A STUDY ON CARBON FINANCE PERSPECTIVES IN TELANGANA

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ABSTRACT

"*Higher Growth leading to Inclusive and Sustainable Development" is the Mool Mantra or main motto of our Union Budget 2013-14, tells us the increasing focus of India on Green Economy which can be achieved through Carbon trading. In this paper, we try to explain the concept of carbon finance and how well it is being implemented in India with special reference to projects in Andhra Pradesh. As the topic is in developing stage in World and in Infant stage in India, the study is confined to only theoretical aspects of Carbon trading and its implementation but its practical feasibility is yet to be known. So the study focuses on knowing carbon trading practices all around the world and to introduce carbon finance in India. To understand the concept of Carbon Credits, what is it, how it is traded, and its different mechanisms, who the players are? Who is buying and who is selling? To understand how the projects are started and the issues and risks related with the projects and the market opportunity to it.*

INTRODUCTION

In 15 million years, CO2 concentrations in air have reached to its peak, in the past two decades more than 750 million has been affected by natural disasters and damages amounting to $ 45 Billion, according to World Bank reports. In order to save the world from the dangerous Green House Gas (GHG) emissions and conventional energy depletion by industrialized nations, forced the environmentalists and economists to study about a mechanism which can give both ecological and economic development lead to a innovation of a new investment opportunity for reduction of carbon emissions and a market mechanism to buy and sell the rights to emit GHG and is referred as "Carbon Trading", because carbon is the principle GHG.

Carbon Finance:

Carbon finance can be defined as an investment and financial activities in low carbon economy based on Kyoto protocol mechanisms or carbon financing or carbon substances trading, mostly investment and financing made to the technology and projects that helps in limiting GHG.

Carbon Trading:

A Carbon Trading system allows the development of a market through which Carbon dioxide or Carbon equivalents traded between participants, whether countries or companies. Each Carbon credit is equal to one tons of carbondioxide, which can be traded or exchanged in market.

Review Literature

Shihong Zeng, Shuai Zhang from Economics Management school, Bejing University of technology, Bejing, China presented a paper with a Title " Literature Review of Carbon Finance and Low Carbon Economy for constructing Low Carbon Society In China" in Scientific research Journal in March 2011. The paper tried to give a brief introduction to carbon finance and benefits of its practice and the importance of implementation of carbon trading in a developing country like china and the stability and strength it can bring to the china financial market. It emphasize on the academic research that has to be carried out in order to construct a development system for Carbon Market.

Vivek Birla, Asst Professor, GLT University, Mathura , Gunjan Singhal, Asst Manager, Bank of Baroda, Agra, Rashi Birla, M.tech Jaipur, Vaishali Gauri Gupta Asst Professor, MIT, Morababad, submitted a paper titled as "Carbon trading-The Future Money Venture For India" in International Journal of Scientific Research Engineering and Technology (IJSRET) on March 2012, this paper gives a clear cut view of carbon market in the world and the market mechanism and suggests the market standards and technologies to be implemented in India , and how it benefits large scale private and governmental sectors in India, the scope of carbon finance in India with projects Jindal Vijayanagar Steel and Powerguda. It also tells that if India takes right measures then it will emerge as winner in establishing Green Economy in Asia.

Sandeep .k Asst professor, Pooja Bhagavawat mahajanas PG centre,Mysore and Shruthi.D has written a paper titled "Carbon Finance and India" In The International Journal's Research Journal of Commerce and Behavioral Science" explained Carbon finance and its prospects with a case study on Delhi Metro Rail Corporation (DMRC) and described it as the first Railway project in the world to be registered by the United Nations under the Clean Development Mechanism (CDM) which enabled it to claim carbon credits, DMRC earns CERs for the use of regenerative braking system in its rolling stock (trains). This was the first time in the world that the United Nations Framework Convention on Climate Change (UNFCCC) had registered a project based on regenerative braking.

Need for the Study

After observing the above opinions of different authors, it is very important to analyze the present scenario of Carbon finance in India and in the contest of Andhra Pradesh perspective for the purpose of awareness to the public, customer's, academician and researchers to full fill the gap in the research.

Objectives of the Study

1. To Study the concept of Carbon Finance
2. To Evolution of Carbon emissions in India
3. To analyze the financial and environmental feasibility with a special reference to Osram & Powerguda Project in Andhra Pradesh

Limitations of the Study

- As there is No primary data, no empirical evidence to support the conclusion.
- The data is conceptual in nature only, so the findings are only suggestive not conclusive.

Methodology

The study is conceptual and descriptive in nature and is based on secondary data collected from World Bank reports and other many institutions National Clean Development Mechanism (CDM) Authority, Osram, Powerguda are few and also reviewed Articles and websites.

