

Clean Development Mechanism in India

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ABSTRACT

Climate change due to global warming is one of the most difficult and important challenges the whole international community is facing. The United Nations responded to this problem by organizing first World Climate Conference in 1979. Subsequently in 1988 Intergovernmental Panel on Climate Change (IPCC) was established. UN Framework of Convention on Climate Change (UNFCCC) was signed in 1992 Rio summit making Conference of Parties (COP) Convention's ultimate authority. The Kyoto Protocol was adopted at COP-3 in 1997. The Protocol defines quantified greenhouse gases emissions reduction targets for Annex I Parties in UNFCCC. The CDM is one of the market-based solutions for achieving these reduction targets. The CDM endowed developing nations to participate by selling emissions credits, termed as “certified emissions reductions” (CERs), to other nations with obligations to reduce their emissions.

The Clean Development Mechanism was created with three main goals. First, it aims to accomplish the overwhelming goals of the Convention. Second, it aims to promote sustainable development in Non-Annex I nations. Lastly, it intends to reduce the cost of compliance with the Protocol for Annex-1 nations. India is second in using this mechanism just after China. This paper shows how CDM projects are distributed in different sectors and states of India. The analysis shows states like Gujarat and Maharashtra have most number of CDM projects. The analysis also reveals that almost 78% of these projects are in the energy industries. The paper also recommends some future approaches that might increase the efficiency of this technique.

Keywords: *Clean development mechanism, Kyoto protocol, Certified emission reductions.*

1. INTRODUCTION

The late 1980s saw rising concerns over the changing patterns of climate among environmental scholars. The Intergovernmental Panel on Climate Change (IPCC) reported in 1990 that emissions resulting from humans’ household activities contributed largely to the atmospheric concentration of greenhouse gas, which would generally lead to the warming up of the Earth’s surface. The Kyoto Protocol of 1997 was the first response by international community to this problem. In order to make the targets legally binding, at least 55 countries among 185 signatories to the UN Framework

Convention on Climate Change (UNFCCC) have to ratify the Protocol. In addition, these must include industrialised countries (Annex I Parties to UNFCCC) accounting for 55 per cent of that group's carbon dioxide emissions in 1990. After Russia ratified the Kyoto Protocol, it came into effect in 16th february2005.The Kyoto Protocol set binding targets for the Annex I countries, 37 developed nations and the European community, to reduce their greenhouse gas emissions by around 5.2 percent from the level of 1990 within the time limit of 2012 .

The protocol gave three innovative mechanisms Joint Implementation (JI), the Clean Development Mechanism (CDM) and International Emission Trading , to boost the cost effectiveness of climate change mitigation by opening ways for parties to cut their emission.

2. CLEAN DEVELOPMENT MECHANISM

CDM is one of the mechanism stated under the Kyoto Protocol. It has two main purposes first to assist developing countries in achieving sustainable development, thereby contributing to the ultimate objective of the Convention, and secondly to assist developed country Parties in achieving compliance with part of their quantified emission limitation and reduction commitments under Article 3 of Kyoto Protocol.

The major steps in CDM Project Cycle are,

- Submission of the Project Design Document (PDD) to the National CDM Authority (NCDMA);
- Project registration in the host country;
- Project validation and registration by the Executive Board (EB) of the UNFCCC;
- Project monitoring by the host country;
- Verification and certification of the project;
- Issuance of Certified Emission Reductions (CERs)

3. CDM IN INDIA

There are around 8740 CDM projects in the world, of which 7126 are in the Asia and Pacific region. India belong in this Asia and Pacific region. India is one of the world's largest hosts of such clean development projects. India have around one-quarter of the global total – had been registered with India's Designated National Authority for the Clean Development Mechanism. Only China hosts more such projects than India.

