

**IMPACT OF CLIMATE CHANGE POLICIES
ON
THE GROWTH OF THE INDIAN ECONOMY**

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ABSTRACT

The most contentious global debate today is the obligations of the developed and the developing countries to take steps to reduce their carbon footprint. Though climate change is a danger for all countries-developed and developing alike, the quantum of responsibility for mitigating climate change is a debatable issue. There is a perceived divide between the obligations of the two worlds in which our planet is divided.

The source of virtually all past emissions i.e. the developed world has a greater responsibility to take steps to reduce their carbon emissions substantially and help in stabilizing the environment which they disturbed to a large extent. This is the reason why they are subjected to binding targets of reducing their emissions by a set amount in all international agreements.

However, the developing world is gearing towards development at a very fast pace and all development and industrialization pre-supposes the need of higher emissions. Due to this, the emission levels of this part of the world are bound to increase even more rapidly.

Mitigating climate change in developing countries poses a fundamental challenge. For developing nations as a whole, reduction in emissions is not a viable option specifically in the short term. With per capita incomes far below those of developed countries—and per capita emissions almost one-sixth those of the industrialized world—developing countries will carry on stepping up their emissions as they strive to achieve high levels of economic growth and a better quality of life for its citizens.

This paper dwells into the issue of climate change and the impact it has on the economy of a country like India. It covers what India, being a developing nation, is doing and how that is affecting the growth of key sectors like power and ultimately the nation's economic growth.

The economic costs involved in the measures taken up for reducing carbon emissions outweigh the economic benefits that India would get from rapid industrialization. Thus, there is a moral dilemma that India faces to sacrifice one for the other. It can incur heavy costs to mitigate climate change and delay its development or not care about climate change and focus on its development.

This paper analyzes this dilemma and also the rationale behind taking up carbon reduction measures when there are other more fundamental issues to be dealt with in the Indian economy.

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INTRODUCTION

Developing countries' green house gas emissions will most probably exceed those of the developed world within the first half of this century, foregrounding the need for developing countries' concerted efforts to reduce the adverse impact of climate change. Even though developing nations have not been keen to accept binding emissions targets, asking that developed nations take action first, most of them are undertaking efforts that have reduced the growth in their own emissions significantly. In most cases, climate mitigation is not the goal, but rather an outgrowth of efforts driven by economic, security, or local environmental concerns.

The issue with climate change is that its impact is not limited to a certain area or bounded by geographical locations. This makes it mandatory for all the nations-whether major contributors to climate change or not, to take steps to control the extent of climate change by reducing or at least limiting their carbon emissions to the current levels. India is a minor contributor to the global carbon emissions at around 3-4% of global levels but it still needs to take steps to limit its emissions since they are on an upward trend due to the direct relationship between economic growth and green house gas emissions.

India is growing at very fast pace, but still needs to go a long way in solving its economic and social issues. More than a third of the population lives below the poverty line and the economic disparity between the rich and poor is increasing rapidly. There is a strong need for the development of the country to solve its major problems of poverty, unemployment and illiteracy which are the basic elements of human development. The only way forward towards a developed nation high on the human development index is through massive economic growth which can only be achieved through industrialization.

The industrialization process mandates an increase in the greenhouse gas emissions. This would lead to a conflict between the goals of mitigating climate change and achieving economic development of the country. Thus, India has to find a fine balance between economic growth and reduction in emissions.

The debate is whether these climate mitigation policies impact the infrastructure sector which is the main driver of economic growth in the country. Thus, let's examine the effects of climate change policies on the power sector and the overall development of India.

CLIMATE CHANGE AND ITS IMPACT

Climate change refers to the heating up of the earth's atmosphere due to an increase in the level of greenhouse gases. The greenhouse gases form a blanket on the earth's surface to make it habitable by not letting the heat of the sun escape the earth which would make the temperature drop to inhabitable levels. This would, in turn affect the existence of the living organisms.

Due to anthropogenic or human induced factors there has been a sharp increase in the level of greenhouse gases which leads to an increase in the temperature of the earth's surface causing various ecological imbalances in the world.

These emissions are also called carbon emissions since the main components of greenhouse gases are carbon dioxide and methane; both carbon rich gases. These emissions are a by-product of many human activities consisting of mainly industrial activities. All human activities relating to the modern lifestyle of today's man are large contributors to the issue of climate change.

The problem of climate change had its major emergence in the industrial revolution. All the activities in the industrialization process necessitate an increase in carbon emissions. Thus, the development processes of a country as well as its carbon emissions go hand-in-hand.

The monumental problems of climate change faced by the world today are a cause of the rapid industrialization that took place in the last century. Thus, the developed world is the major culprit of this crime which led to the exploitation of our atmosphere. But, the developing countries, which have just recently begun their journey to the destination of development, are made to shoulder the responsibility of mitigating the adverse effects of climate change by reduction in the carbon emissions levels emitted by them.

