

Economic Development and Climate Change-An Indian Perspective

** Dr. Jayashree F. Mehta,*

INTRODUCTION

Indian Economy is one of the fastest growing economies in the world. The five years spanning 2003-04 and 2007-08 was an outstanding period of rapid growth. In this relatively short span of five years, average GDP growth was 8.8 per cent and per capital GDP increased by 7.2 per cent annually¹. GDP originating from the manufacturing sector averaged a creditable growth of 9 per cent. The industrial sector (including mining, electricity and utilities and construction) grew even faster, by 9.5 per cent.

However, as economies grow richer, they demand more power and also pollute more. Increase in pollution levels over a period of time have lead to serious environmental hazards such as global warming, droughts, floods, extinction of species etc. The countries expected to experience the fastest growth in emissions are also those who are expected to have the most economic growth. The Stern report on climate change explains that developing countries, especially in the tropical and sub-tropical regions are expected to suffer most and soonest from climate change.

Human activities have been increasing the concentration of greenhouse gases (GHG) in the atmosphere and that in turn has enhanced the green house effect, commonly known as global warming. The four Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC) have confirmed that an alarming rise in global mean temperatures is leading to a rise in sea levels and changes in rainfall patterns². This climate change may increase the intensity of heavy rainfall events (For example, the Mumbai floods of 2005) whereas the number of rainy days may decrease. Both floods as well as droughts would be likely. Temperatures may increase for all months. Changes in intensity of rainfall events combined with an increased risk of critical temperatures being exceeded more frequently could significantly change crops yields. It is estimated that mean yields in some crops in northern India could be reduced by up to 70% by 2100. Melt-water from Himalayan glaciers could be reduced to about 30% over the next 50 years. Climate change is now one of the most urgent and critical global challenges with strong local implications. With its impact being felt across the globe, the concept of green is slowly gaining momentum in order to emit lesser GHG, particularly carbon dioxide. It, therefore, demands local action within an evolving global framework.

CLIMATE CHANGE AND INTERNATIONAL RESPONSE

Increasing scientific evidence of human interference with climate change began to push climate change onto the political agenda in the mid-1980s. The IPCC (Intergovernmental Panel on Climate Change) was established in 1988 by the World Meteorological Organization (WMO) and the UN Environment Programme (UNEP). The IPCC prepares assessments, reports and guidelines on the science of climate change and its potential impacts. Subsequently, an international treaty called the UN Framework Convention on Climate Change (UNFCCC) was signed by the governments of more than 150 countries at the 1992 Earth Summit in Rio de Janeiro, Brazil.

THE KYOTO PROTOCOL

International negotiations under the UNFCCC gave birth to the Kyoto Protocol. This international agreement was ratified by around 141 countries and it came into effect on February 16, 2005. However, the US, which accounts for one-third of the total GHG emission, is yet to sign the treaty. The Kyoto Protocol established legally binding commitments for the reduction of four GHGs-carbon dioxide, methane, nitrous oxide, sulphur hexafluoride-and two groups of gases-hydrofluoro-carbons and perfluorocarbons, which are not produced by Annex I (industrialized) nations, and it also declared general commitments for all member countries. Signatories to the protocol committed to reducing their emissions of Green House Gases (GHG) by at least 5% relative to 1990 levels within the first commitment period 2008-2012³.

CARBON CREDIT AND CDM

The UNFCCC divides countries into two main groups: A total of 41 industrialized countries are currently listed in the Convention's Annex-I, including the relatively wealthy industrialized countries that were members of the Organization for Economic Co-operation and Development (OECD) in 1992, plus countries with economies in transition (EITs), including the Russian Federation, the Baltic States, and several Central and Eastern European States. The OECD members of Annex-I (not the EITs) are also listed in the Convention's Annex-II. There are

** Lecturer in Commerce, Shri M. D. Shah Mahila College, Malad-West, Mumbai 400 064. Email: rs.jayashree@gmail.com*

currently 24 such Annex-II Parties. All other countries not listed in the Convention's Annexes, mostly the developing countries, are known as non-Annex-I countries. They currently number 145.

As part of the Kyoto Protocol, the Annex I countries agreed that their companies could reduce carbon emission either by adopting various new technologies, or by helping the companies in developing countries to emit less and in turn, be credited for the amount of carbon that has been saved.

To enable the realization of this commitment, the protocol set out three flexible mechanisms to supplement national actions:

1. International Emission Trading (IET)
2. Joint Implementation (JI)
3. Clean Development Mechanism (CDM)

CDM is the only Kyoto Mechanism, which is directly of relevance to non-Annex I Parties like India. The companies in Annex I countries, which were unsuccessful in achieving their carbon emission targets, could tie-up with a company in a developing nation to help them in setting up eco-friendly technologies and in turn gaining credits for their own country. The credit from CDM is called certified emission reduction (CER). This could be achieved only if the project in the developing country is found to be a CDM and that is cleared by UNFCCC.