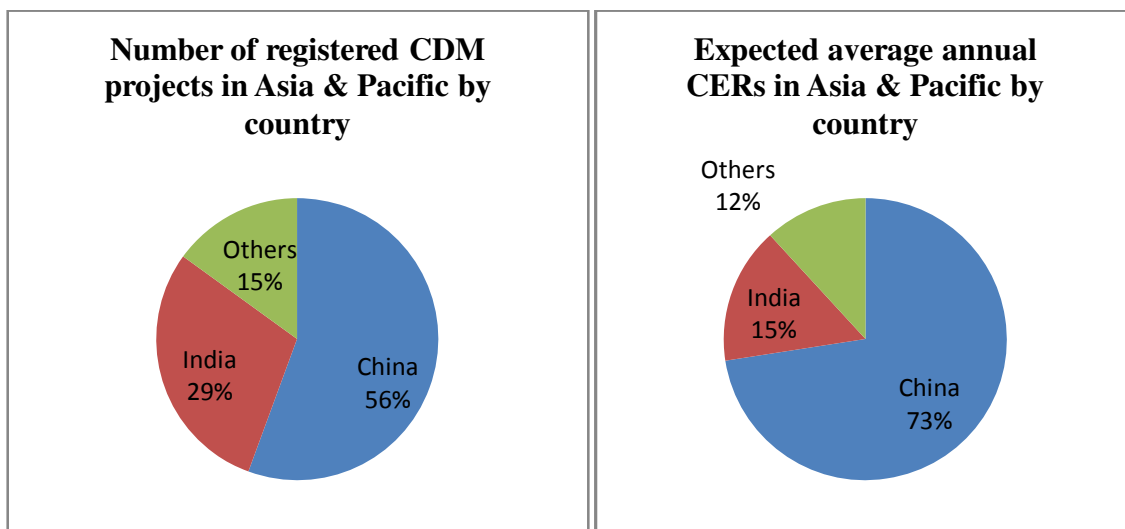
**Figure 1****Figure 2**

Figure 1 shows the percentage of CDM projects India and China have in Asia-Pacific region. India accounts for 29% of the total projects.

Figure 2 shows the number of Certified emission reductions (CERs) issued till 2012 (till first commitment period) in Asia-Pacific region. Around three quarters of CERs were issued to China. India had only 15% share in the total CERs issued.

Total number of CDM projects registered with the National CDM authority till march 2014 are 2857, out of which 676 are large scale projects and 2179 are small scale projects. Table 1 shows the distribution of these projects across different sectors in India.

Table 1

Afforestation and Reforestation	18
Agriculture	3
Chemical Industries	18
Energy Demand	222
Energy Distribution	9
Energy industries(Renewable/Non-renewable sources)	2248
Fugitive emissions from fuel(Solid, Oil and gas)	3
Fugitive emissions from production and consumption of halocarbons and sulphur	6

Manufacturing Industries	237
Metal Production	5
Mining/Mineral Production	4
Solvent use	1
Transport	13
Waste handling and disposal	70
Total (No. of Projects)	2857

Currently there are 207 approved methodologies on different sectors with UNFCCC which help the people starting their projects.

Some of the CDM projects in operation in India are

- Wind Power based electricity generation in Gujarat, India
- Methane Extraction and fuel Conservation Project, TNPL, Kagitapuram, Tamil Nadu
- Model Project for increasing the efficient use of Energy using a Coke Dry Quenching system at TISCO Jamshedpur, Jharkhand
- Araku Valley Livelihood Project, Andhra Pradesh
- Expansion of Nature and Waste Bhalaswa Composting Plant, Delhi

There are 26 central government projects and 43 state or local government projects in India.

The distribution of these projects between different states of India are shown in Figure 3.