This is a cause of major hindrance in the development process of a country like India and can be seen as unfair on the part of the developed nations to slow down the pace of development in such nations at such a crucial stage.

MAJOR POLICIES IN INDIA TO MITIGATE CLIMATE CHANGE

India though not bound by legal agreements to cut down its carbon emissions, has taken major steps in reducing its carbon emissions.

India signed the United Nations Framework Convention on Climate Change on June 10, 1992 and ratified it on November 1, 1993.

India hosted the eighth Conference of Parties to the UNFCCC in October 2002 in its capital city of Delhi. It signed and ratified the Kyoto Protocol, one of the most important international agreements on climate change on August 26th, 2002.

In pursuance of the goals of implementing the provisions of the UNFCCC Convention, a project was initiated towards preparation of India's National Communication on sources of greenhouse gas emissions (NATCOM) to the UNFCCC through the United Nations Development Programme.

The Global Environmental Facility is funding many projects that India has taken up with the aim of reducing greenhouse gas emissions. These projects are mostly related to small-scale projects which are largely based on renewable energy sources.

Various policies and laws¹¹ enacted by the government at the national level for mitigating climate change are:

- **The Environment (Protection) Act, 1986** obligates the central government to protect and improve environmental quality, control and reduce pollution from various sources, and prohibit or restrict the setting and /or operation of any industrial facility on environmental grounds.
- **The Environment (Protection) Rules, 1986** lay down procedures for setting standards of emission or discharge of environmental pollutants.
- **The objective of Hazardous Waste (Management and Handling) Rules, 1989** is to control the generation, collection, import, storage, handling and treatment of hazardous waste.
- **The Manufacture, Storage, and Import of Hazardous Rules, 1989** define the terms used in this regard, and sets up an authority to inspect yearly, the industrial activity connected with hazardous chemicals and its storage facilities.
- **The National Environmental Tribunal Act, 1995** was created to award compensation for damages to persons, property, and the environment arising from any activity involving hazardous substances.
- **The National Environment Appellate Authority Act, 1997** was established to hear appeals with respect to restrictions of areas in which classes of industries etc. are carried out or prescribed subject to certain safeguards under the EPA.
- **The Environment (Siting for Industrial Projects) Rules, 1999** lay down detailed provisions relating to areas to be avoided for siting of industries, precautionary measures to be taken for site

¹ <http://edugreen.teri.res.in/explore/laws.htm>

selecting as also the aspects of environmental protection which should have been incorporated during the implementation of the industrial development projects.

- **The Municipal Solid Wastes (Management and Handling) Rules, 2000** apply to every municipal authority responsible for the collection, segregation, storage, transportation, processing, and disposal of municipal solid wastes.
- **The Ozone Depleting Substances (Regulation and Control) Rules, 2000** have been laid down for the regulation of production and consumption of ozone depleting substances.
- **The Biological Diversity Act, 2002** is an act to provide for the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the use of biological resources and knowledge associated with it
- **The Wildlife Protection Act 1972 and Amendment 1991** provides for the protection of birds and animals and for all matters that are connected to it whether it be their habitat or the waterhole or the forests that sustain them.
- **The Forest (Conservation) Act and Rules, 1981**, provides for the protection of and the conservation of the forests.
- **The River Boards Act, 1956** enables the states to enroll the central government in setting up an Advisory River Board to resolve issues in inter-state cooperation.
- **The Merchant Shipping Act, 1970** aims to deal with waste arising from ships along the coastal areas within a specified radius.
- **The Water (Prevention and Control of Pollution) Act, 1974** establishes an institutional structure for preventing and abating water pollution. It establishes standards for water quality and effluent. Polluting industries must seek permission to discharge waste into effluent bodies. The CPCB (Central Pollution Control Board) was constituted under this act.
- **The Water (Prevention and Control of Pollution) Cess Act, 1977** provides for the levy and collection of cess or fees on water consuming industries and local authorities.
- **The Water (Prevention and Control of Pollution) Cess Rules, 1978** contains the standard definitions and indicate the kind of and location of meters that every consumer of water is required to affix.
- **The Coastal Regulation Zone Notification, 1991** puts regulations on various activities, including construction, are regulated. It gives some protection to the backwaters and estuaries.
- **The Factories Act, 1948 and Amendment in 1987** was the first to express concern for the working environment of the workers. The amendment of 1987 has sharpened its environmental focus and expanded its application to hazardous processes.
- **The Air (Prevention and Control of Pollution) Act, 1981** provides for the control and abatement of air pollution. It entrusts the power of enforcing this act to the CPCB.
- **The Air (Prevention and Control of Pollution) Rules, 1982** defines the procedures of the meetings of the Boards and the powers entrusted to them.
- **The Air (Prevention and Control of Pollution) Amendment Act, 1987** empowers the central and state pollution control boards to meet with grave emergencies of air pollution.

