

Problems of Clean Development Mechanism (CDM) Projects in India

Nanda Dulal Hazra,

Assistant Professor of Commerce,
Tamralipta Mahavidyalaya, Tamluk,
Abasbari, Purba Medinipur, West Bengal, India

ABSTRACT

Clean Development Mechanism (CDM) projects aims at a cost-effective reduction of GHG emissions with technology and capital transfer from industrialized to developing countries. It is one of the most effective project based mechanism as suggested by the Kyoto Protocol 2005. About 84% of the total registered projects is concentrated in Asia and Pacific region and about 72% of the total registered projects is in renewable energy sector. India places 2nd after China in respect of establishment of registered CDM projects. India has many favourable factors for establishing of CDM projects. In this backdrop I have tried to identify the status of the CDM projects in India and its inherent problems. For collecting the data I have used basically the secondary source. Main problems of the Indian CDM projects are lack of transparency, high percentage of rejection of projects by Executive Board of UNFCCC, regional disparity in projects distribution, corruption in verification and certification of Certified Emission Reduction (CER) unit by Designated Operational Entity (DOE), high transaction cost, continuous fall in CER price in world market etc.

Keywords: Clean Development Mechanism, Certified Emission Reduction, Transaction Cost, Green House Gases etc.

INTRODUCTION:

To fight Global warming Kyoto Protocol was agreed upon under the United Nations Framework Convention on Climate Change (UNFCCC) in 1997 and it came into force in 2005. This protocol suggested three flexible mechanisms to reduce the volume of emission from the atmosphere and Clean Development Mechanism (CDM) is one of such flexible mechanism. This mechanism (CDM) is defined in article 12 of the Kyoto protocol, 2005 and it enables Annex I countries to earn Certified Emission Reduction or CER from project activities in the developing countries in exchange of providing funds and technologies to launch the projects. A party where a CDM project is implemented is called 'Host country'. CDM aims at a cost-effective reduction of GHG emissions with technology and capital transfer from industrialized to developing countries. Reduction in emissions shall be additional to any that would occur in the absence of the certified project activity.

The CDM allows Govt. or private entities in developed countries (having emission reduction obligation) to implement emission reduction projects in developing countries and receive credit in the form of CER (1ton of CO₂e) which they may use to meet their national emission reduction target. The CERs received from the host country increase the emission reduction cap of the Annex-I parties. The CERs issued by the CDM Authority during the first commitment period (2008-2012) can only be used by the Annex-I parties during the first commitment period. The CDM offers the industrialized countries an opportunity to reduce emission anywhere in the developing world and to use (exchange) these reductions towards meeting their own GHG reduction commitments. Investment in CDM projects in developing countries by developed countries helps in achieving economic, social, environmental, and sustainable developments. It also helps in cleaning land and air, improved land use, employment generation, poverty alleviation, and such other sustainable environment-friendly developmental goals.

LITERATURE REVIEW:

Toman (2000): In CDM projects, developed countries (or firms in those countries) could fund GHG abatement projects in developing countries where abatement costs were much lower. In turn, the developed countries would receive (purchase) credits (“certified emission reductions” or CERs) that could be used to offset their emission reduction obligations.

National Strategic Study (2005): The objectives of the study were to analyse the opportunities that would generate from the CDM projects in India and to identify the position of India to encash such opportunities. They concluded that there were two issues: India was expected to capture between 20 and 30 per cent of the CDM market, bringing in up to \$300 million in revenue. Several favourable enabling factors had contributed to India’s pre-eminent position in the CDM market such as a good technical base and a pro-active National CDM authority, which included secretaries from the ministries such as finance, non-conventional energy sources and power relating to CDM those were important in the context of incentive-based policy. Projects in renewable energy, improved industrial efficiency and industrial processes, fuel switching and municipal solid waste disposal offered the greatest potential for CDM.

