and are, most of all, a perverse incentive to actually produce more green house gases. Gas flaring is a good example and we should fight for national and worldwide bans. Reducing emissions by gas flaring does not contribute to sustainable development in any way.

Gas flaring

It is unfortunate that this example is one of the very few projects in Sub-Saharan Africa: 'Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant, Nigeria'. However, in our opinion there is no excuse for gas flaring projects to be eligible for CDM approval.

What is gas flaring? When crude oil is brought to the surface, gas associated with the oil comes to the surface as well. The gas may be used at the installation as fuel for generators, or it may be transported via pipelines and sold elsewhere, or it may be injected into the ground. In many areas of the world this gas is simply ignited and released into the atmosphere, because this is easier or cheaper. Avoided gas flaring cannot be seen as contribution to sustainable development in Nigeria. There has been no stakeholder consultation on this project and even its additionality is doubtful. Furthermore, gas flaring is already illegal in Nigeria. More gas is flared in Nigeria than anywhere else in the world. Roughly 2.5 billion cubic feet of gas associated with crude oil production are wasted in this way every single day. This is equal to 40% of all of Africa's natural gas consumption in 2001, while the annual financial loss to Nigeria is about US \$2.5 billion. The flares have contributed more greenhouse gases to the atmosphere than all of sub-Saharan Africa combined. Furthermore, the flares contain a cocktail of toxins that affect the health and livelihoods of local communities, exposing Niger Delta residents to an increased risk of premature death, child respiratory illness, asthma and cancer.

In many countries, including Nigeria, gas flaring already is illegal. Therefore, it cannot be too difficult to ban it altogether on a world-wide scale.

HFC22 and HFC23

Some greenhouse gas emissions can be reduced so cheaply and produce so many CERs that they threaten both the emission trading system and the CDM itself. These gases with a high global warming potential⁴ (HFC23 and N₂O) can relatively easily and cheaply be avoided or eliminated and as such have become booming business. During the production of HFC22 (a gas frequently used in refrigerators and many industrial applications), HFC23 is produced and released. HFC23 is a powerful green house gas which is 12,000 times as potent as CO₂. It is relatively cheap to filter HFC23 out of exhaust gases, which means non-profitable plants are now kept in use by the CDM credits this procedure brings them. Because of the money to be made from filtering out HFC23, a rather paradoxical and perverse economic incentive is created to produce even more HFC22. In China these enterprises are now heavily taxed, but in Korea and India it is still big business. Most developing countries want to phase out HFC22 production, but in China it is still on the increase. China therefore wants to maintain its eligibility in a post 2012 regime. A recent article by M. Wara in Nature shows that abatement of these industrial gas emissions can be achieved at a much lower cost than can be realised by using the CDM. HFC23 can be destroyed at 6% of the money currently paid for the emission reductions.

Hopefully, these gasses will no longer be considered eligible for a CDM-like mechanism in the negotiations about a post-2012 climate regime. A world-wide ban on HFC23 emissions is within reach. In the case of HFC22 and HFC23, using an approach similar to the Montreal Convention (which regulates the emissions of gases affecting the ozone layer) could ensure an early phasing-out of these gases in developing countries.

⁴ High global warming potential means that each molecule traps a lot of warmth. Some gases trap thousands of times more warmth than CO₂. See annex 3.



Developing Countries' Perspectives on the CDM

3.1 Introduction

There are huge differences within the non-Annex 1 countries (all countries without CO₂ reduction obligations). A non-Annex 1 country like Korea is in many aspects a developed country and a modern economy.

Non-Annex 1 country India has a fast-growing economy and will quickly become one of the world's leading economies. India also has a vast number of poor people: as much as 27.5% of the population was living below the poverty line in 2004–2005.

China's economy is developing so fast that the rest of the world can hardly grasp it. Although the memory of it being a poor country is still vivid, and many of its millions of citizens are by no means out of poverty yet, China is already a leading economy.

A country like Niger has a GNP per capita of \$872 per year and some 60% of its population lives below the poverty line. With an average life expectancy of just 43.5 years and an illiteracy rate of 81,3%, the country has bigger and more immediate problems than climate change and a lack of CDM projects.

Although a regional leader, a country like Kenya also sees development as a bigger challenge than climate change issues. Nevertheless, Kenya has been fairly busy developing CDM projects. So far, this has unfortunately been without success, as none of them have been registered officially.

Brazil is a huge country with an elaborate economy, which is home to some very poor and some very rich people. The country has vast areas of primary forest and a big economic sector which thrives on deforestation. Brazil is also a major producer of (often genetically modified) soy, which is used as cattle feed in Europe or turned into biofuel.

The huge differences amongst non-Annex 1 countries lead to different interests and positions at the negotiating table and it affects the negotiations about the future of the CDM in particular.

During the course of the project that has led to the publication of this brochure, collaborating parties have had interviews with some interesting participants in CDM projects and in the development of proposals for "CDM: The Next Generation". These interviews were conducted at COP12 in Nairobi.



Domestic biogas digester under construction. SNV Cambodia.

3.2 Fast growing developing countries

Because of the huge amounts of emissions they generate, developed countries are trying to pressure fast growing developing countries like China and India into taking on their share of CO₂ reduction commitments. Various predictions see China overtaking the US in total greenhouse gas emissions in the last semester of 2007. The priorities of the developing countries themselves lie with developing their economies and getting their populations out of poverty. They also quite rightly point out that it is the old economies that have been polluting for decades that created the problem in the first place. Several scenarios have been developed to deal with this dilemma. One such scenario allows for growing emissions over the next few years with a peak in 2020, after which time they will decrease rapidly. This might be an acceptable solution for fast growing developing countries.

So far, the fast growing developing countries have benefited the most from the CDM. This is in a way logical, because they have more established industries and are rapidly developing new industries. Therefore, reductions are easier to realise than in countries without much industry. In the case of South Korea, it is interesting to note that the CDM did not only realise CO₂ reductions, it was also a catalyst for policy change and awareness. When it comes to development goals, however, the CDM has only played a marginal role in Korea.

South Korea: Unilateral CDM

Based on an interview with Dae Gijun Oh from KEMCO and on desk research.

South Korea is a non-Annex 1 country, but is more similar to a developed country in many ways. South Korea is an OECD country and it is the fourth largest steel producer in the world. The country has technology and money. Dae Gijun Oh from KEMCO says the Korean people want to develop a kind of unilateral CDM. "We create quite a lot of green house gases. We have a big industry: petrochemical, steel, and there is a large energy demand. South Korea wants to reduce green house gases, but it is reluctant to take on national commitments. The CDM is a very good mechanism to get support for GHG emission reduction policy. It has been a factor for policy change."



Charcoal efficient stove.
TATEDO Tanzania.

The first South Korean CDM project was a company producing HFC22 with a by-product of HFC23. "It was a big success, they made a huge benefit. This created a buzz and made people really enthusiastic. After that everybody wanted to start a CDM project". "Nowadays people changed their mind and they are beginning to see actual environmental aspects and benefits of the CDM. There has also been a switch to more renewable energy projects." At the moment there are some 5 renewable energy projects which have been approved. These include small hydro and wind power projects. The total number of projects was 15 in 2007. "In South Korea today the DNA, CDM project developers, validators and verifiers mainly focus on the environmental aspects because South Korea is in many ways already developed."