EFFECT ON DEVELOPMENT

The regulations that India has formulized for the achievement of lower levels of greenhouse gas emission have a restraining effect on the development of the country with special emphasis of a negative nature on the infrastructure sector.

The power sector is one of the major contributors to the country's total emissions. And this is the sector most affected by these policy regulations. These policies prove to be a hindrance in the rapid development of the power sector.

The major problems faced by the power sector due to these policies are:

I. DELAY IN PROJECTS

The power sector requires massive capacity additions for the fulfillment of the objective of energy security for the country. India being a developing country requires basic infrastructure facilities like power for all for the overall well-being of the citizens of the country. This requires setting up of power plants instantaneously. This is mandatory for retaining the pace of economic development of the country, which India has been experiencing since the past decade.

Environmental policies and regulations to mitigate climate change pose a major problem in this regard. The Ministry of Environment and Forest gives clearances for setting up of new projects whether conventional-source based or non-conventional source based. These clearances can take anywhere between 2-5 years to materialize. This results in long gestation periods of the projects discouraging private players in the market as well as postpones the requisite capacity addition for the growth of the country.

Many areas have been demarcated as no mining zones where mining is not allowed. These areas, though rich in resources like coal, cannot be used for the development of electricity industry due to these bans. This creates another major hurdle for the country. Being a country having low deposits of natural resources and increasingly dependent on imported resources, the ban on extraction of the available resources increases its dependence on imports and takes it further away from the objective of energy independence.

II. HIGHER COSTS OF DEVELOPMENT

The energy sector is already in poor financial health and in dire need of financial support. This necessitates the entry of the private sector to fulfill both the objectives of decreasing energy deficit and attaining energy security.

However, the costs incurred for projects are much higher due to the environmental policies that are in place. For example, Hydro projects require the incurring of resettlement and rehabilitation costs, costs of replenishing the amount of forest cleared costs of obtaining environmental clearances etc. All these increase the overall costs of projects and deter the private sector from investing in the development of the power sector. These high costs are a step backward from the path of promotion of private investment in the sector.

With a sector providing heavy subsidies to the agricultural consumer and cross subsidizing the industrial consumers, the need of the hour is to provide cheap and affordable electricity to one and all. The increased costs of projects make sure that this is not the case.

III. SHIFT TO RENEWABLE SOURCES

With a country having one of the lowest levels of per capita income in the world, our shift to dearer sources of electricity namely the renewables is a shift in the perspective from the policy of affordable electricity to all.

In today's scenario, India is looking towards developing non-conventional sources of energy like Solar, Wind, Hydro and others. These sources of electricity require heavy amounts of R&D in order to develop more efficient technologies for the reduction in price of per unit power generated by these resources. India does not have the bank balance to invest in R&D activities in this sector at a massive scale. Since the renewable sources of energy are in the nascent stage, the tariff of the electricity generated by these resources is very high as compared to the conventional sources of energy like coal and gas.

The power sector is already incurring huge financial losses by means of T&D losses, theft, pilferage, aggregated technical and commercial losses, lack of proper metering systems etc. All these problems have led the power sector to face a financial crunch wherein the government is unable to provide the necessary budgetary support to the loss making public sector utilities and does not have the necessary funds to support the increasing demand of electricity. In wake of all these financial constraints, forcing the power sector and its players to develop more expensive sources of energy is a lurch towards the wrong direction. The Integrated Energy Policy states the objective of achieving energy security in the country to provide for reliable power at affordable rates. This main objective has lost its relevance in the strive to develop renewable sources of electricity generation which neither provide reliable power due to the intermittent nature of the fuel source nor affordable rates of power.

This can be seen as a loss in focus of a developing country like India which has problems of an ever-increasing population, high levels of poverty, lack of basic necessities like food and shelter for a chunk of the population as well as a gaping disparity in the distribution of wealth in the country. A country with huge financial constraints which is unable to provide for the minimum amount of food

and shelter to every citizen of the state, a shift to expensive sources of electricity seems like a huge mistake. India is still a poor country with numerable citizens especially in the rural areas not even privy to basic amenities. Thus, an increase in expenditure on climate change mitigation is uncalled for at this point in time.

India just contributes a humble 3-4% of global emissions but incurs such heavy costs for reduction in its carbon footprint. This rationale is a conundrum in itself.

