CDM Watch
Scrutinizing Carbon Offsets

HYDRO POWER PROJECTS IN THE CDM

POLICY BRIEF

February 2012

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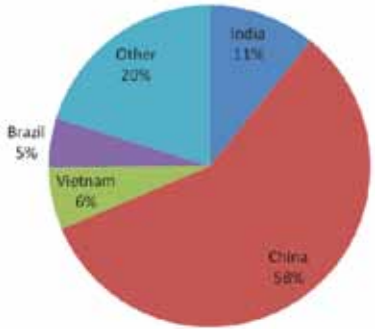
The Clean Development Mechanism (CDM) was designed to bring clean and sustainable development to poor countries while enabling rich countries to achieve their emissions reductions cost efficiently. Hydro power makes up 30% of all carbon offsets projects registered under the CDM. Despite delivering renewable energy, these projects have faced sharp criticism for their failure to reduce emissions and for negative social and environmental impacts.

The recent *Study on the Integrity of the Clean Development* Mechanism commissioned by the European Commission singles out hydro power projects as particularly problematic. This policy brief outlines the impacts of large CDM hydro power projects, explains why they undermine climate goals and offers concrete policy recommendations.

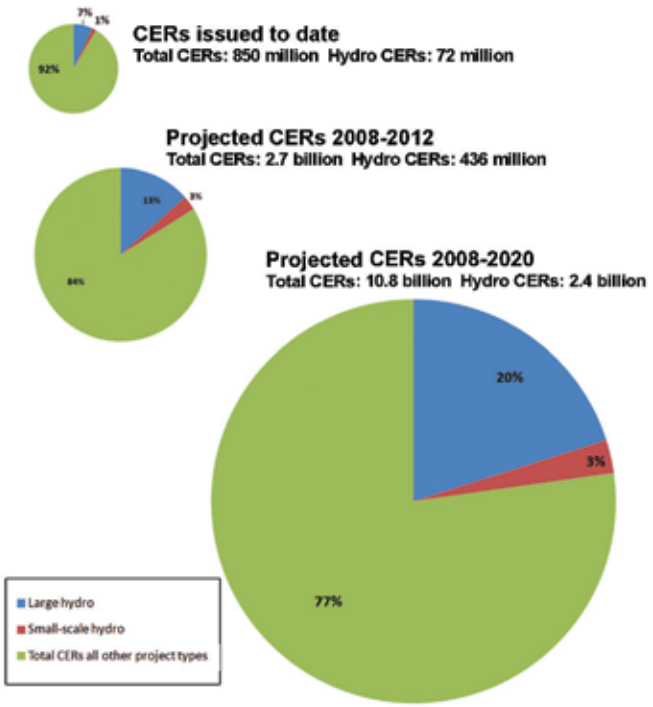
Hydro projects in the CDM

Over 1000 hydro power projects are already registered under the CDM and another 700 are applying for registration, the most of any project type. Almost 90% of all hydro projects in the CDM pipeline are located in China, India, Vietnam and Brazil, all countries considered emerging economies. Three of the four countries (China, India, and Brazil) are ranked within the top ten hydroelectric producing countries globally. By 2020, offset credits (CERs) from all CDM hydro projects are expected to generate over 2.4 billion offsets, roughly 23% of all offsets from the CDM.

TOTAL CDM HYDRO POWER CAPACITY BY COUNTRY
Total capacity of all CDM hydro projects in pipeline = 86.88 GW