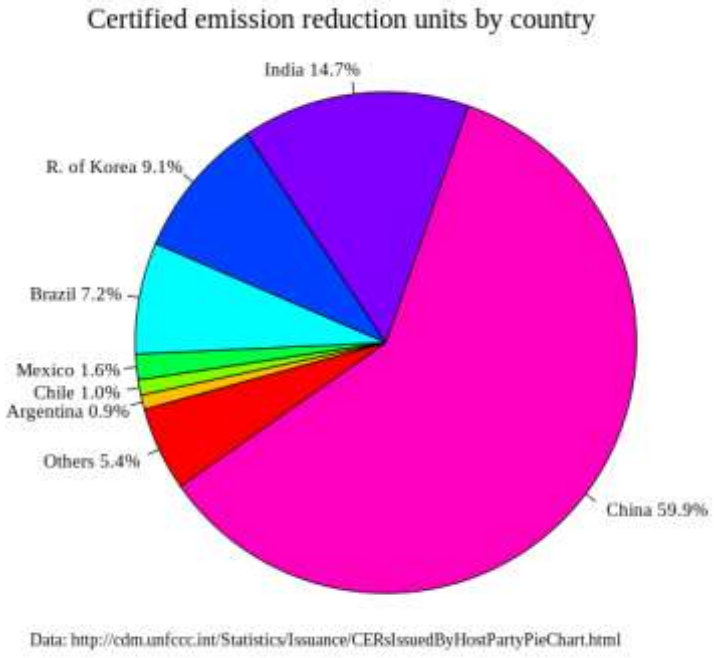
Market Mechanism in India:

India being a developing country, it is not included in Annexure Countries and is not eligible for JI and ET and qualified for only CDM projects. India signed and ratified protocol in August 2002 and entered in to the carbon market. A transaction in CER trading involves buying of GHG Emissions credits from companies or government. India released it National Action Plan on Climate Change (NAPCC) on 30th July 2008 to develop Indian Economy sustainably. In India CDM projects are looked after by "A CDM- Capacity building Programme" which is funded by Germany Ministry of Economic Cooperation and Development through Indo Germany Energy Programme in partnership with a designated National Clean Development Mechanism Authority(CDM) , Ministry of Environment and Forests, Government of India, to foster high quality CDM projects implementation in India.

Evolution of Carbon emissions in the world and India:

Entire the globe certified emission reduction up to 2012 as shown in the below diagram 1, for which China country CERs are highest 59.9% and followed by India 14.7%.

Diagram -1



Indian context:

India, being one of the leading generators of Certified Emission reduction (CERs) through CDM, has a large scope in emissions trading. Analysts forecast that its trading in carbon credits would touch US$ 100 billion by 2010. Currently, the total registered CDM projects are more than 300, almost 1/3rd of the total CDM projects registered with the UNFCCC. The total issued CERs with India as a host country till now stand at 34,101,315 (around 34 million), again around 1/3rd of the total CERs issued by the UNFCCC. In value terms (INR), it could be running into thousands of crores. Further, there has been a surge in number of registered projects in India. In 2007, a total of 160 new projects were registered with the UNFCCC indicating that more than half of all registered projects in India happened last year. It is expected that with increasing awareness this would go further up in the future. The number of expected annual CERs in India is hovering around 28 million and considering that each of these CERs is sold for around 15 euros, on an average, the expected value is going to be around Rs 2,500 crore.

Clean Development Mechanism in India

Government of India (GOI) enacted a bill called Energy Conservation Act 2001 to promote efficient energy efficient systems through Public-Private Partnerships and created an agency Bureau Energy Efficiency (BEE), which estimated that more than 400 million Incandescent Light Bulbs (ICL) are extremely energy inefficient form of lighting that utilize 5 % out of 20% electricity accounts for lighting to convert energy in to heat. GOI Initiated to establish a scheme as Bachat Lamp Yojana (BLY) in collaboration with the Clean Development Mechanism (CDM) , under the Kyoto Protocol Commitment by India in 2002. This project aims to replace all the ICL bulbs to Compact Fluorescent L lamps (CFLs) that utilize only $1/4^{th}$ or $1/5^{th}$ of the energy by ICLs and provide the same level of light and save around

24,000 crores per annum and Replacement of 400 million ICLs with CFLs reduce 20 million tonnes of carbondioxide from grid connected plans.

In the Indian context certified emission reduction (CER) up to 2016 Sector wise with graph and also State wise as show in the table no.1 and 2 respectively.