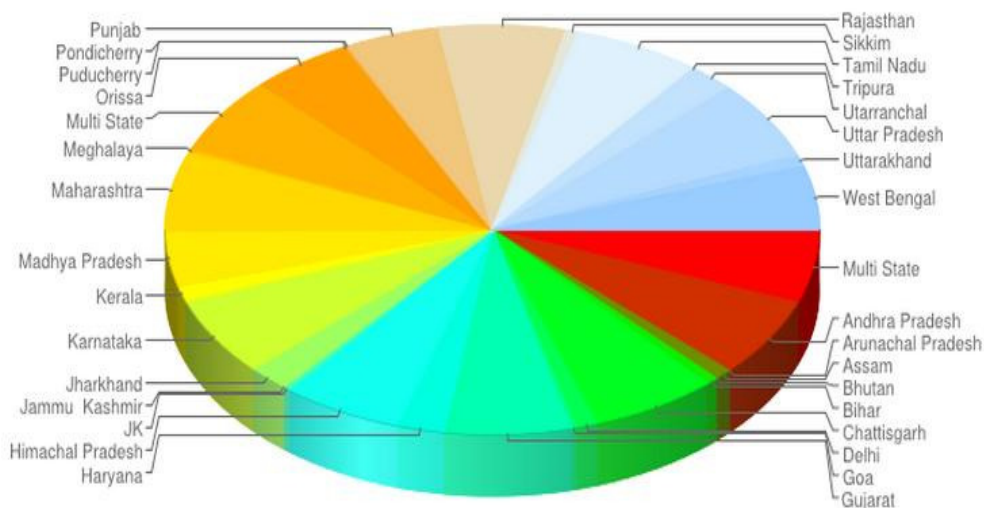


Figure 3

The distribution of CDM projects in India shows the presence of high number of such projects in industrialised states like Maharashtra and Gujarat.

4. INDICATORS OF PROGRESS OF CDM IN INDIA

Total annual reduction expected by the CDM project in India were 229730 Kt CO₂ and the green house gases (GHGs) emission 1523 Mt CO₂.

No. of projects per national carbon emissions in Million tons CO₂ for India is 1.37.

Investment capability (No. of CDM projects/GDP) for India is 1.31, which is more than double of the Asia and Pacific region (0.66) and even higher than that of China (0.89).

CDM contribution to the Indian economy (Annual CERs/GDP) is 143.77 tCO₂/ Million US dollars.

The most Important indicator is the actual emission reductions. It is percentage of country emissions covered by estimated CERs. It is 15.1%, which is more than the region average of 8.2 %.

5. HOW TO IMPROVE CURRENT PROCESS?

CDM has proved its worth by surviving after 2012 and has to play a key function in a future international climate regime. But certain area of the process need reforms to make it more effective.

Actions to reduce delays in project registration and certification by streamlining the administrative process and improving the existing methodologies.

Wider implementation of PoAs (Programme of Activities) should be facilitated both by the executive board and potential host countries, as this option potentially enhances the efficiency of the CDM and offers more opportunities for small and low-income developing countries to access the CDM.

The criteria for CDM approval could be expanded to allow for a “policy CDM”, allowing the focus to shift from towards climate mitigation and adaptation actions in developing countries.

We could create a global point system for different types of development aspects of CDM projects. More points could be allotted to the most desirable projects, but all projects would have to reach a minimum number of points for sustainable development benefits to be accepted. Certain parts could be made mandatory if they were considered too important to be left out.

The CDM should be used to encourage developing country engagement under a new proposed financing framework for nationally appropriate mitigation actions. This is likely easier to negotiate in tandem with an expanded CDM than by merely requesting developing countries to take on explicit emissions caps for the short and medium term.[3]

A more vigilant monitoring system should be in place by the host countries to ensure the qualities of CDM projects throughout their crediting period.[4]

One of the disheartening outcomes of CDM has been its low effectiveness. A more radical approach would be to reduce the quantity of CERs issued from projects which have little impact on sustainable development. However identifying such projects could be debatable between different parties.

6. CONCLUSIONS

Analysis clearly show that the share of CDM projects in India in Energy Industries is very high. While in sectors like afforestation and transport are very low. The number projects in Industrialised states like Gujarat and Maharashtra are very high in comparison to less industrialised ones. Reforms are needed to extend this type of projects to less industrialised states. To improve the CDM's contribution to sustainable development in India, the Government of India should consider investing in capacity building in those less developed states that are implementing few CDM projects relative to their population, such as Bihar and Uttar Pradesh.

The CDM in its current form has not realized sustainable development benefits envisaged at the time of its creation. By facilitating investments in the Clean Development Mechanism in the areas that need them the most, the Indian government could reap the double benefit of climate mitigation and economic development. However one should not lose the focus from the actual goal of Kyoto

Protocol, which is not limited to the number of CERs produced but to reduce the emissions through the path of sustainable development.

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