PERCENTAGE OF CERs FROM HYDRO POWER

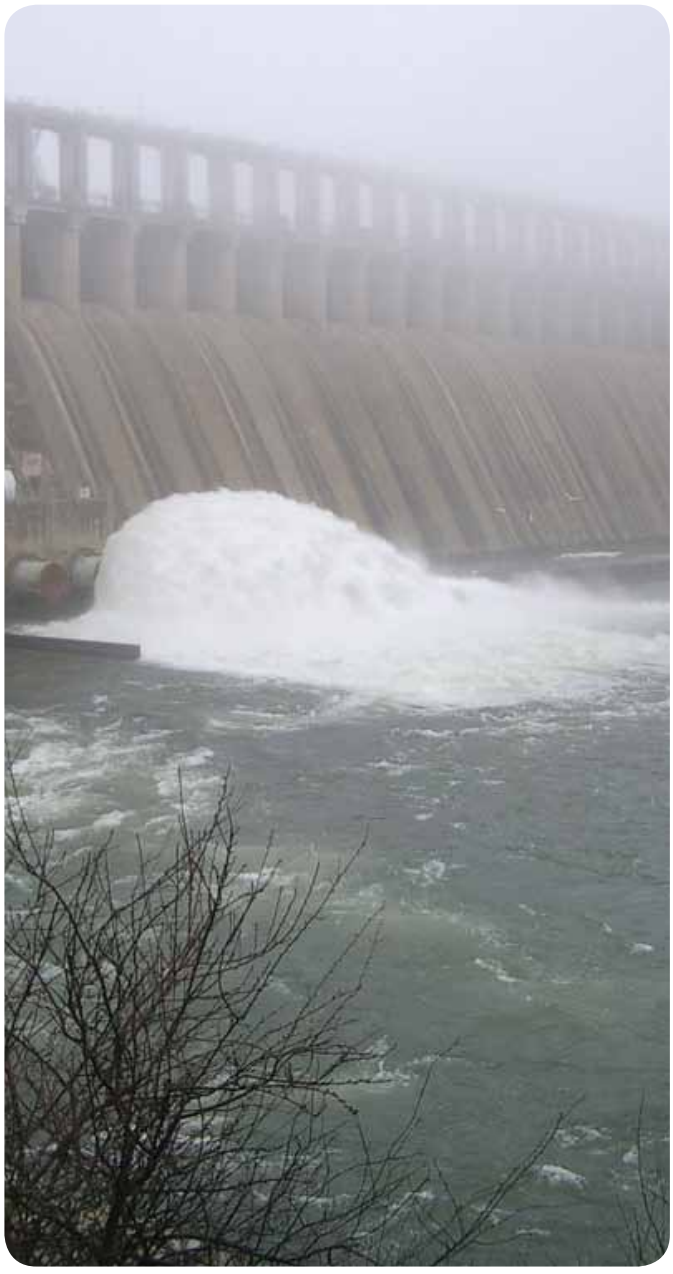


CDM hydro power projects undermine climate goals

CDM projects that would have been built anyway, without help from the CDM, harm climate goals. Here is why: each business-as-usual project that is permitted to register under the CDM allows industrialised countries to emit more than their targets without causing the equivalent emissions to be reduced in a developing country. Projects therefore need to show that they were only accepted into the CDM because of the extra financial support from the sale of carbon credits.

There is clear evidence that the vast majority of CDM hydro power projects, especially large ones, would be built regardless of CDM financial support. Hydro power is the largest source of non-fossil fuel electricity globally. Hydro power makes up 16% of installed electricity capacity worldwide and is in many cases already cost competitive and/or strongly supported by government policies:

Run-of-river plant, China. Courtesy: Land Rover Our Planet/flickr



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- China and India, the two countries with most hydro power CDM projects, have aggressive targets for building out their hydro power resources. The reasons include attempts to meet soaring power demand and to address energy security concerns related to growing dependence on imported coal in both countries.

- China's *Development Plan for Renewable Energy* calls for a doubling of hydro power capacity from around 150GW to 300GW between 2007 and 2020. China's hydro power sector is predominantly state-owned and the Chinese Government plays a large role in determining how much and which hydro power is developed. It sets national goals, determines tariff levels for hydro power projects, and provides access to low-interest loans.