"There are many possibilities to extend the CDM to other sectors in South Korea, especially the transport sector, but also others".

India and the Clean Development Mechanism

Report of a Nairobi side event (16 November 2006) and an e-mail interview with Mr R.K. Sethi, director of the Ministry of Environment and Forests, India and member of the CDM Executive board of the UNFCCC Secretariat.

India's development used to be compared to an elephant: large but slow. The last couple of years India has grown into a tiger: it went to an economic growth of 8% per year over the last three years, and could well increase to over 10% soon. The question for India is how to mainstream Climate Change Policy and adaptation into the sustainable development strategy. India has a National CDM Commission, which unites all institutions involved in CDM implementation. The Commission is very proactive in promoting CDM implementation. It is a single window for clearance. In the portfolio 33 million tons of CERs are generated with renewable energy projects and 99 million tons of CERs through efficiency and fuel switch projects. India has an investment program for low carbon technology development and retrofits. CDM funding could be used to speed this process up.

India needs more energy for its development. The fast growing economy requires energy and transport increase and improvement. Governmental development efforts further enhance energy demand. All this

implies a growth of iron, steel, aluminium and cement production. These production facilities in India are not state of the art. Using retrofits and “best available technology” (BAT) in new builds would improve the efficiency and carbon intensity of India’s economic growth. The investments above business as usual could be covered by the CDM. The bottom line is that the capital investments needed for technological upgrades in cement, steel and power - between 2012 and 2017 – amounts to 25 billion US\$. This would result in 550 million tons of avoided CO₂ emissions.

Mr Sethi also thinks CDM can be improved: “With guidance from the Executive board the programmatic CDM could be implemented easily in various sectors. A great improvement would be some form of automatic approval for below sector baseline projects. Approval now takes 8 months minimum. Small-scale solar, wind and hydro projects could be awarded simpler procedures for determining additionality. Small wind projects, the cheapest of these renewable options, are 3 times as expensive as coal based power. So the additionality of these projects is immediately clear, because they cannot compete in the market. CDM revenues could make small-scale renewable projects competitive.”

China

China is almost the world’s largest emitter of greenhouse gases. This of course is only true when counted in absolute numbers. Per capita the emission in China is only 1/6 of the USA. Nevertheless, China by itself can cause the climate to change. The Chinese economy is growing fast, its energy consumption is predominantly coal based and the technology is often outdated, inefficient and dirty.

In 2006, China’s total electricity output was 2.83 trillion kWh. China currently generates around two thirds of its electricity from **coal-fired power stations**. China is the world top coal producer and the third in coal reserve. It is progressing with the construction of 562 new coal-fired plants over the next few years. In June 2007 it was reported that an average of two new plants were being opened every week. Much of this growth is driven by consumers in the **western world** buying Chinese goods.

In June 2007 China published its first National Action Plan on Climate Change. Premier Wen Jiabao’s in a Press Conference: “We support the Kyoto Protocol. Although China is still a developing country, we have formulated a national program in response to climate change. We have set a target for cutting energy consumption per unit of GDP by 20% in the period of 2006 to 2010.” If fully implemented, China’s annual emissions of greenhouse gases would be reduced by approximately 1 billion tons of CO₂ by 2010.

The National Action Plan includes:

1. Increasing the proportion of electricity generated from renewable energy sources and from nuclear power;
2. Increasing the efficiency of coal-fired power stations;
3. The use of cogeneration;
4. The development of coal-bed and coal-mine methane.

Approximately 7% of China’s electricity was generated from renewable sources, a figure targeted to rise to 10% by 2010 and to 16% by 2020. The major renewable energy source in China is **hydropower**. Total hydroelectric output in China in 2006 was 416 billion kWh. China is already the country with the most hydroelectric capacity in the world. China plans to increase its nuclear power capacity and nuclear power percentage in the total electricity output to 40 GW and 4% respectively by 2020. In 2006, 16 million tons of corn have been used to produce ethanol, however, because food prices rose sharply during 2007, China decided to ban further expansion of the corn ethanol industry. On the other hand, under an agreement reached with **PetroChina** in January 2007, 400 square kilometers of **Jatropha curcas** is to be grown for **biodiesel** production. Local governments are also developing oilseed projects.

China restricted the temperature of **air conditioning** and heating in public buildings to no lower than 26°C in summer, and no higher than 20°C in winter. The sale of inefficient air conditioning units has also been outlawed.

China initially was sceptical of the carbon trading market, worrying that it will allow richer nations to pay their way out of obligations to reduce emissions under the Kyoto Protocol. China however has now come to embrace the system as an opportunity to attract foreign investment in promoting energy efficiency and renewable energy projects.

The priority areas for CDM projects in China are:

1. Energy efficiency improvement, development;
2. Utilization of new and renewable energy;
3. Methane recovery and utilization, particularly from coal-bed methane projects.

It has been estimated that more than 10 billion m³ methane has been released per year from China's coal mines.

Revenue from the transfer of CERs is jointly owned by the Chinese government and the project owner. Only Chinese funded or Chinese-holding enterprises (51%) are eligible to conduct CDM projects, a foreign partner is allowed for max 49%. The royalties collected by the Chinese government are intended to be used to support climate related activities. The share of royalties to be paid to the government is:

- for projects within the priority areas and forestation the government gets 2% of the CERs;
- for HFC and PFC projects, the government gets 65% of the CER sales revenue;
- for N₂O projects 30%.

In its SBSTA submission, China said that also other non-Annex 1 governments should take such tax measures for new production from HFC23 projects "to avoid possible high economic benefits". Today (fall 2007), out of the 114 projects, 85 are renewable energy projects and only 9 are related to chemical pollutants reduction. So there is a shift away from HFC and PFC projects, but still over the next 10 years credits will be given to these projects.

South Africa's perspective on the CDM

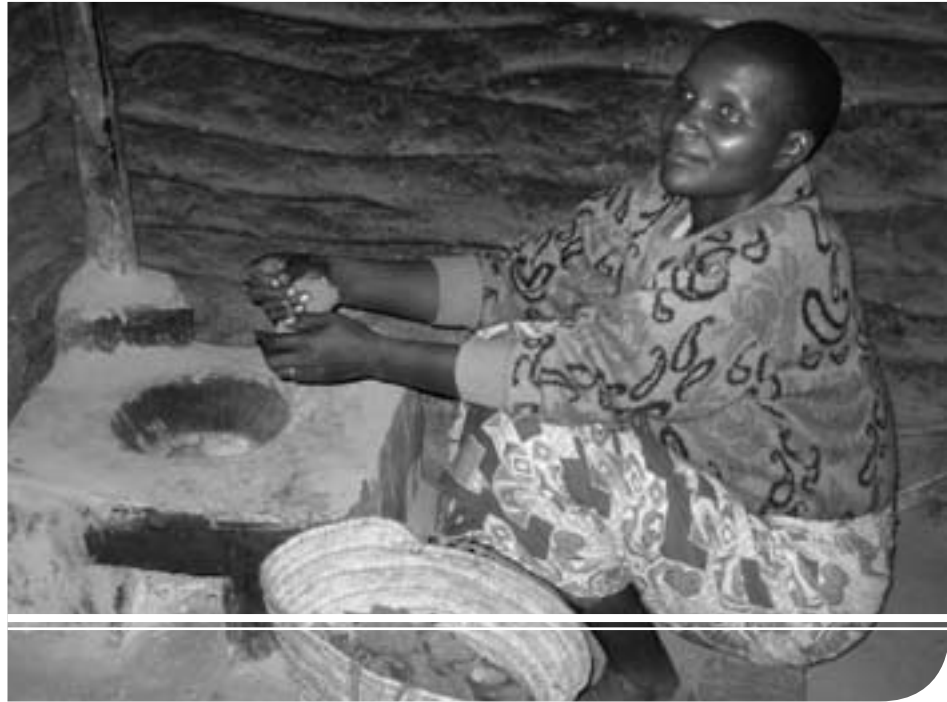
Based on an interview with Mrs. Tyani of the Designated National Authority of South Africa, 14 November 2006, during CoP12 in Nairobi and desk research.