Karen Holm Olsen (2007): The objective of the research was to identify the potential impacts of CDM in sustainable development of the host country. For this reasons he surveyed 200 literatures about the CDM and concluded that CDM did not significantly contribute to the sustainable development of the developing or host country.

Sutter and Parreno (2007): The main objective of the study was to investigate whether the CDM projects fulfilled the two fold objectives laid down by the Kyoto Protocol as reduction of greenhouse gases and sustainable development of the host country. For this, they analysed 16 existing registered CDM projects and they found that about 72% of the projects fulfilled the first objective and only 1% of the projects fulfilled the second objective. They finally concluded that none of the UNFCCC registered CDM projects fulfilled both the objectives as laid down by Kyoto Protocol.

S. Sirohi (2007): The main objective of the study was to investigate whether CDM projects had any notable impacts on poverty alleviation of the rural people. They found that all the projects were running on business motive and none of these projects was running in the direction of poverty alleviation, which is the main part of the sustainable development of country. He also concluded that even the most prospective renewable energy CDM project of India could not fulfil this objective but it was imminently important in development of energy resources in India.

Promode Kant (2010): The objectives of the study were to investigate the problems associated with the CDM projects situated worldwide and its probable solution. He found that main problem of the CDM projects was regional imbalance of establishment of CDM projects. It was observed from the existing 2500 registered CDM projects that about 83% of the projects were situated in seven countries and again out of 83% of the CDM projects, three fourth was situated in China and India. He found that the reasons behind the regional imbalance was the poor and corrupted governance in many developing countries which increased the risk of foreign investment in CDM projects in the host country. He finally concluded that this problem could be solved by making a partnership with the host country (PPP mode) and involving a world level organization like World Bank in this process to reduce the risk of foreign investment.

FICCI (2012): The objectives of their study were to identify the probable impacts of CDM in India and to identify the existing problems of the CDM projects in India. They concluded that CDM projects helped in effective GHG emission reduction of the host country, increased energy security in the host country, technology transfer into the host country, and almost all the CDM projects helped in sustainable development of the host country. They also concluded that CDMs had positive impacts on environmental, social, economic, technological, and institutional benefits. They identified three barriers relating to the CDMs, such as, technical barriers, financial barriers, and procedural barriers.

METHODOLOGY:

Data sources:

In this paper I have used only secondary data collected from different journals, website, news paper etc. Maximum data have been collected from the date of implementation of Kyoto Protocol i.e. 2005 to 1st June 2016 from cdmpipeline.org and cdmindia.gov.in.

Objectives: Following are the objectives of the study:

- i) To identify the status of the CDM projects around the world and in India and;

ii) To identify the problems of the Indian CDM projects.

FINDINGS AND DISCUSSION:

Keeping in view the above mentioned objectives and by analyzing the data I found the following status of CDM projects worldwide as well as in India and the problems of Indian CDM projects:

Worldwide status of CDM projects:

To analyze the present status of the CDM projects throughout the world we have used the data of cdmpipeline.org on 1st June, 2016. We have analyzed the data in respect of regional distribution of CDM projects and its associated CER issues till the end of the first commitment period i.e. 2012, regional distribution of large and small CDM projects, distribution of projects at different stages of development (validation, request for registration and registration), sector wise distribution of CDM projects and its associated CER issues till the end of 2012, country wise distribution of CDM projects, country wise distribution of some important renewable projects (wind, solar, hydro and biomass) and review history of the total CDM projects.

Table No.4.1: Worldwide regional distribution of CDM projects (at validation, request for registration and registered) on 1ST JUNE 2016

Region	Projects		KCERs issued (2012)		Large Scale Projects		Small Scale Projects	
	No.	%	No.	%	No.	%	No.	%
Latin America	1,098	13.0	317,888	14.26	698	13.8	400	11.7
Asia & Pacific	6,937	81.8	1,786,233	80.12	4,058	80.5	2,879	83.8
Europe and Central Asia	85	1.0	20,748	0.93	60	1.2	25	0.7
Africa	246	2.9	100,402	4.5	161	3.2	85	2.5
Middle East	110	1.3	4,049	0.19	67	1.3	43	1.3
Total	8,476	100.0	2,229,320	100.0	5,044	100.0	3,432	100.0