CARBON CREDITS

Carbon credits seek to encourage countries to reduce their greenhouse gas emissions, as it rewards those countries that meet their targets and provides financial incentives to others to do so as quickly as possible. Surplus credits that are acquired by overshooting the emission reduction target can be sold in the global market. Carbon credits are available for companies engaged in developing renewable energy projects that offset the use of fossil fuels. Developed countries have to spend nearly \$300-500 for every tonne reduction in carbon dioxide, as against \$10-25 by developing countries. In countries such as India, GHG is much below the target fixed by the Kyoto Protocol and hence excluded from reduction norms of emission. India is also entitled to sell surplus credits to developed countries. India is considered to claim 31% of the total world carbon trade, which can give up \$25 billion by 2010.

One carbon credit is equivalent to one tonne of carbon dioxide or its equivalent greenhouse gas (GHG). Carbon credits are "Entitlement Certificates" issued by the United Nations Framework Convention on Climate Change (UNFCCC) to the implementers of the approved CDM projects.

With growing concerns among nations to curb pollution levels while maintaining the growth in their economic activities, the emission trading industry has come to life. With increasing ratification of Kyoto Protocol by countries and rising social responsibility of polluting industries in the developed nations, the carbon emissions trading is likely to emerge as a multi-billion dollar market in global emission trading.

CARBON CREDIT: INDIAN PERSPECTIVES

As compared to Canada, India is much better off in terms of carbon footprint and carbon credits. India finds itself along-with countries like Sri Lanka, China, Brazil, Iran, Kenya, Kuwait, Malaysia, Pakistan, Philippines, Saudi Arabia, Singapore and UAE. India comes under the third category of signatories to UNFCCC.

This means that:

1. Restrictions on growth are avoided because pollution is strongly linked to industrial growth, and developing economies can potentially grow very fast.
2. They cannot sell emissions credits to industrialized nations to permit those nations to over-pollute.
3. They get money and technologies from the developed countries in Annex-II.

According to Report on National Action Plan for operationalizing Clean Development Mechanism by Planning Commission, Government of India, the total CO₂-equivalent emissions in 1990 were 10,01,352 Gg (Gigagrams), which was approximately 3% of the global emissions. If India can capture a 10% share of the global CDM market, annual CER revenues to the country could range from US\$ 10 million to 300 million (assuming that CDM is used to meet 10-50% of the global demand for GHG emission reduction of roughly 1 billion tonnes CO₂, and prices range from US\$ 3.5-5.5 per tonne of CO₂). 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, it could be running into thousands of crores. There has also 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. 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 crores. However, in terms of actual volume of carbon credits or Certified Emission Reductions (CERs) traded, India ranks second with a current potential of 323 000 CERs by 2012, far behind China (1015000 CER). This is because China has a few very large projects.

Various industries that have scope of generation of CERs:

- Agriculture
- Energy (renewable and non-renewable sources)
- Manufacturing
- Fugitive emissions from fuels (solid, oil and gas)
- Metal production
- Mining and mineral production
- Chemicals
- Afforestation and reforestation

WHAT DOES THE INDIAN INDUSTRY THINK ABOUT THE IMPORTANCE OF CLIMATE CHANGE ?

An indication of how important the Indian Industry considers Climate Change could be the response of the industry towards the questionnaire of India CDP 2008 report⁴.

An analysis of the responses indicates the following:

- The second CDP India had an overall response rate of 30.5%, it is important to note that four of the most energy intensive sectors provided an above-average disclosure-both in terms of metrics and quality or information. This brings out the preparedness of the companies to deal with risks and opportunities associated with climate change.
- 63% of the respondents did not consider existing regulatory mechanism as a risk. This is because India is a non-Annex I country under the Kyoto Protocol. However, the same companies acknowledged that in future, carbon-related regulations could affect their business.
- 78% of the respondents acknowledged physical risks such as damage, disruption and displacement caused by climate change.
- 80% of the respondents considered current or anticipated regulatory requirements as an opportunity for triggering long term investment in energy efficient technologies. Such investments would not only prepare companies towards compliance with future regulations, but also give them financial benefits such as energy savings or additional fund flow through Clean Development Mechanism projects.

Thus, one can be optimistic that Indian companies are gearing up towards mitigating and adapting to risks of climate change. This is demonstrated by the management structure set up by these companies as well as their disclosure on emission reductions through sustainability reporting.