South Africa is a dualistic country: in some aspects it is a developed country, in other aspects a developing country. South Africa has about 40 projects in the CDM pipeline. 10 projects were registered in 2007. The first CDM project to be registered was a renovation project of low income houses. This project is being redesigned to become more easily replicable. The South African DNA does not only implement CDM regulations, but also plays a role in capacity building and awareness raising. The DNA targets sectors to promote the development of CDM projects, e.g. the power sector, but also small-scale community based projects.

South Africa has a CDM policy. It is part of the Climate Change Strategy of South Africa. Sustainable Development is the core of this strategy. Aspects of Sustainable Development (SD) in South Africa are the creation of jobs, clean environment, equality, rural development. The CDM has to contribute to these central government goals and strategies.

To make the CDM suitable for the post 2012 climate regime, the sustainable development criteria have to be strengthened. South Africa feels the CDM is a good instrument and it should be continued in new climate policies. The problem with the sustainability goal is, however, that there is no compliance instrument. If the sustainability outcomes outlined in the documents do not turn out as promised, the host country does not have instruments to stop CERs being awarded. South Africa did develop a national monitoring instrument for sustainability outcomes of CDM projects.

South Africa prefers community based projects to industrial projects because of the community benefits. Community based project are more difficult to develop and implement. There are problems with bundling small-scale projects in larger units, which could be solved with more flexibility in bundling rules.



Domestic wood efficient stove.
TATEDO Tanzania.

There are two levels in the problems for small-scale projects:

1. the international rules and procedures are disadvantageous for small projects;
2. internal rules in host countries, for instance tax laws. Countries have to solve these internal barriers for themselves.

There is international guidance on the taxation of CERs. But changing tax rules takes time.

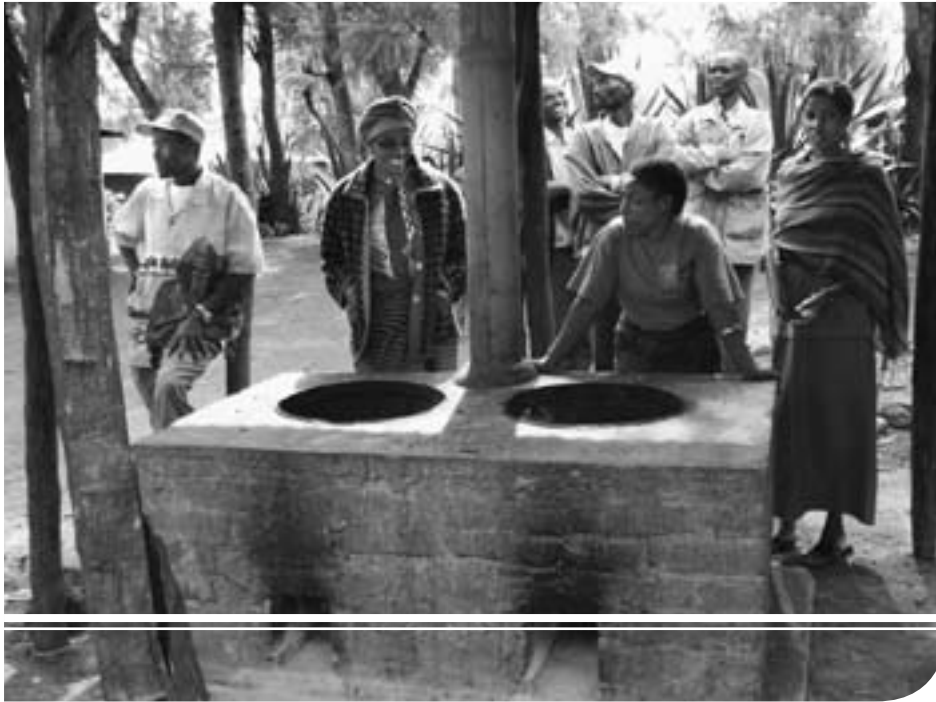
3.3 Least Developed Countries' disappointment

African opinions on the CDM

Up till now, the Least Developed Countries (LDCs) have hardly benefited from the CDM. From the 763 CDM projects, only 3 have been in sub-Saharan Africa, not counting South Africa. This left many LDCs and other developing countries with a strong sense of disappointment. In a Climate Network Africa meeting in Nairobi in November 2006, this atmosphere of disappointment was generally felt.

"We thought CDM was going to be the dream of the 21st Century, that it was going to promote equity as per the Convention on Climate Change, but alas, this was not to be. We have been deeply disillusioned because the CDM is not working for Africa", the Chairman of the African Group to the UNFCCC COP12, Dr. Samuel Adejuwon, Federal Ministry of Environment, Nigeria, observed. "If we knew then what we know now, we would not have agreed to the CDM." He added that urgent action is needed now to make the CDM work for Africa and for sustainable development.

The Executive Director of Climate Network Africa, Ms. Grace Akumu, noted that the issue at hand is how to make the current and the future regime work for Africa. She underscored the urgent need for a review of the CDM rules and modalities of engagement, stressing that the general feeling of disappointment and disillusionment which is being expressed by different African delegates and NGOs should be taken seriously. "The already tumbling African expectations have been further eroded at COP12", she noted.



Wood efficient stoves for schools. TATEDO Tanzania.

Dr. Sumaiya Ahmed Zakieldeen from Khartoum University, Sudan, regretted that many African countries are far away from basic understanding of the CDM. A way to address such outright lack of awareness should be sought urgently. She stressed the need for more civil society involvement in climate change issues, noting that they are more in touch with the people, as well as being experienced and committed.

Dr. Timothy M'mela, Ministry of Environment and Natural Resources, Kenya, regretted the endless shifting of goalposts by industrialised countries. He noted that it is shameful to realise that sub-Saharan Africa has only 3 CDM projects, while the continent is the reservoir of 'carbon sinks' and biodiversity. He stressed the need for an equitable CDM. "CDM has become a cash cow for industrialised countries' investors and despite Africa's willingness to collaborate, it is not getting anything from the CDM. Why do they put up bottle-necks whenever we fulfil their conditionalities?", he posed.