Source: cdmpipeline.org 1ST JUNE, 2016

From the table no.4.1 it is observed that Asia and Pacific dominates the entire scenario in terms of registered, request for registration and at validation CDM projects and it accounts for 81.8% of the total CDM projects at this stage, followed by Latin America (13%), Africa (2.9%), Middle East (1.3%), and Europe and Central Asia (1%) respectively. If we look into the region wise KCER issued up to the end of first commitment period i.e. 2012 we find that Asia & Pacific accounts for 80.12%, followed by Latin America (14.26%), Africa (4.5%), Europe and Central Asia (0.93%), and Middle East (0.19%) respectively. From the table it is seen that out of total 8476 CDM projects at different stages, 5044(60%) are large and 3432(40%) are small projects. Again, region wise distribution of large projects shows that Asia and Pacific accounts for 80.5%, followed by Latin America (13.8%), Africa (3.2%), Middle East (1.3%), and Europe and Central Asia (1.2%) respectively. This trend is also observed in case of regional distribution of small CDM projects.

Table No. 4.2: Sector wise distribution of world CDM projects and CERs for different time period

Sectors	Projects		KCE Rs (2012) Actual		KCE Rs (2020) Expected	KCE Rs (2030) Expected
	No.	(%)	No.	(%)	No.	No.
Renewable energy	6,046	71.33	666,423	29.89	5,256,460	10,526,675
HFCs, PFCs, SF, CH ₄ & N ₂ O reduction*	1,431	16.89	1,243,661	55.79	3,801,824	5,818,243
Energy efficiency (energy demand & energy distribution)	763	9.00	167,347	7.50	949,661	1,306,538
Fuel switching	133	1.57	128,925	5.78	612,017	959,191

Sectors	Projects		KCE Rs (2012) Actual		KCE Rs (2020) Expected	KCE Rs (2030) Expected
	No.	(%)	No.	(%)	No.	No.
Forestry(Afforestation & Reforestation)	70	0.83	18,145	0.81	39,961	70,157
Transport	33	0.38	4,819	0.23	39,596	77,896
Total	8,476	100.00	2,229,320	100.00	10,699,519	18,758,700

Source: cdmpipeline.org 1ST JUNE, 2016

*(Agriculture, Chemical industries, fugitive emission from fuel, fugitive emission from production and consumption of halocarbons & sulphur, manufacturing industries, metal production, mining / mineral production, waste handling & disposal)

Table no.4.2 shows that out of 8476 CDM projects, 6046 (71.33%) are renewable energy (wind, solar, hydro & biomass) project and it dominates all other sectors. The project-category about the HFCs, PFCs, CH₄, N₂O reduction is in 2nd position (with 1431 or 16.89%), followed by energy efficiency projects (with 763 or 9%), fuel switching (with 133 or 1.57%), forestry (with 70 or 0.83%), and transport (with 33 or 0.38%) respectively.

But, if we look into the actual CERs issued as at the end of 2012 and expected CERs by 2020 and 2030 by the different types of projects, it is observed that maximum number of CERs issued till the end of 2012 struck the project-category 'HFCs, PFCs, CH₄, N₂O reduction' with 1,243,661 KCERs or 55.79%, followed by renewable energy-category (wind, solar, hydro & biomass) with 666,423 or 29.89%, energy efficiency-category (167,347 or 7.5%), fuel switching-category (128,925 or 5.78%), forestry (18,145 or 0.81%), and transport (4,819 or 0.38%) respectively. Expected CERs by 2020 and 2030 also show the same trends.