Table 1: Sector wise Projects and Certified emission reduction in India up to 2016

Name of the Sector	No of Projects	CER up to 2016
Afforestation and Reforestation	18	10,874,541
Agriculture	3	74,393
Chemical Industries	18	11,793,853
Energy Demand	221	27,109,485
Energy Distribution	9	657,149
Energy industries (Renewable/Non-renewable sources)	2,219	487,417,048
Fugitive emissions from fuel(Solid, Oil and gas)	3	165,438
Fugitive emissions from production and consumption of halocarbons and sulphur	6	82,095,771
Manufacturing Industries	237	64,405,361
Metal Production	5	5,425,126
Mining/Mineral Production	4	19,053,935
Solvent use	1	103,579
Transport	13	1,238,906
Waste handling and disposal	69	12,498,337
Total (No. of Projects)	**2,826**	**722,912,923**

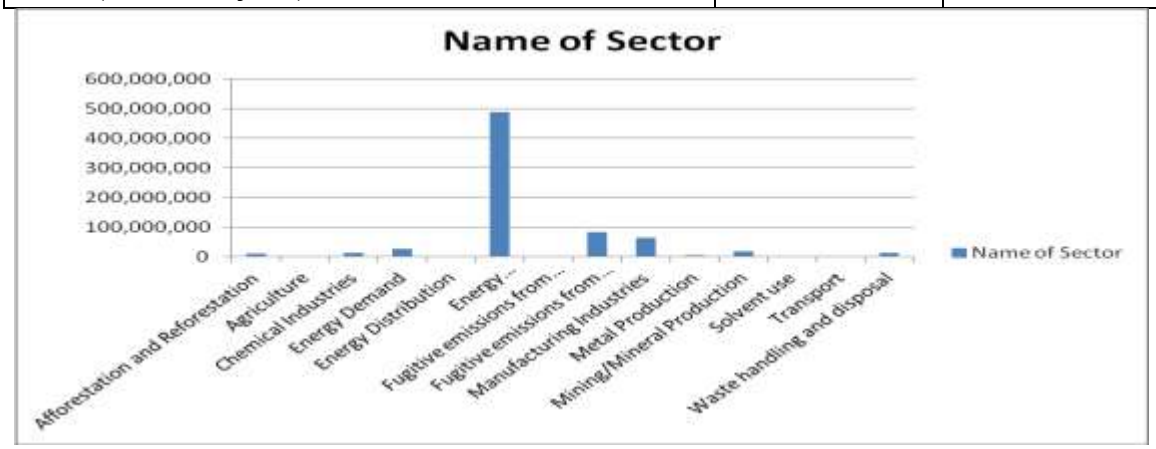


Table 2: State wise Carbon Projects and emission in India up to 2016

Name of States/Country	No of Projects	CER up to 2016
Multi State	87	1,380,897
Arunachal Pradesh	1	156,393
Assam	13	852,579
Bhutan	1	529,914
Bihar	8	750,896
Chattisgarh	105	27,368,203
Delhi	16	3,823,996
Goa	4	1,186,500
Gujarat	357	127,021,481
Haryana	36	4,512,243
Himachal Pradesh	92	17,273,314
J&K	4	9,686,384
Jammu & Kashmir	2	128,326
Jharkhand	32	24,046,731
Karnataka	252	69,699,588
Kerala	18	642,032
Madhya Pradesh	70	8,787,799
Maharashtra	369	61,620,089
Meghalaya	4	1,598,429
Multi State	97	25,330,436
Orissa	80	22,794,520
Pondicherry	1	139,332
Puducherry	2	14,674
Punjab	74	12,157,425
Rajasthan	225	63,178,620
Sikkim	10	9,973,169
Tamil Nadu	366	51,913,167
Telangana	209	86,823,972
Tripura	1	4,427,526
Utarranchal	36	19,454,380
Uttar Pradesh	163	37,813,167
Uttarakhand	14	1,030,493
West Bengal	78	26,799,892
Total	**2827**	**722,916,569**

Source:-National CDM Authority

It shows that Energy industries (Renewable/Non-renewable sources) is major role to generate the CERs in India and it also reveled that Gujarat State creates highest CERs with less projects comparatively with Maharashtra and Tamil Nadu States in the table no.2

Selected Projects in Telangana

There are two selected projects have studied for prospective of Carbon Credits and its certified emission reductions, wise Osram and Power guda projects:

OSRAM POJECT

Bachat Lamp Yojana Scheme (BLY) is a Public Private Partnership program initiated by The Government of India with Private sector CFL suppliers and State Level Electricity Distribution Companies (DISCOM). Under this scheme a 60 watt and 100 watt ICLs will be replaced by 15 watt and 20 watt CFLs. CFL will provide the same level of Lumen Intensity by saving around 80% of energy. It is one of the best carbon-credit energy saving techniques that will help to avoid the emission of 40 million tons of carbon dioxide and it also saves 300 rupees per year when 15 watt CFL is replaced with 60 watt ICL. Penetration of CFL in India has been very low due to its high price, generally 8 to 10 times the price of a ICL. BLY Introduced this project titled "Vishakapatnam (India) OSRAM CFL Distribution CDM Project" and it was registered on 12th February 2009 under reference Number 1754 with UNFCCC.