A CDM Expert, Mr. Tom Owino, called for measurable commercial and development tools to be used in the CDM in order to attain sustainable development. Instead of looking at the CDM in isolation, he called for a change of strategy: the CDM should be looked at along with other development options. He gave an example of a sustainable project of geothermal power generation and said that the three East African countries of Kenya, Uganda and Tanzania have a potential of generating 800 megawatts of geothermal energy, yet they rely on fossil fuel generation, and this was usually with the support of the World Bank and other bilateral donors. However, no concrete plan of action has been drawn up yet to take advantage of this geothermal resource.

He emphasized that the major problems for Africa in the CDM are financial constraints, lack of information and lack of capacity. Added to this is the amount of paperwork for CDM project preparation and the procedures which are hugely complex. The situation is exacerbated by the fact that it is difficult to attract money for upfront investment needed for the projects. He ended his submission by noting that CDM in its present form is less attractive to investors interested in Africa.

Kenya: An African example

Note: Kenyan DNA and Kenyan CDM experts

Kenya, like many African countries, does not have CDM projects. "Of course, we in Kenya are not project developers. We are trying to encourage the private sector. We now have a number of CDM projects in the pipeline. For a number of reasons there haven't been a lot of projects in Africa.

First: we have not been able to create enough awareness within the business community, within Kenyan government departments, and with the general public as a whole.

Second: "Another challenging factor is the financing mechanism.

The CDM requires capital investment. In Africa we don't have a lot of financial resources. Lately, I see quite a lot of companies; from China and Europe. We just signed a Memorandum of Understanding on CDM with an Italian Company to come and invest in CDM projects in Kenya. We also want them to help create capacity and involve local companies".

Third: "Another challenge is technology. One of the Chinese companies we are talking to wants to make charcoal bricks/briquettes from sugar cane. Charcoal is an important source of energy in Kenya. If we managed to do this, that would be something. It might, however, be competing with co-generation projects where they make electricity from sugar cane waste products. We need appropriate technology transfer."

The fourth factor. "A lot depends on government policy; especially the financial and monetary policy and policies concerning investments in the environment. They have to encourage local companies or international companies to make direct investments in CDM projects."

For several African countries afforestation would be the easiest thing to do. Afforestation can be done locally. It is an urgent issue in Kenya. Its population has grown so much and people are moving into marginal areas and cutting down forests. Another potential area is small hydro plants. Kenya has a few small hydro plants in the Neru area, around Mount Kenya. Also, solar energy and windmills are seen as potential areas.

"What is important for the CDM in Africa is capacity building. We have to be able to create the right environment and have the right policies in place for CDM projects to take off. We have to find an answer to the important question: How can we make the CDM beneficial to our local people? How can they participate and reap the benefits? We have to use and build the capacity of local communities or community-based organisations (CBOs). We definitely see a role for CBOs".

An important question is 'How can the development dimension of CDM be strengthened further?'

"The government of Kenya has a development agenda. We wrote a national Poverty Reduction Strategy Paper (PRSP). The PRSP and climate issues are not linked at present because of a lack of awareness. DNA people feel strongly the two should be interlinked. Our climate policy should be in our PRSP. At present, there are no environmental considerations in the PRSP. We have to 'green' the development agenda. We need a more holistic view. Environmental sustainability should be an integral part of our Poverty Reduction Strategy."

Nice proposal, never approved

For different reasons, many projects from LDCs never reach registration as a CDM project (approval).

To name one example: The Vanilla Jatropha project (see Annex 1). In August 2004, two private local firms proposed to grow Vanilla, with Jatropha curcas as tutor, shade and fencing, in two districts, as a poverty eradication project. The firms were to work very closely with the Poverty Eradication Commission of Kenya (PEC) in the development of the project and its implementation in a kind of public-private sector partnership. The proposed project was divided into two distinct parts: the Jatropha seed harvesting and oil extraction component.

This CDM project, despite meeting all the CDM requirements and despite contributing significantly to sustainable development, has not been able to make it to registration. All the potential buyers approached have viewed the project as too risky but were willing to buy the CERs after project implementation and CDM EB registration. Due to inadequate funding, the project proponents prefer to invest the available funds on direct project development instead of spending it on CDM validation activities. The project has therefore started at a slower pace than originally planned and with the coverage reduced to one District only.

The project development and transaction costs are too high for most good projects in the African region. The risks associated with the investment climate that is generally prevalent in Africa also affects up-front investment in such projects. It is therefore very unlikely that there will be any significant growth in the number of CDM projects with significant development dividend in the African region unless the CDM rules are changed. A significant discount would be required to attract buyers of CERs, who are currently focused on meeting Kyoto commitments, and are not expected to make long-term commitments. And so the CDM has failed a good project with a lot of potential for sustainable development, poverty reduction and emission reduction.

The CDM left to market forces does not significantly contribute to sustainable development in developing countries. CDM projects with high development benefits are often the ones that find access to finance the most difficult. The least developed countries correspondingly have very few CDM projects. So far the CDM investors mainly go for the low hanging fruits; the projects with the least costs, the largest amount of emission reductions and the lowest risks. A small proportion of the projects contributes to sustainable development and few projects have benefits for the poor.

3.4 Hurdles for developing countries

Basically 2 types of restraints explain the lack of Sub-Saharan CDM projects:

1. Bureaucracy and capacity related problems

- lack of capacity at national level;
- few people who know what CDM is in the first place
- few examples of national (regional) successful CDM projects to follow;
- complicated and expensive CDM procedures and bureaucratic structure;
- bundling problems with small projects;
- the need to establish a new methodology and measurements for each and every project.

2. Market related problems

- few market related parties willing to start CDM projects;
- lack of investment capital interested in starting CDM projects in LDC countries;
- poor availability of funds to pay for the initial costs and for developing a project proposal (which may not even be accepted as CDM project);
- the need for up-front investment (to start-up the project before CERs are actually realised).



Proposals for broadening and scaling-up the CDM

In the former chapters, several issues have been mentioned to be of possible interest for the Least Developed Countries or to have potential for scaling-up the CDM. In this chapter, we want to elaborate on some of them, before we state the final recommendations for a future CDM in the next chapter.

4.1 Official Development Assistance (ODA) and Foreign Direct Investment (FDI) and the CDM

Naturally, developing countries opposed CDM project funding with ODA money. The countries claimed this money would not be additional, but money which they were entitled to anyway. This means that the Kyoto rules do not allow parties to purchase emission reductions with ODA money. In a way, it is a theoretical discussion, because many developed countries do not even come close to the UN 0.7% of GDP target for ODA, so it could be argued that their purchases of credits are not additional. Only for countries which do comply with the 0.7% a clear distinction can be made. Whichever is the case, it can be argued that ODA money and CDM money are complementary and create synergy. The same holds true for FDI and national investments or loans related to CDM projects.

Although people were initially sceptical about the possibilities of private capital to sufficiently come into the carbon market in order to make emission trading work, it can now be affirmed that the capital market is a good vehicle for carbon trade. Between 2006 and 2007 the carbon funds doubled from 4.6 billion US\$ to 11.8 billion, spread over 58 funds. However, it is expected the present CDM will need at least 5 times as much in the next few years. Fortunately, energy projects will always benefit from multiple revenue streams given their multiple benefits. CER type revenue is currently a small share of overall financing but as carbon prices rise, its contribution will increase.