Status of CDM projects in India:

Table No. 4.3: Year wise Registration of Indian CDM projects and CERs issued

Year	No. of Regd. Projects	CER issued
2005	17	48,230
2006	124	1,29,50,789
2007	161	2,10,66,026
2008	82	2,01,17,353
2009	94	1,87,38,421
2010	133	94,13,729
2011	189	4,47,90,821
2012	569	3,57,42,154
Total up to 2012	1,369	16,28,67,523
2013	114	2,64,41,369
2014	71	1,12,64,557
2015	60	89,46,229
2016(1 st June)	4	42,10,618
Total after 2012	249	5,08,62,773
Grand Total	1,618	21,37,30,296

Source: cdmpipeline.org, 1ST June, 2016

Table no.4.3 shows the year wise distribution of CDM projects and CERs issued during the period 2005 to 2016. It also shows the total number of CDM projects and CERs issued up to the end of first commitment period 2012 and up to the year 2016. Now the total number of CDM projects in India is 1618 up to the 1st June 2016 and total CERs issued for the same period are 21,37,30,296 units. At the end of the first commitment period, total number of CDM projects registered is 1369 which is 85% of the total. Quantity of CERs issued for the same period is 16,28,67,523 units (or 76%) out of the total 21,37,30,296 units. At the end of first commitment period, total number of CDM projects registered is 249, which is 15% out of 1618 registered projects. CERs issued till the end of first commitment period is 5,08,62,773 units.

Maximum number of CDM projects registered with the Executive Board (EB) in the year 2012 and it is 569,

followed by the year 2011(with 189), 2007(with 161), 2010 (with 133), 2006 (with 124), 2013 (with 114), 2009 (with 94), and 2008 (with 82) respectively.

Table No. 4.4: Sector wise distribution of CDM projects in India

Sectors	No. of projects	Percentage (%)
Renewable energy	1519	74.94%
HFCs,PFCs,SF,CH ₄ & N ₂ O reduction *	114	5.62%
Energy efficiency(energy demand & energy distribution)	318	15.69%
Forestry(Afforestation & Reforestation)	20	0.98%
Fuel Switching	45	2.22%
Transport	11	0.55%
Total	2027	100.00%

Source:cdmpipeline.org,1ST June, 2016

*(Agriculture, Chemical industries ,fugitive emission from fuel, fugitive emission from production and consumption of halocarbons & sulphur, manufacturing industries, metal production, mining /mineral production, waste handling & disposal)

From the above table (no. 4.4) it is observed that about 75% of the total CDM projects in India are in renewable energy sector followed by energy efficiency projects (15.69%), {HFCs, PFCs, SF, CH₄andN₂O} reduction projects (5.62%),fuel switching(2.22%), forestry (0.98%), and transport (0.55%) respectively. If we look into a comparison of the sector wise concentration of CDM projects around the world (Table no. 4.2) and India (Table no. 4.4), we find some differences. In respect of the world, (HFCs, PFCs, SF, CH₄& N₂O reduction) project-category occupies second rank; but in India it is in the third rank and ‘energy efficiency’ project-categories in second rank.

Table No. 4.5: State wise distribution of approved CDM projects in India

States	No of projects	Percentage (%)
Maharashtra	388	13.20
Gujarat	372	12.66
Tamil Nadu	371	12.62
Karnataka	255	8.67
Rajasthan	237	8.00
Andhra Pradesh	218	7.42
Uttar Pradesh	173	5.89
Chhattisgarh	105	3.57
Multi State	103	3.50
Others	717	24.47
Total	2939	100.00

Source: cdmindia.gov.in(1st June 2016)

The above table (no. 4.5) shows the state wise distribution of approved CDM projects in India. From the table it is observed that maximum number of projects is situated in Maharashtra (388), followed by Gujarat (372), Tamil Nadu (371), Karnataka (255), Rajasthan (237), Andhra Pradesh (218), Uttar Pradesh (173), and Chhattisgarh (105) respectively. It is also observed that more than 82% of the projects is concentrated only in 8 states and only balance 18% projects are situated in rest of the states.