CHALLENGES AHEAD

Selling carbon credit by improving energy efficiency is a win-win option for Indian corporates. While the real benefit of an energy efficiency project is the saving of energy cost, additional revenues are generated by the sale of CERs. This improves the overall rate of return of their project.

Transaction costs, however, are high (Cost involved per project submission and getting it approved itself would be nearly Rs. 20-25 lakhs) and upfront and therefore, many small organizations may find this a barrier. Therefore, bundling or bringing together of small projects in different companies to form a single CDM project would be a more viable option. This would mean that an agency should be ready to take up this responsibility of day to day co-ordination and management. Industry associations may be well suited to take up this job. Presently, the company going for CDM must get approval for the project from the CDM Executive Board, National CDM authorities and check whether it has complied with all rules and regulations. The case is then validated by a third party agency, called a Designated Operational Entity (DOE). There are many procedures and restrictions to follow. However, as far as India is concerned, this is definitely a great opportunity to capitalize on. As we grow towards a Global Nation, we also need to understand and realize the “costs” of development and realize that the resources we have are exhaustible. A proper concerted effort towards CDM would be good for the country-not only financially but also ecologically. We definitely owe it to the next generation!

(Contd. on Page 38)

**RESPONSE RECEIVED FROM THE JOB SEEKERS ON THE NOTIFIED VACANCIES.
(TABLE-15)**

Level of difficulties	(BPO/KPO)	(IT/Software)	(Telecom/Banking)	(Staffing & recruitment) (HR and Admin.)
High end jobs	Average	Average		
Moderate / Average skill jobs			Average	Good
Low skilled jobs	High			High

From the survey findings presented in the above tables 14 and 15, recruiters' preference of jobs based on the difficulty levels and the response patterns to these postings respectively can be understood. Recruiters from the BPO/KPO verticals have shown their preference towards recruiting *content writers* and *quality analysts* (preferably high end jobs) and *CCE, Accounts (non-voice process) executive* for the low skilled entry level positions. However, from the response pattern, it has been identified that for the hardest type positions, response is average, whereas for low skilled declared positions on blogs, response is better. Most of the recruiters have shown their preference on posting the high end jobs like *Data mining expert, specialized software programmer, SAP professionals* etc. and response is found to be average. Recruiters from telecom verticals have chosen the moderate level jobs, mostly in marketing areas for being posted at blogs and response pattern is average in such cases. Recruiters for HR domain have only experienced good (i.e. above average) and high response patterns from job seekers, preferably in moderate and high end jobs, which are normally posted on blogs by the respective vertical recruiters.

CONCLUSION

Though the research effort attempts to analyze a very small number of bloggers across different verticals, yet it reveals a trend of perception of bloggers towards accepting different blogs as source of vacancies. Even recruiters have shown some degree of acceptability of blogs for disseminating job related information on different blogs. Specially, during recessionary times, cost curtailment remains the priority in all spheres of management initiatives. Many scholars have, therefore, emphasized on virtuality as the platform of corporate functioning. Blogging is a fast growing medium and this is growingly being utilized as the medium of human relations interventions. Recruitment through blogging, or at least disseminating the job and career related information for greater penetration and the response received thereof, therefore remains a major issue of analysis and research observation.

BIBLIOGRAPHY

1. Bausch, Paul, Matthew Haughey, and Meg Hourihan. We Blog: Publishing Online with Weblogs. Indianapolis, IN: Wiley Publishing Inc., 2002.
2. Shenoy G V and Pant Madan (2007): 1st edition, Statistical Methods in Business and Social Sciences, p 155-156.
3. Singh A K (2004): 4th edition, Tests, Measurements and Research Methods in Behavioural Sciences, p 457-459.
4. Malhotra Naresh K (2006): 4th edition, Marketing Research, An Applied Orientation, p 472-475.
5. India Online Study 2009 - A snapshot by JuxtConsult
6. www.web-based-recruitment.com / 15.05.09
7. www.talentonview.com/12.05.09

.....

(Contd. from Page 18)

BIBLIOGRAPHY

- ¹ Chaudhuri Saumitra, (2009), Growth Prospects for the Economy, India 2009, BS Books, New Delhi, Pg 3-4.
- ² Arjunwadhar S. H., Prosanto Pal, Girish Sethi, (2008), Energy Savings and carbon credits: Opportunities and challenges for Indian foundry industry, 68th World Foundry Congress, February, pp 19-22.
- ³ _____ (2007), Newsletter published by National Solid Waste Association of India, "Carbon Credits in India", Seventh Issue, February.
- ⁴ Carbon Disclosure Project Report 2008 India 200, published by WWF India, New Delhi.