The different sources of funding together can cover the total costs involved in developing and implementing a CDM project, and enable projects which otherwise would not have been carried out. In other words, ODA could possibly support the development benefits incremental to an environmental investment out of the CDM. Facilitation of CDM projects is possible through ODA support if the national sustainable development agenda of the host country prioritised the issue accordingly (e.g. national afforestation – reforestation agenda). Ideally, the DNA should verify and establish where this is the case.

ODA could help improve the institutional structures and/or contribute to the non-CDM foreign resources for the investment project as a whole. This way, ODA would only be indirectly related to individual CDM projects. It is also possible to channel mixed credits through banks, or to lend on the condition that funds will be re-lent to CDM projects, e.g. for access to renewable energy for the poor projects, or for decentralised power generation.

Rural renewable energy provision in poor countries has a high impact on poverty, but a low impact on greenhouse gas emissions. ODA loans on favourable terms for CDM related activities should only be given if they have a high impact on poverty. Experience shows that small-scale projects tend to provide more benefits to the poor than big projects, and programmatic projects also offer good opportunities, particularly for scaling up proven technologies.

Experience shows that risks in CDM projects are relatively low. 85% of projected CER income is actually received. The capital market is responding and no longer restricted to a very small number of technologies. Still, providing shares of the expected credits in advance is desirable. For specific countries, which are considered politically unstable or risky, markedly in Africa, more institutional up-front funding mechanisms will be needed. ODA money could perhaps reduce the risks through guaranty constructions or directly take the risk through creation of funds for such countries.

Many of the projects introducing technology to produce the HFC23 and N₂O reductions have a horizon of at least 10 years. These long-term projects will receive CERs.

As said before, it is important that the quick & dirty wins are ruled out of the CDM (or at least part of their long tail in the coming years), to avoid that these activities scoop-up all available capital.

4.2 Transport and the CDM

In China and India, but also in other developing countries, there seems to be a huge scope for CDM transport projects. The transport sector is roughly responsible for 22% of global emissions. It has an annual growth of more than 2% in industrialised countries, and an average 3.5% in developing countries, caused by a rapid growth of the number of vehicles. In developing countries an additional problem is the large number of old (inefficient and polluting) vehicles still in circulation.

At present, out of the approximately 2100 CDM approved projects and projects in the pipeline, only 2 transport projects were approved and another 5 are in the pipeline. This demonstrates the difficulties the transport sector has to access the CDM - yet its importance in global GHG emissions is considerable.

Main possibilities for reduction of GHG emissions in the sector are:

- reduce the need for transport, through spatial planning;
- improve transport efficiency;
- shift to more sustainable transport modes;
- shift to more sustainable fuels.

It is hard to imagine that spatial planning could become eligible for the CDM, because attribution and additionality are difficult to prove and baseline definition is complicated. However, it probably has the biggest GHG emission reduction potential.

Shifts to more sustainable or efficient transport modes, for example from trucks to boats or pipelines are entirely possible. Standardised methodologies could be developed relatively easily. The same holds true for the shift from private vehicles to public mass transport.

Shifts to less carbon intensive fuels, mainly biofuels, still suffer from methodology problems: leakage (N₂O, fertilizer), uncertainty about carbon pools, and double counting. However, strong leadership of the EB in methodology development should be able to solve this problem. Life cycle analyses of this fuel will probably solve a lot of the present uncertainties. The other sustainability issues of biofuels (monocultures, biodiversity losses, etc.) also need to be taken into account and need to be resolved.



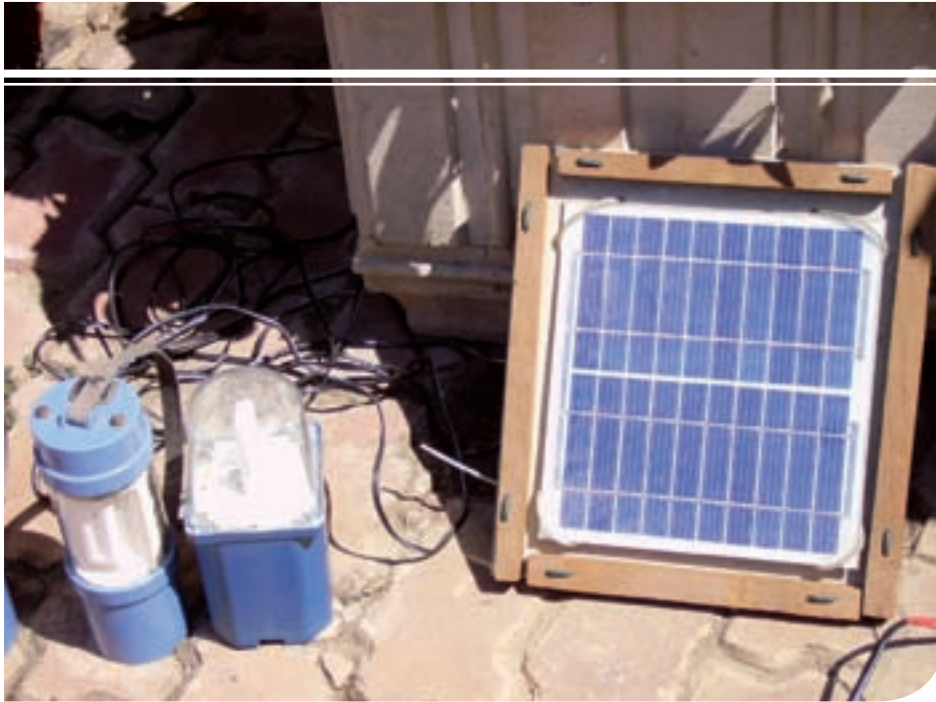
Micro-hydro dam. Fundación Solar Guatemala.

Transport efficiency can be enhanced by improved transport planning and infrastructural investments, but also by mandatory regulations and standards, like caps on the amount of grams CO₂/km or grams CO₂ from transport per inhabitant in (urban) transportation. Monitoring and enforcement costs as well as subsidies should become eligible for the CDM.

4.3 Avoided Deforestation

Since many LDCs hardly have industry, it is difficult for them to reduce industrial emissions. In the CDM Africa meeting (see 3.3), the general feeling was that African countries should get credits for preserving forest. The missed income of sold timber and agricultural income could be compensated with CDM credits. However, within the CDM system this is problematic. How can these credits be truly additional? And how can you prove you avoided deforestation? If all forest preservations get credits, will this not prove to be a leak in the credit system and thus strongly devalue the credits? Nonetheless, deforestation is a big issue. It is common to see annual percentages of deforestation of 2%, 3% or even higher. Developing countries rightly point out that western countries expect them to keep their forests in order to compensate for hundreds of years of Western CO₂ emission, whereas the western countries need to be willing to compensate.

Carbon emissions from (tropical) deforestation accounts for 22% of anthropogenic emissions and for about one third of CO₂ concentration increase in the atmosphere since the beginning of the industrial revolution. At present, avoiding deforestation is not eligible for the CDM but there are strong voices to include it in a post 2012 climate regime. However, diverse ways to include it are promoted and many issues are still under discussion. In general it is argued that it is not just forest conservation but sustainable management and extraction, and sustainable rotation cycles in forests which need to remain possible, as well, as long as there is no degradation of the forest.