Problems of CDM projects in India:

As stated earlier, India is not under any obligation to reduce emission since the emission level is still below the cap. So, there is no question of going for establishment of CDM projects as an obligatory measure. But, we have seen that there are so many voluntary attempts to establish CDM projects. These voluntary initiatives are guided *inter alia* by twin incentives – (i) serving the global interest to reduce global emissions, and (ii) earning huge income / profit by earning CERs and selling them in the market. Though the prospects of CDM projects in

India are huge, these are not without problems. These are dealt with very briefly here.

i. Lack of transparency: CDM projects in India are mainly surrounded by the project developer, host country Government, and International agency i.e. UNFCCC. The common people of this particular project area are not well aware of this project regarding its local impacts and how they will be benefitted from this project though public hearing or public consultation is mandatory about such CDM projects. Local people are unaware of process of CDM project; similar is the situation of the people in the relevant Government offices. Consultation is a mere formality at project development stage. Even Ministry of Environment & Forest (MOEF) is not aware on financial transactions relating to the data of CER earning and selling.

ii. Problems relating to the role of Indian DNA: In India, the role of the DNA is restricted only to the approval of the project. Even they do not examine in detail whether the project is really fulfilling the additionality and sustainability criteria or not. For this reason, percentage of non- approval of the CDM projects is very low though the percentage of rejection of the CDM projects by the EB is very high. The purposes of the CDM projects are to enhance the environmental, ecological, social and technological well- being. But after implementation of the CDM projects, DNA does not verify whether the projects are really fulfilling all these condition or not. Therefore, the main problem regarding the role of DNA is that it merely acts as a promoter of the CDM projects rather than promoter and evaluator of the project.

iii. High percentage of rejection of project by EB: A serious problem of Indian CDM projects is the high percentage of rejection of CDM projects that have already been approved by the NCDMA, by the Executive Board (EB) of UNFCCC. Actually in most of the cases the NCDMA does not verify in detail the project proposal as submitted by the project proposer as to whether it fulfills the entire underlying criteria for becoming a CDM project. For this reason, up to 2008, EB rejected 44% of the approved CDM projects of India. Again, up to 2012, total approved CDM projects in India were 2195, out of which only 827 were registered by the EB till the end of 2012. In percentage terms it was only about 38% of the approved projects. Again, up to 1st June 2016, total number of approved Indian CDM projects were 2939, out of which only 1618 or 55% of the projects were registered by the EB.

iv. Problems in Validation of Project by DOE: As stated earlier, validation is a process of independent evaluation of the proposed project activities by an external auditor known as Designated Operational Entity (DOE), which is hired by the project participants. They must evaluate the PDD in detail and ensure that the project fulfills the relevant criteria for becoming a CDM project. Actually after getting the host country approval the project proposer needs to validate the project by an accredited international organization known as DOE before it is submitted to EB for its registration. At this stage, the DOE verifies and certifies as to whether the project fulfills the sustainability and additionality clauses or not. They verify and certify whether the project uses efficient and clean technology or not, that is, whether the project is resulting in reduction of carbon emission. This criterion is known as sustainability. On the other hand, they also verify and certify that the said projects will be unviable to implement without carbon credit revenue. This key requirement is also known as the additionality clause. Several studies show that the DOE actually relies on the project developer's claim regarding the fulfillment of sustainability and additionality criteria without verifying them physically and independently. For instance, a captive power project named Jai Balaji Sponge Ltd., in Burdwan district of West Bengal, was granted CDM status in 2006. However, subsequently it was subjected to several penal actions by the West Bengal Pollution Control Board for violating environmental laws. The unit also faced closure on previous occasions for the same reason.

