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**"INDIA'S NATIONAL ACTION PLAN ON CLIMATE
CHANGE: A PATH TO GREEN ECONOMY"**

By

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I. INTRODUCTION

India is a large developing country of 1.2 billion people, that is, nearly 17 percent of the world's population. A large proportion of this population continues to live in rural areas and depends heavily on agriculture and forestry for its livelihood which is needed the green healthy environment and climate. India's geography and climate are as varied as the country. The Himalayas mark the northern boundaries, the Thar Desert the Western, a 7500 km densely populated coastline along the peninsula, and a heavily monsoon-dependent economy, all make India vulnerable to the effects of climate change. Area of dry land would increase by 11 per cent in the coming years due to climate change. 1.8 billion People would live in countries with absolute water scarcity and the hardest hit would be the rain-fed agriculture which covers 96 per cent of all cultivated land in Sub-Sahara Africa, 87 per cent in South America and 61 per cent in Asia, and the climate variability would aggravate loss of land productivity. Recognizing that climate change is global challenge, India is actively engaging in multilateral negotiation in the UN Framework Convention on Climate Change, in a positive, constructive and forward- looking manner. In this perspective India launched a National Action Plan on Climate Change in 2008.

II. OBJECTIVE OF THE STUDY

India is now the third largest emitter of greenhouse gases in the world after China and the United States. Its per capita emissions are low, however, given the size of the population and account for one - tenth the

global average. As an industrializing nation, India's emissions have risen in the past few decades. Over the period from 1994 to 2007, India's emissions nearly doubled and have continued to grow since. India emits 1.7 billion tones of greenhouse gases each year, as of 2007. Most of the emissions come from a heavy dependence on coal, much of which is used to generate electricity, accounts for 61 per cent of the country's emissions, and agriculture accounts for 15 per cent emissions. Despite a growing economy, emissions intensity (GHGs per unit of GDP) has dropped and is 20% lower than the global average. On the other hand, world is now trying to enhance the development through the green economy initiatives, development without environmental degradation and harming the climate is the new slogan of environmental economists. In this scenario it is imperative to study India's effort to protect the environment and addressing the climate change. In that path, this study aims to analyze the India's National Action Plan on Climate Change.

III. GREEN ECONOMY and INDIA'S NATIONAL ACTION PLAN on CLIMATE CHANGE

UNEP has developed a working definition of a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In this simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and social inclusive. Maintaining a high growth rate is essential for increasing living standards of the vast majority of our people but at the same time it is important to reduce the vulnerability to the impacts of climate change.

There are some observed changes in climate parameters in India in the recent past, they are, at the national level, increase of 0.4 degree

Celsius in surface air temperatures over the past century, there are changes in the regional variations in monsoons, a rising trend in the frequency of heavy rain events and a significant decrease in the frequency of moderate rain events over central India, the sea level rise was between 1.06 - 1.75 mm per year and the Glacial melt has an adverse impact on the Himalayas that may affect the economy in terms of water availability and hydropower generation.

Changes in key climate variables, namely temperature, precipitation and humidity may have significant long-term implications for the quality and quantity of water. The Himalayan based rivers may be affected by the decrease in snow cover. Due to sea level rise, the fresh water sources near the coastal regions will suffer salt intrusion. Every 1 degree Celsius rise in temperature reduces wheat production by 4-5 million tones. Small change in temperature and rainfall has significant effects on the quality of fruits, vegetables, tea, coffee, aromatic and medical plants and basmati rice. Changes in climate may alter the distribution of important vector species such as malarial mosquitoes and may increase the spread of diseases. To tackle these issues and to achieve the high growth in 2008 India's National Action Plan on Climate Change initiated.

In order to achieve a sustainable development with environmental friendly way the National Action Plan on Climate Change has framed the following are the main principles:.

Protecting the poor and vulnerable sections of society through an inclusive and sustainable development strategy, sensitive to climate change, achieving national growth objective through a qualitative change in direction that enhances ecological sustainability, leading to further mitigation of greenhouse gas emissions, devising efficient and cost-effective strategies for end use demand side management and deploying

appropriate technologies for the mitigation of greenhouse gases emissions.

