

AN OVERVIEW OF CLEAN DEVELOPMENT MECHANISM IN INDIA

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ABSTRACT

Adverse effect of climate change on atmosphere becomes a global issue and it becomes necessary to think about protecting environment from all types of pollution. Manufacturing sector is directly responsible for emitting harmful gases in the environment. So, to put a control and to set limits on carbon emission by entities, implementation of Kyoto Protocol in 1997 became a big step towards saving our planet. Concerned developed and developing countries became signatories to the protocol and set their targets to reduce emission levels. Protocol was started with first commitment period from 2005-2012 and set targets for the participating countries. Objective of the study is to review the position and role of India in both commitment periods. Developing economy India becomes a signatory country under Kyoto Protocol and now recognized as world's second largest country after China to hold CDM projects. Transactions of CERs are registered under CDM registry. In year 2006, India holds 30% share of total registered CDM projects. India had its own National Clean Development Authority (NCDA) as its national registry system. Registered projects of India are from 31 states and Union Territories from 14 different sectors. Here, Energy industry leads by registering highest 2344 projects in first commitment period. It has been observed that second commitment period records less projects as compared to first commitment period. Many signatory countries back out from the protocol after the end of first commitment period. Lack of detailed information about second commitment period becomes the limitation of the study. But still India's performance is significant at international platform. India's efforts and contribution in reducing carbon footprints are appreciable regarding CDM projects.

Keywords: Kyoto Protocol, Clean Development Mechanism, Certified Emission Reduction, India, NCDMA.

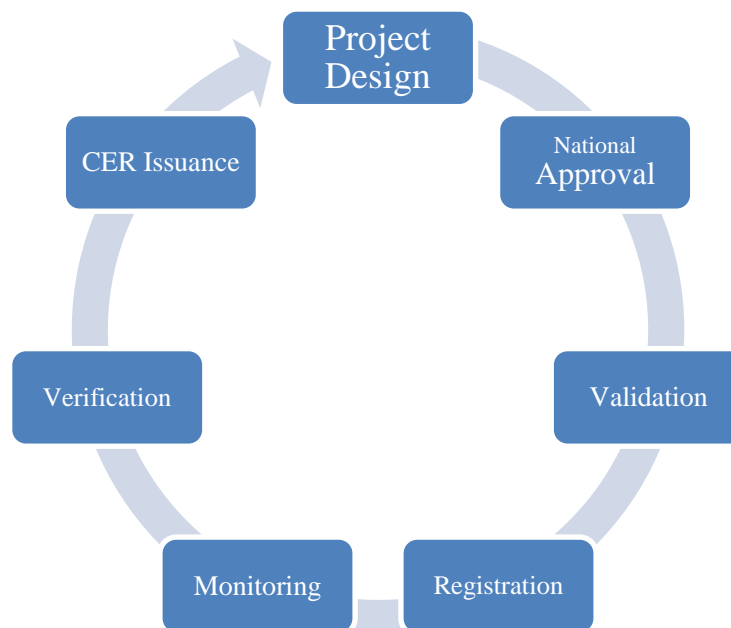
Introduction

Article 12 of Kyoto Protocol defines Clean Development Mechanism. This mechanism allows countries (Annex-B) which are bind for Kyoto targets regarding emission to set up emission reduction projects in developing country to reduce emission in developing country. Developed country earns Certified Emission Reduction (CER_s) units from emission reduction projects which are required by them to meet their Kyoto target. This mechanism ensures sustainable development. Every CER_{earn} is equal to one tonne of CO₂. These CER_s are traded in international carbon market and generate revenue for the entity. Because of its flexible nature it ensures sustainable development of the countries in long term along with contributing in solving problem of climate change.

CDM is operational since 2006 and had registered 1650 projects in its first commitment period initially. Clean Development Mechanism Executive Board looks into the concerned matters. Project Cycle of CDM projects involves 7 steps. Beginning with the project design other steps follows by one another, completing after the issuance of CER_s.

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Source: UNFCCC

All the transaction regarding CER is recorded in a systematic manner in '**CDM Registry**'. This registry is maintained by registry administrator who is appointed by CDM Executive Board. The transactions are in the form of electronic database. This ensures transparency and accuracy regarding accounting procedure and issuance of CER_s. There are two types of transactions by which CER_s are traded off. First is **Voluntary cancellation of CER_s** in which participants of the CDM projects voluntarily cancels their holding of CER_s on their own (or by third party deal in some cases). This arrangement got started in 2017. This cancellation of CER_s creates more demand of CER_s in the voluntary market. Most importantly this reduces carbon footprint from the earth surface. Second one is **Carbon Trade Exchange** which is a wide and global platform for buyers and sellers of CER_s. There are 4 types of account under CDM Registry system which are as follows: -

- **Pending Account:** This account is the main account under CDM registry system. With due approval from Executive Board, registry administrator issue number of CER into this account. This account can hold CER_s until they are transferred to holding account.
- **Adaption Fund Account:** At the time of issuance of CER_s, 2% of the value is transferred to this account. This fund is used to handle adverse effects of climate change.
- **Temporary Holdings Account:** CER_s remains in this account until national registries are not connected to ITL. Once connected then these units are transferred to concerned account.
- **Permanent Holdings Account:** CER_s transferred from pending account moves into this account. Units in this account can only be transferred into holding accounts of participating country of the CDM project.