An American consulate cable released by WikiLeaks has pointed out the same thing. No Indian project can meet the "additionality in investment criteria" to be eligible for carbon credits, says the cable. It quotes R. K. Sethi, former member secretary of the NCDMA, saying that the national authority is responsible for evaluation and approval of Indian projects that reduce GHG emissions to earn credits in the global carbon market, i.e., NCDMA simply takes the "project developer at his word" for clearing the additionality clause. Several studies also show that many of the Indian CDM projects neither fulfill the sustainability criteria nor the additionality criteria; they are ineligible for CDM status.

v. Regional disparity of CDM project distribution: Another important problem of Indian CDM projects is the establishment of the CDM projects in some selected specific states. These projects are not spread all over the country. State wise distribution of approved CDM projects shows that about 56% of the projects are located in five states, namely, Maharashtra, Gujarat, Tamil Nadu, Karnataka, and Rajasthan respectively. So, the benefits of sustainable development by having CDM projects are enjoyed only by some specific states, not by the whole of the country uniformly.

vi. Corruption in verification & certification of CERs by DOE: After registration of the projects by the EB, projects must be monitored according to the methodology as given in the PDD. The data recorded in monitoring stages must be verified and certified as to its correctness, by the DOE which is accredited by the EB. After getting the certificate from the DOE, CERs are issued to the project developer. The problems arise at this stage due to false certification of the DOE. In November 2008, a Norwegian CDM project validation company, DNV, was suspended for false certification. This company verified several CDM projects in India. In 2010, the executive board suspended TÜV SÜD, a German validation company. “TÜV SÜD has been giving positive validation opinion even though there were concerns about additionality.

vii. High transaction cost: Establishment of CDM projects in India involves several types of huge transaction cost. Transaction cost involves search cost [cost of searching out interested partners for the transaction (such as advertisement, brokers, etc.), cost of communication, cost for price information and quality control, etc.], negotiation cost (cost for coming to an agreement, cost associated with the time spent, cost for drafting etc.), PDD preparation cost, host country approval cost, validation cost, registration cost, monitoring cost, verification cost, certification cost, and cost associated with adaption fees. Hamburgisches Welt-Wirtschafts-Archiv (HWWA) Report no.238 divided the total transaction cost into two categories such as pre-implementation cost and post-implementation cost. Pre-implementation cost involves the cost before the establishment of the projects and it involves search cost, negotiation cost, PDD design cost, host country approval cost, validation cost, and registration cost. On the other hand, post-implementation cost implies cost incurred after the establishment of the projects and it involves monitoring cost, verification cost, certification cost, and cost associated with adaption fees.

The below-given tables (4.6 & 4.7) show the transaction cost for development of non-Small scale or large CDM projects in India. It shows that the cost ranges in between 160000\$ and 715000\$, which appears to be quite high. Again, if we look into the category wise transaction cost, we find that the maximum transaction cost is incurred for host country approval excluding the adaption fees in minimum range of cost, followed by negotiation cost, PDD design cost, and search cost respectively. If we consider the maximum range of cost, it shows that maximum amount of cost is incurred for negotiation cost, followed by verification and certification cost, host country approval cost, and PDD design cost respectively. Again, the HWWA Report No.238 regarding different transaction costs per ton of CO₂ reduction (US\$/t CO₂) shows in case of lowest range of cost of some selected Indian CDM projects that maximum amount of cost is incurred for adaption fees (2% of CER) and it is about 68% of the total transaction cost followed by registration cost, search cost, and PDD design cost respectively. But the share of adaption fees is lower when the size of the project is the largest and it becomes only 18.7%. In this case, maximum amount of cost incurred per ton of CO₂ reduction is PDD design cost, followed by search cost, adaption fees, and validation cost respectively. It is also observed that a large portion of cost is incurred for the purpose of validation, verification and certification which are charged by the DOE. Table no.4.8 shows the registration fees charged by the UNFCCC and it shows that it ranges from 5000US\$ for small projects to 30000US\$ for large projects.