India is taking up a number of programs for the development of the renewable sector in the country. With programs like the Jawaharlal Solar Mission, India is incurring huge expenditure to harness these resources though it is a known fact that the tariffs of these resources is in many cases is almost 4 times that of conventional power produced from coal or gas. Even though this is a step towards energy independence as we utilize our own national resources, for the time being, most of the Indian population does not have the purchasing power to afford this expensive source of power. Even the consumers who are able to afford it, like the industrial consumers, should not be subjected to such high tariffs since it increases their cost of operations to a very large extent as power consumption forms the major portion of a project's cost.

Thus, this has a dual effect on the economy. It requires our financially starved power sector to inject funds in the development of this expensive sector and it also forces the consumers to pay higher costs of procuring power when much cheaper alternatives like coal are still available. This financial stress is uncalled for when 300 million²² people of our country are living below poverty line and require financial assistance immediately from all sections of the society for a uniform economic growth in the country.

IV. REQUIREMENT OF TECHNOLOGY UPGRADATION

The steps taken towards mitigating climate change mainly include technological upgradation which requires huge investments in R&D. this again poses a dilemma for developing nations like India. They neither have the financial pool kept idle to invest in developing such technologies and so have no choice but to buy these expensive technologies from the developed countries. This results in the transfer of wealth from developing to developed countries though the process should be other way around.

Such huge investments to reduce carbon emissions act as an impediment to economic growth. In countries like India, where there is always a fiscal deficit, it does not seem justifiable to invest into obtaining technology to undo the damage done by the industrialized world. Even though India's share of carbon emissions is bound to increase due to rapid economic growth that it is experiencing, the obligation of India to mitigate the climate change should be minimal as of this moment. This is

² www.wakeupcall.org

mainly because the infrastructure sector of the country is already in a financial crunch, and India, like the developed nations, should be given its fair chance to industrialize and endeavor towards development even if that results in higher carbon emissions for some years to come.

V. *SHIFT OF FOCUS FROM DEVELOPMENT*

The issue of climate change is closely related to the developmental process. Development of a country requires the setting up of major industries and providing all modern amenities to its citizens. India, also wants to develop rapidly. It is plagued with problems that all developing countries face- poverty, illiteracy, lack of sanitation and health facilities, lack of public transport, electricity woes, food shortages etc. All these problems have one solution- rapid economic growth and development of the country.

India is already experiencing increasing rates of economic growth consistently for the past decade. This trend has improved the country's scenario to a large extent but needs to continue for a few decades to come in order to eliminate the problems that it is facing now and if not eliminate then at least reduce it substantially. The major thrust towards this development will be provided by the power sector. The power sector is a pre-requisite to any development process and thus, also a measure of a country's progress. If a country has a well developed power sector it can seamlessly traverse the path of development. This focus however, is somewhat lost in the strive to mitigate climate change. The power sector is the major contributor to a country's total annual GHG emissions. So, for India, pursuing the goal of climate change mitigation is a conflict of interest in achieving its developmental goals. Thus, the objective of the future should for the time being be the development of this sector since this would shoulder the responsibility of taking India towards higher rates of economic growth. The climate mitigation steps involving high costs can be delayed for some time for the more important goal of development since after India is developed, it would be equipped with the requisite financial and technological base to abate its carbon emissions to a larger and more fruitful extent.

CONCLUSION

Climate change is a global problem. It affects everyone, the rich and the poor, the developing and the developed without any favoritism. The contributors-major or minor; are all affected by the adverse impact of climate change. Thus, there is consensus in the world that there is an urgent to abate carbon emissions. The debate is by whom?

As we have seen, putting the extra financial burden on the developing countries is a cause of major financial crisis in these countries.

India's power sector, already plagued with problems does not have to intensify its problems multifold by committing itself to inject huge financial resources in developing alternate forms of energy or clean environment-friendly technology.

Though India understands the gravity of the situation, the mitigation of climate change at the cost of its development seems like an unfair bargain. The major emitters of the previous century which increased their carbon emissions incessantly to pursue the path of rapid development cannot expect developing countries to forget their own development to clean up the developed countries' mess.

India, being a fast growing economy has many obligations towards its own citizens to provide them with better standards of living which can only be obtained through a massive expansion of the economy. The wealth of the country needs to be increased and distributed in a holistic manner to decrease the problems of poverty and low standard of living prevalent in majority of the population. India's infrastructure sector which is the major driver of economic growth cannot be unnecessarily burdened with the monumental task of mitigating climate change and incurring huge financial expenditure in the process when it itself is financially starved and in need of assistance from private sector.

Thus, India being a minor contributor to the world's GHG emissions and having one of the lowest per-capita emissions in the world, should be allowed to follow the development path and achieve high levels of GDP growth rate in order to meet the demands of its population and provide its citizens with a high standard of living without incurring huge financial expenditure on climate change mitigation which proves to be an impediment in the growth story of the country. They should be allowed to emit at an increased rate as necessitated by the development process the same way in which developed countries did in their developing phase.

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