Purpose of the Study

The main purpose of the study is to review the status of CDM and registered projects in Indian context. Kyoto protocol was started with set targets for the first commitment period starting from 2005 ending in 2012. Second commitment period started after Doha amendment from 2013 ending 2020. This article tries to review the role of India in both commitment periods.

Limitations of the Study

The source of this study is based on Secondary data from official websites, published articles, research papers, books, magazines, newspaper and press release. Dataset for first commitment period was available on official websites but data for second commitment period was not disclosed properly in Indian official websites. Because of this, comparison of both commitment period cannot be drawn out in detail.

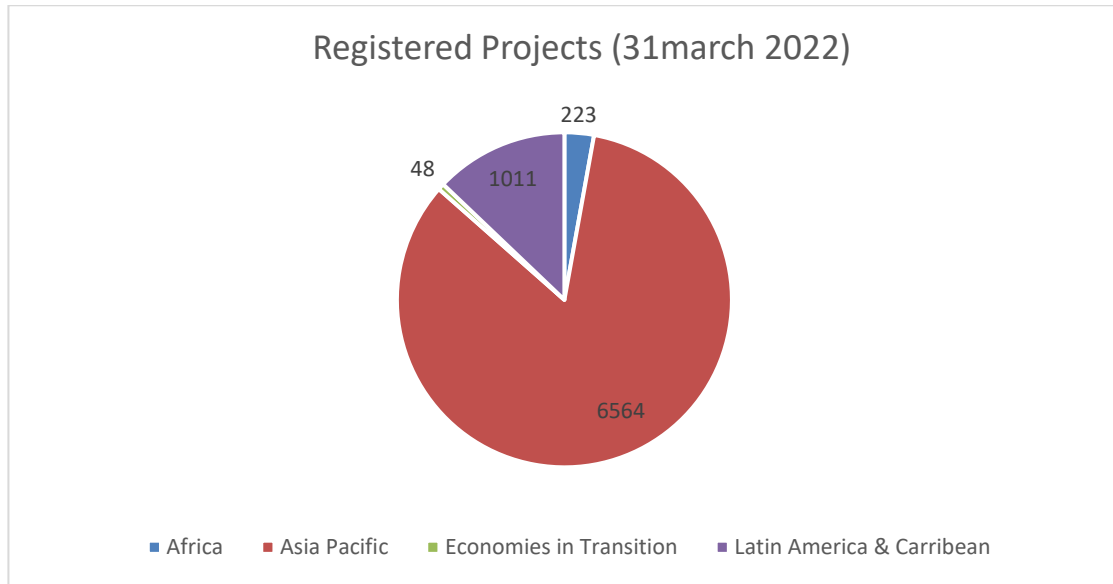
Issuance of CERs by CDM Executive Board

As per the guidelines of paragraph 6 (Appendix D) of the CDM Modalities and the procedure, CERs are issued by the CDM Executive Board by CDM registry. Following table shows the total no of CERs issued by the authority:

	Commitment Period 1	Commitment Period 2	Total
CERs issued for PA	1,483,680,621	882,773,204	2,366,453,825
CERs issued for PoA	1,793,187	71,233,658	73,026,845
Total	1,485,473,808	954,006,862	2,439,480,670

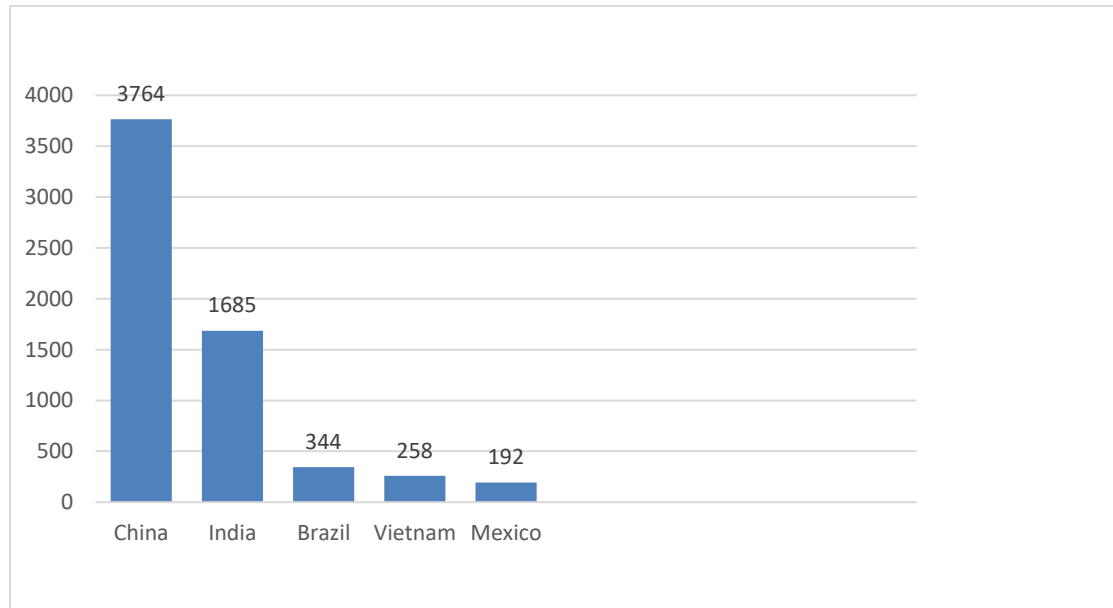
Source: UNFCC/CDM Registry/Activity Search/Issuance of CERs