- The Indian Government plans to add over 46GW of hydro power between 2007 and 2017. Governments play a dominant role in deciding how much and which hydro power projects are built, taking into account factors other than those that are directly cost-related. In the case of Indian hydro power, the planning commission takes into account energy security concerns, displacement of people, the need for peak power, and the competing uses of rivers for irrigation and flood control. These are all concerns that are not easily monetised and integrated into an investment analysis. Financial return is therefore not a good predictor to determine whether a large hydro power project is built because of the CDM.

Governments' various strategic interests in building large hydro power in China, India and other countries supersede the relatively small effect CDM carbon credits have on hydro power project financial return.

Hydro Power's Impact on Humans and Ecosystems

While hydro power dams can produce power with low greenhouse gas emissions and can also deliver flood and irrigation control, the adverse social and environmental costs can be substantial. Displacement, loss of livelihood, poorer health and loss of cultural heritage are some of the worst impacts. Often groups that bear the social and environmental costs of dams are not the ones who reap the benefits. Poor, vulnerable groups such as rural populations, subsistence farmers, indigenous communities and ethnic minorities often bear a disproportionate share of the negative impacts, while the main beneficiaries are urban dwellers, commercial farmers and industries.

It is estimated that 40-80 million people have been physically displaced by dams worldwide. In India and China alone, 26-58 million people have been displaced between 1950-1990 due to dam projects. In the most extreme cases, violence has been used to force eviction. Compensation usually only occurs once as a cash payment or in the form of an asset such as housing and/or land. Lands provided for resettlement are often resource-depleted and environmentally degraded areas. In China, almost half of those displaced are living in extreme poverty. In India, 75% of people displaced by dams have not been rehabilitated. The larger the number of people displaced from a project, the less likely it is that resettlement will be adequate, due to the lack of suitable land.

Such negative impacts are not compatible with the promotion of sustainable development, one of the core objectives of the CDM.

Damage control: World Commission on Dams Criteria

To minimise the negative effects of CDM hydro projects, the EU requires all credits from CDM hydro power projects larger than 20MW sold in the EU Emissions Trading Scheme to meet *World Commission on Dams* environmental and social standards. Similar standards are not required by the CDM itself. While the EU took the laudable step to operationalise the WCD guidelines, their current rules do not go far enough, for example, by excluding small scale projects from the requirements.

Small does not equal harmless

Hydro power dams can vary tremendously in size. In the CDM, for example, the smallest project is 0.1MW (Bhutan) whereas the largest is 1200MW (Brazil). Defining hydro power impacts by dam size is arbitrary, as impacts depend on local conditions. In the CDM, hydro power projects with an output capacity of more than 15MW are defined as large. The EU Linking Directive on the other hand, considers hydro power with an installed capacity greater than 20MW large.

In general, large projects tend to have larger impacts than small projects. But this does not mean that small hydro projects are benign. Small hydro power projects are subject to fewer regulations and less scrutiny in many countries. Small projects are permitted as individual projects, therefore cumulative impacts of multiple dams within a watershed are not considered. For example, while large projects in India are granted clearance from the central government and required to carry out an Environmental and Social Impact Assessment, small projects are not required to conduct such an assessment.

Rampur River. Courtesy of International Rivers

Case study

In autumn 2011, the 412 MW **Rampur Hydroelectric Project** located near Rampur in Himachal Pradesh was registered by the CDM Executive Board. The project could receive 15 million carbon credits from 2012 to 2022.

The project has long faced criticism about its additionality claim and strong local opposition as a result of its lack of public consultation and failure to deliver sustainability benefits. Satluj Jal Vidyut Nigam Limited (SJVN), an Indian hydro power company originally created by the World Bank, signed an agreement with the local government to implement the project back in 2004. The Indian Prime Minister laid the foundation stone in 2005. The World Bank approved a major loan for Rampur in 2007. This project would have gone forward with or without the support of the CDM. Furthermore, the project violated CDM rules by not providing information on how it did the investment analysis which 'proves' that the project is additional.