The project activity is a type (ii), category C project activity. It takes place in the district of Hyderabad, Telangana, India. The goal of the project is to increase the efficiency of the domestic lighting use in the project area by replacing inefficient incandescent lamps (GLS) by highly efficient OSRAM Long Life Compact Fluorescent Lamps (CFL). As a result electricity is saved and therefore greenhouse gas (GHG) emissions are reduced. The project is registered under small scale methodology AMS-II.C. v. 9 "Demand-side energy efficiency activities for specific technologies".

Calculations of Emission Reductions during the Monitoring Period

Emission Reductions			
Energy Consumption Baseline	$E_{BL,1}$	[kWh]	42,016,041
Energy Consumption Project	$E_{PJ,1}$	[kWh]	10,801,995
Leakage	LE_1	[$kgCO_2$]	0
Grid Emission Factor	$EF_{CO2, ELEC}$	[kgCO2/kWh]	0.85
Emission Reductions	**ER_1**	**[tCO_2]**	**26,532**

Energy Consumption Baseline

Baseline means the study of the GLS lamps and its average daily operating hours before their replacement and then the over all consumption of energy by GLS lamps will be calculated as Energy Consumption Baseline.

Energy Consumption Baseline			
Duration of Monitoring Interval 1	d_1	[d]	250
Average of 60 W GLS replaced over full MI		[pcs]	598,816.40
Average of 100 W GLS replaced over full MI		[pcs]	22,393.10
Cross Check Correction Factor	CF_1	[-]	0.9509

Average operating hours Baseline	μ_{BL}	[h]	4.631
Energy Consumption Baseline	$E_{BL,1}$	**[kWh]**	**42,016,041**

Powerguda Project:

In October 2003, Powerguda became an environmental pioneer when it sold the carbon dioxide in verified emission reduction to the World Bank. The emission reduction is calculated on the basis of 51 t of pongamia seed oil for substituting over petroleum diesel for over 10 years. It planted those pongamia trees in 2002 and earned US$645 as a direct payment from World Bank for neutralizing emissions from air travel and local transport by international participants when attending conference in 19-21 october 2003. It was the first time that a multi lateral agency made a payment to an Indian village for exporting environmental services.

SUGGESTIONS

1. Energy Exchange is going to be the most prominent one in Carbon Market and it has huge scope for generating more CERs.
2. Though India claimed CERs it has not been commercialized yet.
3. China has been the leading country to claim CERs with more projects than India. India has potentiality to overcome china with Little Efforts and Constructive frame work for implementation of CDM.
4. Carbon Markets is the emerging trend which has to be adapted soon to receive utmost benefits.
5. Andhra Pradesh is a potential place for generation of CERs, as per the above study (OSRAM & POWERGUDA PROJECT) reveals that there are more prospective for the carbon trade and finance in AP.

CONCLUSION

Carbon trading is one of the fastest growing Specialities in financial services and it is going to be the world biggest commodity market of the century. CDM and carbon financing is converting an environmental threat to revenue generating opportunity. It is both politically and environmentally viable to India as it improves its political relations with foreign countries and develops a new funding stream to establish corporations that is eco-friendly. European Energy Exchange is one of the active carbon markets in the world and is in more advance stage, China is the biggest competitor of India capturing 59% of the carbon market followed by India 14.7%. India has lot of potentiality in generating CERs , valued for an average of 2500 crore. With 2826 projects in hand India has marked its presence and proves

to be booming market and holds Future for Carbon Market. Andhra Pradesh is one among the states to make use of this opportunity with 209 projects, but the Market Leader in India is Gujarat with less number of projects 357 when compared to Maharashtra but claimed 127,021,481 CERs shows the market growth in India. Under BLY scheme OSRAM project is undertaken by private people under Public Private Partnership and has successfully claimed 26,532 CERs and Powerguda being recognized by World Bank and its direct payment shows the increase of carbon trading market in India and need to have a Regulatory bodies and Frame work for proper implementation of Carbon Market in India. Government of India should allocate more money in Budget for Carbon Market as this is going to be next generation financial Market and carbon trading is going to be World's next biggest market. Thus, to conclude India has a great opportunity to implementing CDM projects and achieve economic and social profits.

REFERENCES

1. *http://www.worldbank.org/en/news/press-release/2013/07/17/india-green-growth-necessary-and-affordable-for-india-says-new-world-bank-report*
2. *http://www.worldbank.org/en/topic/climatefinance*
3. *http://moef.nic.in/*
4. *http://www.beeindia.in*
5. *www.carbontrading.com*
6. *www.cseindia.org*
7. *www.carboncredit.org*
8. *http://cdm.unfccc.int/*
9. *http://www.cliffordchance.com*
10. *http://www.carbontrust.co.uk*