Solar lanterns.
TATEDO Tanzania.

The two basic approaches under discussion at present are:

- 1) compensated reductions; Reducing deforestation rates is rewarded from a fund, and
- 2) voluntary commitments from Annex 1 Countries plus carbon market financing: if a country does better than a commitment, the difference can be sold.

To include avoiding deforestation in a future climate regime, there are still many issues which need to be resolved:

- Only permanent loss or also degradation? What about conservation and afforestation? (Degradation is a particularly important issue for the increase of GHG emissions in the case of peat forests.)
- Within "Kyoto" as a 4th mechanism, or outside "Kyoto" ?
- Multi stage approach (EU): first voluntary targets and then ever stronger binding targets, or: binding targets from the beginning?
- Just CO₂ or also N₂O and CH₄? Or also carbon sequestration? Above ground or also in the soil?
- What should be the geographical unit: region, state, country, multi-country region? (advantage whole country: leakage is not possible, only international leakage)
- What to do about natural losses and disasters?
- Relation to energy sector: intersectoral leakage (e.g. more emissions from the energy sector while forests –wood- are no longer used for energy)?
- How to organise the distribution of credits? How to get them to the direct actors involved?
- Baseline: a particular year (1980, 1990) or the average of a period?
- Country specific baseline or global average?
- What if after an initial reduction, the rate of deforestation goes up again? Once in, always in? Temporary crediting?
- Should there be a cap (e.g. as a percentage of total reductions)?
- How should additional environmental effects be taken into account?
- Measuring: field work, remote sensing, modelling? Measure all, or only the part most likely to disappear? Map the drivers of deforestation and tailor measuring to likely impact of drivers? Different drivers have different opportunity costs.

- How to finance establishing the baseline: borrowing from future reduction commitments? Creating a fund (managed by FAO?)?
- Consequences of many of the above mentioned issues are not at all clear. This makes it likely that discussions will continue for a long time and that agreement cannot easily be reached. Different developing countries have different interests: in India forest cover is on the rise and they want that rewarded. In Brazil it is not and they don't want it punished. The World Bank is now inviting countries to contribute to a Forest Carbon Partnership Facility, starting with pilot projects which can eventually become CDM projects.

Since there are many challenges tied to this issue, most likely, at least initially, transaction costs of avoided deforestation CDM projects would probably be very high. Therefore the risk of flooding the market with too much credits for which there is no demand seems low. Still, it may be wise to experiment not directly inside the CDM and only go for full fungibility once the scope is clear.

4.4 Sectoral CDM

One of the most promising possibilities for scaling-up is the sectoral CDM. The basic idea is that the emissions of a sector are established in a country (baseline) and credits are issued for better performance than the baseline. The baseline is the average volume of emissions resulting from one unit of the sector product. In practice, it is not that simple.

In the first place, it will be quite difficult to establish the baseline. Because data are often lacking in developing countries, a lot of measurement and research would have to be carried out to determine the baseline. Additionally, many companies will not be happy to disclose the information to their competitors. Furthermore, most likely nor the government, nor the EB would be able to evaluate the baseline, because this is an exercise of a magnitude they are simply not equipped for.

A second problem is that when there are several companies involved in the sector, the baseline would be an average and therefore some of the companies would receive credits without doing anything, because they are already more efficient than the average. A proposed solution for this problem is to establish a higher baseline, taking for example the average of the best performing companies of the sector.

It is the host country that will have to define what policies and measures are to be taken to achieve the emission reductions in the sector. Since there is not much experience yet, pilots would be highly necessary to avoid large mistakes. Capacity building on monitoring, verification and reporting will also be highly necessary.

CERs will be granted to the government. The government would have to see to the distribution of the CERs to the companies, according to their performance.

If whole sectors become eligible to the CDM, a lot of CERs will become available. At present there is not enough demand to absorb the credits of many sectors from a great number of countries. On the one hand, demand could be boosted if the quick wins are ruled out of the CDM, if targets are deepened in the post-2012 period, and finally, of course, if the US and Australia would come on board. On the other hand, at present, no reliable, multi-scenario figures about CER market development are available.

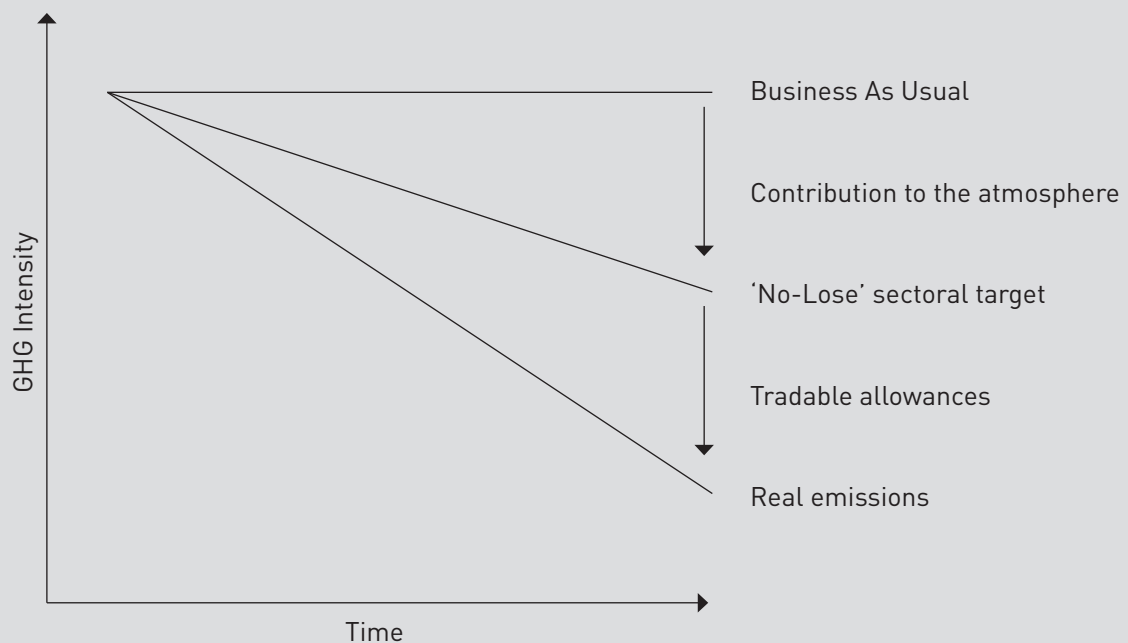
4.5 “no-lose” sectoral targets

Critics say that when the sectoral CDM would be included in the post 2012 regime it would only in the short run benefit the environment and afterwards not bring any progress. The opposite would be reached, namely as long as the baseline remains the same, companies that are producing below baseline can cash their CERs year after year. A possibility to fix this could be to have an upwards floating baseline. But this could imply a tedious evaluation and political struggle about how high to establish the baseline year after year.

A climate friendly solution to this problem is the “no-lose” sectoral target approach. The sector or a government or both could set a diminishing target for the coming period, well below business as usual. The sector would have to comply with this target. CERs would only be received if a company is able to produce below this “no-lose” sectoral target. The difference between the “no-lose” sectoral target and actual (better) performance could be sold internationally.