PoA- Program of Activities



Source: CDM> About CDM>CDM Insights > Project Activities

Top Five Countries having CDM Projects (Up to 31 March 2022)



Source: CDM> About CDM>CDM Insights > Project Activities

Clean Development Mechanism in India

India is playing a major role in environment protection activities by registering second largest numbers of CDM projects. CER_s related transactions are registered under CDM registry. As mentioned earlier India is signatory country under Kyoto Protocol and world's second largest country after China (until 2008) to hold CDM projects. In the year 2006 India holds 30% share of total registered CDM projects. Indian had its own **National Clean Development Authority**. NCDMA is a national regulatory body floated in Dec.2003 in India which looks after the projects under CDM. It is an appointed authority for Host Country Approval (HCA) as per the requirement under CDM and Kyoto Protocol.

First Commitment Period (2000-2012)

Year	No. of Registered Projects	CER _s Generated	Share in total projects under CDM
2005	17	8	27.42%
2006	124	250	30.32%
2007	161	300	37.79%
2008	82	350	19.03%
2009	94	150	13.74%
2010	134	125	16.56%
2011	189	150	17.07%
2012	141	175	13.13%
Total	942	1500	18.83

Source: Rapid Assessment Report CDM_VCM issued by Ministry of Environment, Forest and Climate Change, Govt. Of India

CER_s Issued for Indian Projects:

Kyoto Protocol Commitment Period 1 (2000-2012)	199,212,239
Kyoto Protocol Commitment Period 2 (2013-2020)	59,780,658

Source: UNFCCC

As compared to first commitment period, no. of registered projects and activities are going down in India. Many signatory companies of first commitment period backs out from the protocol. This makes less demand situation for CER_s. Also ratification of second commitment protocol was not done till 2020 which was its end year. Detailed of second commitment period is not available which becomes a hurdle in making comparison of both the commitment period.

State wise Projects Registered under NCDMA (2020)

State/ UT	Total Registered Projects	State/ UT	Total Registered Projects
Andaman & Nicobar	01	Maharashtra	393
Andhra Pradesh	227	Meghalaya	04
Arunachal Pradesh	02	Madhya Pradesh	84
Assam	16	Multi State	202
Bihar	10	Orissa	83
Chandigarh	01	Puducherry	03
Chhattisgarh	107	Punjab	76
Delhi	17	Rajasthan	247
Gujarat	389	Sikkim	10
Goa	05	Tamil Nadu	378
Haryana	37	Telangana	03
Himachal Pradesh	101	Tripura	01
Jammu & Kashmir	06	Uttarakhand	51
Jharkhand	32	Uttar Pradesh	175
Karnataka	261	West Bengal	82
Kerala	19		

Source: Rapid Assessment Report CDM_VCM issued by Ministry of Environment, Forest and Climate Change, Govt. Of India (2020)

Sector Wise Project Portfolio of India (2020)

Sector	No. of Projects	Sector	No. of Projects
Agriculture	06	Fugitive emission from fuels (solid, oil and gas)	04
Afforestation and reforestation	27	Fugitive emission from production and	05
Chemical Industries	19	Manufacturing industries	245
Construction	0	Metal Production	05
Energy Demand	233	Mining/mineral production	04
Energy industries (renewable/non-renewable)	2344	Waste handling and disposal	72
Transport	13		

*No. of projects include both small and large projects

Source: Rapid Assessment Report CDM_VCM issued by Ministry of Environment, Forest and Climate Change, Govt. Of India (2020)

Conclusion

India as a developing country is moving towards sustainable growth and development. India is participating in Clean Development Mechanism and registering projects at an accelerating speed. This shows positive attitude of Indian entities in protecting environment. Majority of the sector had their projects registered under CDM (except construction). Energy sector leads with 2344 projects registered. However, it has been observed that second commitment period records less registered project as compared to first commitment period. There are many factors behind this downfall. One of the most probable reasons is the complexity of the process of registration and clearance. After going through data and literature, it has been observed that companies are not purchasing CER's to meet their target requirement. This lack of interest of countries towards purchasing CER's is a big reason for downfall in registering projects in second commitment period. However, this situation leads to carbon removal from atmosphere rather than be purchased and used by some other country. But still India's performance is significant at international platform. As India is developing country and lot of urbanization, expansion activities and other manufacturing activities emits hazardous gases but India's efforts and contribution in reducing carbon footprints are appreciable.

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