Table no. 4.6: Different types of transaction cost for large CDM projects in India

Types of cost	Minimum(in us\$)	Maximum(in us\$)
Search cost	18,000	18,000
Negotiation cost	29,000	4,71,000
PDD design cost	28,000	43,000
Host country approval cost	47,000	47,000
Validation cost	6,000	34,000
Registration cost	5,000	30,000
Monitoring cost	12,000	12,000
Verification +Certification cost	15,000	60,000
Adaption fees associated cost	2% of CERs	2% of CERs
Total	1,60,000	7,15,000

Sources: Michaelowa/Stronzik (2002), p. 24

Table No. 4.7: Share of Cost Components in Specific Transaction Costs for CDM Projects in India

Types of cost	Lowest Cost		Highest Cost	
	US\$/t CO ₂	Percentage (%)	US\$/t CO ₂	Percentage (%)
Search cost	0.005	8.1	0.091	19.4
Negotiable cost	0.002	3.2	0.044	9.4
PDD design cost	0.004	6.5	0.125	26.6
Validation cost	0.003	4.8	0.080	17.0
Registration cost	0.006	9.7	0.042	8.9
Adaption fees	0.042	67.7	0.088	18.7
Total	0.062	100.0	0.470	100.0

Source: Matthias Krey, Hamburg Institute of International Economics, Hamburgisches Welt-Wirtschafts-Archiv (HWWA) Report no.238 (2004), Publisher –Econstor

Table No. 4.8: Registration fees for CDM projects

Average tonnes of CO ₂ equivalent reductions/ year over the crediting period (estimated/ approved)	Amount (US \$)
<=15000	5,000
>15000<=50000	10,000
>50000<=100000	15,000
>100000<=200000	20,000
>200000	30,000

Source: www.cdm.unfccc.int (2003)

viii. Continuous fall in CER price in world market: For buying and selling, one Certified Emission Reduction (CER) privately or internationally is considered equivalent to one metric ton of CO₂ emission. The price of the CER is generally denoted in Euros (€) per metric ton. For transferring CER internationally, approval of UNFCCC is required and if the transfer is made within the European Union, it requires further approval from the European Commission. The transfer of CER is made through some specified stock exchanges. Presently there are five such exchanges, namely, European Climate Exchange, NASDAQ OMX Commodities Europe, Power Next, Commodity Exchange Bratislava, and the European Energy Exchange. The price of the CER is determined by the market forces (supply and demand) of the CER and the growth of the CDM market hugely depends on the price of the CER. But the CER price is unstable and is reducing continuously and it makes the growth of the CDM market under question. In 2008, the price of one CER was nearly €24(Rs.1500); but after that the price has come down drastically and is highly fluctuating in nature. Presently (i.e., on 01.06.2016), the price of CER is €5.95. The table given below shows the trend of CER price in European Energy Exchange (EEX) over the period from 2009 to 2016 at the 1st day of month of January only.

Table No. 4.9: Year wise CER price (Only at the 1st day of Month of January) trend at European Energy Exchange

Year	2009	2010	2011	2012	2013	2014	2015	2016	01.06.2016
Price(€)/tCO ₂	12.35	13.05	13.93	6.53	5.46	4.85	7.09	6.62	5.95

Source: W³.EEX.Com

According to Anders Nordeng (2014), Point Carbon’s Senior Carbon Analyst, “The main explanation for the falling prices in carbon markets around the world is the very modest emission reduction targets adopted for the period up to 2020. Without ambitious climate targets there is no need for deep emission reductions and carbon prices will remain at low levels. However, if the goal to limit global warming to two degrees shall be met, more dramatic cuts are needed over the next decades.”

So, supply side of the CER in the world is stable and abundant but the demand of these CER is not certain; due

to this, price of the CER are falling continuously.

CONCLUSION:

- i. India has earned a huge amount of CER and foreign currency by selling these CER in the world market.
- ii. The main flourishing sector for CDM is renewable energy.
- iii. The main problem of CDM projects is continuous fall of CER price worldwide, and corruption in certification of CER.
- iv. The main problems of CDM projects in India are lack of transparency of project activities among the general people of the project area, high transaction cost, high registration cost, long time consuming CDM cycle, regional disparity in project distribution and high percentage of rejection of the projects by the Executive Board at international level.

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