However, in this approach, the problems mentioned above, such as baseline definition, poor capacity and lack of clarity on who would approve the sector plan, remain unsolved.

Sectoral CDM with “no-lose” sectoral target



Adapted from Niklas Höhne. Ecofys, Germany.



Wood efficient stove. TATEDO
Tanzania.

4.6 Sustainable Development Policies And Measures (SD-PAMs)

Some critics of the CDM state that the present CDM as project-based market mechanism failed to achieve poverty reduction through the mitigation activities and has had little impact on the carbon intensity of economic growth in developing countries. The market will always pursue the projects to which money is attached, i.e. the projects with high number of tons of carbon. Projects with high local benefit generally have low carbon revenue. Therefore, for sustainable development a new, non-market based mechanism would be needed. This is what SD-PAMs are about. They are policies and measures needed to reach a pre-established desired future sustainable development level. It remains a challenge how to bring this into the UNFCCC multilateral framework.

If the policies and measures are recorded and their implementation monitored, they can be quantified in terms of units of sustainable development progress *and* GHG emission reductions, and the net impact can be summarised. A combination of measures can e.g. lead to more energy efficiency, cleaner fuels, lower carbon intensity, reduction in air pollutants and a considerable amount of money saved.

The money to finance such developments could be a combination of domestic funds, ODA, GEF and Kyoto Protocol funds. Countries that commit to the approach could form an "Annex 3" list.

There is a lot more to say on SD-PAMs and the whole approach. It is definitely an interesting one, particularly since sustainable development is combined with climate change mitigation. Hopefully the CoP at Bali can take a decision to further develop the concept.



Six Recommendations for a better CDM

Improvements have to be made to the CDM to ensure broad support from developing countries and to make sure it lives up to the second CDM goal: sustainable development. A well-functioning CDM and the wholehearted support from developing countries is needed for the difficult task of negotiating new commitments after 2012, when the first commitment period of the Kyoto Protocol ends.

At the same time, the CDM must bring real and sufficient climate gains to maintain continued support from Annex 1 countries.

A list of 6 recommendations for CDM improvements is presented below. In some cases, it is probable that some new mechanisms will have to be developed outside the present CDM mechanism. To counter the spirit of disappointment felt by many African countries and LDCs, the CDM will have to be more supportive of their needs. Financial instruments to meet early funding needs might be a good way to promote CDM projects in LDCs. Also, some creative new CDM components will have to be designed to make it likely that the fast growing developing countries will take on emission reduction commitments.

1. Maintain additionality

Additionality of CDM projects should remain the central criterion for climate negotiators and NGOs. Profitable projects or projects resulting from government interventions don't need additional CDM funding. They will be realised anyway. If emission rights are continued to be granted to such projects, global emission reduction targets will probably not be met. The goal of the CDM is to ensure that emission reduction targets are realised in the most cost-effective manner. Only the funding of projects that would not have been realised without the CDM can bring this about. HFC and PFC projects should be ruled out.

2. Improve sustainability

- Kick out quick and ugly wins. Strive towards a national and world-wide ban on gas flaring. These projects are important for the global reduction of green house gas emissions, but they can be achieved by other means. Projects that combine climate objectives and sustainable development, such as renewable energy projects, would then become more attractive. Define caps for the less desirable activities within the total mix and promote investments in renewable energy.
- Promote the Gold Standard or similar standards and criteria. Give extra credits or additional incentives to projects that live up to the standard and punish the projects that score low on the sustainable development scale, e.g. through discounting credits. For large hydroelectricity schemes the new mechanism should adopt the criteria of the World Commission on Dams.

- Support DNAs and countries in defining national sustainability criteria and include sustainable development checks in the project design document PDD. Improve local stakeholder participation and civil society participation in project design and approval.

3. Improve access for LDCs, particularly in Africa

- Create a seed capital fund to promote the development of projects in either LDCs, underused sectors or renewable energy. Combine with ODA.
- Push for a pro-active role of the DNA. Provide training, build capacity and actively distribute know-how amongst DNAs, NGOs, CBOs and the business sector.
- Create an African and LDC CDM investment bank or fund to provide discount funds, credits or guarantees for the up-front investment in CDM projects.

Although the Nairobi Framework is addressing some of these issues, a lot of work still needs to be done.

4. Expand the scope of the CDM

- Standardise methodologies as much as possible. Automatic approval for below baseline projects. Develop “baskets” of projects that can easily be replicated.
- Provide clear guidance for small-scale projects. Make bundling of small-scale projects easier and remove the cap.
- Support DNAs and other parties in actively promoting programmatic CDM in the transport and renewable energy sector.

5. Experiment with promising mechanisms and approaches

- Sectoral CDM
In specific sectors, particularly in truly globalised sectors such as iron and steel, cement and chemicals and possibly in other energy intensive sectors as well. Issues to be resolved are mainly related to data availability and establishing the baseline, but also to the process of defining sector targets.
- Organic agriculture
A switch from conventional to organic agriculture reduces both direct and indirect GHG emissions produced by agricultural activities. It will also raise the carbon content of the soil and it has other environmental and social advantages as well. Furthermore, the reliable international monitoring system for organic agriculture can easily be extended with a module for climate dividend and for the verification of certified emission rights within the CDM.
- Avoiding deforestation
In practice, many of the afore-mentioned issues still surrounding this theme could be resolved: a practical solution could be found for baseline development, monitoring, rewarding the real actors, preventing interregional and intersectoral leakage, defining the bottom line for degradation, and so on. Projections of the impact on the supply of CERs could be developed.

6. Professionalise and streamline the CDM

- If the mechanism is to grow substantially, it is important that the administrative structure is able to respond professionally. It should have a full-time staff.
- The EB should detail procedures for DOEs and control their performance. A sanction regime should be developed.

Currently, the project throughput time is extreme long and the process to reach registration is very expensive. Clearly, bureaucracy should and can be curbed.

Glossary

A1 countries	Annex 1 countries (= Developed countries)
NA1 countries	Non-Annex 1 countries (= Developing Countries)
ANCC	Africa Network for a Climate Community
BAT	Best Available Technology
CBO	Community Based Organisation
CDM	Clean Development Mechanism
CERs	Certified Emission Rights
CNA	Climate Network Africa
COP12	12th Session of the Conference of Parties
COP/MOP	Conference of Parties / Meeting of Parties
CSO	Civil Society Organisations
DNA	Designated National Authority
EB	Executive Board
ECA	Export Credit Agency
GNP	Gross National Product
HIVOS	Humanist Institute for Cooperation with Developing Countries
JI	Joint Implementation
ETS	European Trading System
EU	European Union
FAO	Food and Agriculture Organisation of the UN
FDI	Foreign Direct Investment
G77	Group of 77 non-aligned Countries
GEF	Global Environment Facility
GHGs	GreenHouse Gases
GW	Giga Watt
GW	Global Warming
GWP	Global Warming Potential
HFC project	Project that reduces Hydro Fluor Carbons
ICT	Information and Communication Technology
IPCC	Intergovernmental Panel on Climate Change
KP	The Kyoto Protocol to the UNFCCC
Kyoto Protocol	is an implementation mechanism of the United Nations Framework Convention on Climate Change (UN-FCCC).
LDCs	Least Developed Countries
LULUCF	Land Use, Land Use Change and Forestry
MDG	Millennium Development Goal
MET	The Kenya Meteorological Department
MTon	Megaton= 1,000,000 ton
NEPAD	New Partnership for African Development
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
PFC project	Project that reduces Per fluor carbon
RED	Reducing Emissions of Deforestation
SA	South Africa
SBSTA	Scientific Body for Scientific and Technological Advice
SD	Sustainable Development
SD-PAMs	Sustainable Development Projects and Measures
SNM	Netherlands Society for Nature and the Environment
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change