The project was also approved to sell credits in the EU-ETS: The Swedish government reviewed the WCD assessment and gave the project the go ahead. This approval has been given despite local communities having expressed environmental and social concerns about the project for years. The problems reported include increased dust problems, higher prevalence of asthma, lower harvests and weaker farm animals.

Rampur is a run-of-river project (RoR). RoR hydro power plants are generally less damaging than reservoir power plants, because it is not necessary to flood large areas upstream of the project for storage. Yet in some cases run of river impacts can also be severe due to river diversion over long stretches of the river.

"The tunnel which is built for the Rampur project diverts underground water away from village sources," said a villager from Sarpata village at the vicinities of the project activity, "there is no Catchment Area Treatment Plan. The project owner only recently paid one fourth of the money needed to construct the promised Drinking Water Scheme to restore the damage after four years of inaction" he added.

Recommendations

Non-additional CDM projects and projects with seriously adverse environmental and social impacts undermine climate mitigation goals. This is because such projects actually increase emissions while placing the costs of climate change mitigation on communities that are the most vulnerable to the impacts of climate change.

Recognizing the need for reform, the European Commission published the *Study on the Integrity of the Clean Development Mechanism* in December 2011. The study assesses the merits and shortcomings of the current CDM and discusses options for supply and demand side reforms, including applying use restrictions under Article 11a(9) of the EU ETS directive. The study singles out large hydro CDM projects as particularly problematic and makes the following recommendations:

Europe's climate action flagship, the EU Emissions Trading System (EU-ETS) is in troubled waters. Due to the economic crisis, carbon prices have collapsed resulting in a large surplus of allowances. If no action is taken, the EU-ETS could collapse and emission reduction efforts in the EU could be put on hold. The European Commission is facing increased pressure to put deep and structural demand side interventions in place, including stricter caps and a set-aside. Given the current state of the EU carbon markets, use restrictions for certain carbon credits would not only boost the EUs environmental integrity but also help stabilise the markets. Given that the European Union is by far the largest buyer of CDM offsets, the EU is in a unique position to influence the direction of the CDM and the development of alternative or complementary mechanisms.

CDM Integrity Study recommends:

Key demand-side measures for the EU

- Examine further the hydro project size and criteria selection that could be applied in the determination of negative lists [negative lists define which project types should be excluded], preferably with reference to case studies and the factors which affect the additionality case and sustainability impacts;
- Carry out a more sophisticated market assessment to determine the impact of negative lists on the supply of CERs in relation to demand from the EU ETS;
- Further examine domestic support mechanisms as preparation for country specific negative lists or discounts.

The study recommends a number supply side (UNFCCC) measures which, if implemented, could lessen the need for demand side restrictions:

- Develop approaches for minimum thresholds for sustainability and develop measures to further support the assessment of sustainability, including guidance and tools;
- Continue to improve the guidelines for additionality testing and the development of alternative methodologies;
- Continue to engage with EU Member States in understanding the practicalities of using the WCD guidelines;
- Develop options for ex-post validation of sustainable development at project level and consider proposals for do-not-harm assessments.

Courtesy yuan2003/flickr

CDM Watch recommends:

- Swiftly **implement the recommendations of the CDM integrity study;**
- **Implement a negative list that excludes carbon credits from large hydro power.** It is highly unlikely that large hydro CDM projects are additional. Moreover, additionality testing under the current UNFCCC rules is ineffective for such large infrastructure projects.
- **Require small CDM hydro power projects to fulfill World Commission on Dams (WCD) sustainability criteria.** Hydro power projects of all sizes and types can have substantial, and sometimes severe, negative social and environmental impacts. All hydro power projects should be evaluated for their social and environmental impacts.
- **Strengthen the EU's assessment of WCD compliance.** The EU's efforts to operationalise the WCD guidelines are commendable but current rules and procedures do not to fully capture the criteria set out in the WCD.

Courtesy of ogwen/flickr

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