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Annex 1

Vanilla Jatropha Project- A Case Study for the Clean Development Mechanism

Prepared by Tom Owino, ECM Centre Limited, Nairobi

In August 2004, two private local firms, High Value Crops (K) Limited and Victoria Vanilla Limited proposed to grow Vanilla, with *Jatropha curcas* as tutor, shade and fencing, in Malindi and Migori districts, as a poverty eradication project. The firms were to work very closely with the Poverty Eradication Commission of Kenya (PEC) in the development of the project and its implementation in a kind of public-private sector partnership. The proposed project was divided into two distinct parts: the *Jatropha* seed harvesting and oil extraction component.

This case study presents the Vanilla *Jatropha* project as a CDM project that, despite meeting all the CDM requirements and despite contributing significantly to sustainable development, has not been able to make it to registration. All the potential buyers approached have viewed the project as too risky but were willing to buy the CERs after project implementation and CDM EB registration. Due to inadequate funding, the project proponents prefer to invest the available funds on direct project development instead of spending it on CDM validation activities. The project has therefore started at a slower pace than originally planned and with the coverage reduced to Malindi District only.

This case demonstrates that funding is a major reason for not getting good sustainable CDM projects through to CDM EB registration. The project development and transaction costs are too high for most good projects in the African region. The risks associated with the investment climate generally prevalent in Africa also affect up-front investment in such projects as was the case for this project. It is therefore very unlikely that there will be any significant growth in the number of CDM projects with significant development dividend in the African region unless the CDM rules are changed.

The Project Objectives are:

To provide poor families in Migori and Malindi districts with an affordable and renewable source of fuel in the form of *Jatropha* oil, obtained by expelling oil from *Jatropha* seeds, replacing kerosene for lighting and some cooking, and in the form of biodiesel, produced by conversion of excess *Jatropha* oil into biodiesel. This replaces diesel for running local stationery and automobile diesel fuel. In Kenya kerosene is widely used in rural areas by poor families. It is against this background that *Jatropha* Vanilla project proposed to provide an alternative source of fuel for lighting and cooking, by planting *Jatropha curcas* trees, which would provide oil seeds. Furthermore, the wood and fruit of *Jatropha* can be used for numerous purposes including fuel provision. Its seeds contain viscous oil, which can be used as diesel/kerosene fuel substitute for lighting and cooking. It can also be used for the manufacture of candles and soap, and in the cosmetic industry.

The Expected Benefits and Development Dividends of the Project

The main aim of the *Jatropha* oil component of the project was to improve the living standards of poor families in the two districts (Malindi and Migori) through an income generating project, employment creation and provision of renewable sources of energy from *Jatropha* oil and biodiesel.

The sustainable development project has the overall objective of reducing the poverty levels in 100,000 households through economic empowerment. The 100,000 households would also be using the oil produced by the project, leading to reductions of green house gas emissions. Economic benefits of the project include increased household incomes from the Vanilla bean and *Jatropha* seed sales to the project developers and reduced expenditure on lighting and cooking oil (US\$1.6 million reduction per year for the 100,000 farmers).

However the Carbon Credit Market judged

Delivery risks for credits generated from the projects are judged high by potential buyers and brokers due to a higher than acceptable level of project risk generally, including:

- reliance on a large number of small farmers;
- introduction of a new type of crop;
- weather, namely the impact of continuing drought and low water supply;
- losses due to infestation;
- farmers' financial ability to deal with weather, economic and political uncertainty;
- infrastructure, namely roads;
- market risks for these potential credits are influenced by the type of credit under consideration

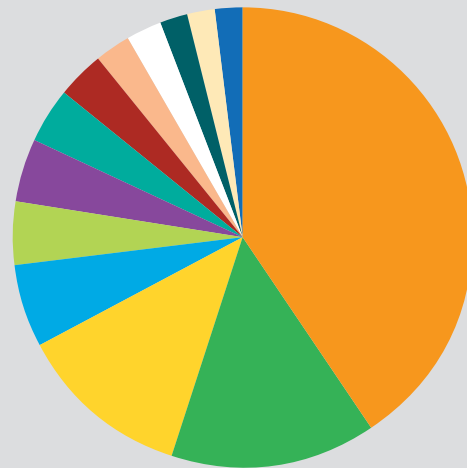
The project has not been able to attract any CER buyers due to perceived high risks within the project. The potential CER buyers think the project is too risky as it involves too many farmers, and they are not willing to support the project in advance with the CERs as the guarantee. Also, the CERs generated by this project are not expected to be substantial until post-2010. A significant discount would be required to attract buyers of CERs, who are currently focused on meeting Kyoto commitments, and are not expected to make long-term commitments. And so the CDM has failed a good project with a lot of potential for sustainable development, poverty reduction and emission reduction.

Annex 2

Overview Registered projects by Annex I and Non Annex I parties

Registered projects by AI and NAI investor parties

United Kingdom of Great Britain and Northern Ireland	40,7 %
Netherlands	14,47 %
Japan	12,24 %
Switzerland	5,88 %
Sweden	4,45 %
Spain	4,29 %
Italy	3,97 %
Germany	3,18 %
Canada	2,7 %
Austria	2,38 %
Finland	2,07 %
France	1,91 %
Others	1,75 %



It can also be observed that only a limited number of Annex 1 countries make use of the CDM, the UK and the Netherlands being the biggest investors. This means that the other countries realise their commitments (mainly) within their own country, or they don't comply with their commitments at all.

Annex 3

List of anthropogenic greenhouse gases as used by the IPCC TAR.

Gases relevant to radiative forcing only (per IPCC documentation)						
Gas	Alternate Name	Formula	1998 Level	Increase since 1750	Global Warming Potential	Radiative forcing (Wm ²)
Carbon dioxide		(CO ₂)	365ppm	87 ppm	1	1.46
Methane		(CH ₄)	1,745ppb	1,045ppb	23	0.48
Nitrous oxide		(N ₂ O)	314ppb	44ppb	296	0.15
Tetrafluoromethane	Carbon tetrafluoride	(CF ₄)	80ppt	40ppt	5.700	0.003
Hexafluoroethane		(C ₂ F ₆)	3 ppt	3ppt	11.900	0.001
Sulfur hexafluoride		(SF ₆)	4.2ppt	4.2ppt	22.000	0.002
HFC-23*	Trifluoromethane	(CHF ₃)	14ppt	14ppt	12.000	0.002
HFC-134a*	1,1,1,2-tetrafluoroethane	(C ₂ H ₂ F ₄)	7.5ppt	7.5ppt	1.300	0.001
HFC-152a*	1,1-Difluoroethane	(C ₂ H ₄ F ₂)	0.5ppt	0.5ppt	120	0.000