In dealing with the challenges of climate changes National Action Plan on Climate Change of Government of India formed Eight National Missions to act on several fronts in a focused manner simultaneously. These Eight National Missions which form the core of the National Action Plan, representing multipronged, long-term and integrated strategies for achieving key goals in the context of climate change.

National Solar Mission

India is a tropical country, where sunshine is available for longer hours per day and in great intensity. The country receives about 5000 trillion kWh/year equivalent energy through solar radiation. In most parts of India, clear sunny weather is experienced 250 to 300 days a year. Solar energy therefore, has great potential as future energy source. The ultimate objective of the Mission would be to develop a solar industry in India that is capable of delivering solar energy competitively against fossil options from the Kilowatt range of distributed solar thermal and solar Photovoltaic to the Gigawatt scale of base load priced and dispatchable Concentrating Solar Power within the next 20-25 years.

National Mission for Enhanced Energy Efficiency

The industrial sector is the largest user of commercial energy in India, accounting for 42% of the country's total commercial energy use during 200405. As per the national greenhouse inventory, the direct CO₂ emissions from industrial sources accounted for nearly 31 % of the total CO₂ emissions from the country. So to enhance the energy efficiency and to tackle the greenhouse gas emissions problem, four new initiatives will be put in place. These are, a market based mechanism to enhance cost effectiveness of improvements in energy efficiency in energy-intensive large industries and facilities, through certification of energy savings that

could be traded, accelerating the shift to energy efficient appliances in designated sectors through innovative measures to make the products more affordable, creation of mechanisms that would help finance demand side management programmes in all sectors by capturing future energy savings and developing fiscal instruments to promote energy efficiency.

National Mission on Sustainable Habitat

The aim of this mission is to promote energy efficiency as an integral component of urban planning and urban renewal through those initiatives. The mission comprises three components, i.e, promoting energy efficiency in the residential and commercial sector, management of municipal solid waste, and promotion of urban public transport. The residential sector accounts for around 13.3% of total commercial energy use in India. During 1990-2003, consumption of LPG fuel increased at an annual rate of 11.26%, while electricity use increased at 8.25% annually in the residential sector. Municipal solid waste generation in Indian cities increased from 6 million tones in 1947 to 48 million tones in 2006. Municipal solid waste generation reflects not just income levels, but also lifestyle choices. Recycling of materials is an important option for reducing environmental pressure. The total number of registered motor vehicles in India has increased from 21.4 million in 1991 to 72.7 million in 2004 at a CACR of 9.9% with the two wheeler segment growing most rapidly. An increase in the demand for transportation services for both passengers and freight is inevitable, given economic growth and increase of population. These issues have been addressed in this third mission.

National Water Mission

Many parts of India are water stressed today and India is likely to be water scarce by 2050. The problem may worsen due to climate change impacts. It is therefore important to increase the efficiency of water use,

explore options to augment water supply in critical areas, and ensure more effective management of water resources. A National Water Mission will be mounted to ensure integrated water resource management helping to conserve water, minimizing wastage and ensure more equitable distribution both across and within states. The National Water Policy will seek to ensure that a considerable share of the water needs of urban areas are met through recycling of waste water, and ensuring that the water requirements of coastal cities with inadequate alternative sources of water are met through adoption of new and appropriate technologies such as low temperature desalination technologies that allow for the use of ocean water.

National Mission for Sustaining the Himalayan Ecosystem

The Himalayan ecosystem is vital to the ecological security of the Indian landmass, through providing forest cover, feeding perennial rivers that are the source of drinking water, irrigation, and hydropower, conserving biodiversity, providing a rich base for high value agriculture, and spectacular landscapes for sustainable tourism. The Himalayan ecosystem has 51 million people who practice hill agriculture and whose vulnerability is expected to increase on account of climate change. To protect this Himalayan ecosystem a Mission for sustaining the Himalayan Ecosystem will be launched to evolve management measures for sustaining and safeguarding the Himalayan glacier and mountain eco-system.

National Mission for a "Green India"

Forests are repositories of genetic diversity, and supply a wide range of ecosystem services thus helping maintain ecological balance. Forests meet nearly 40% of the energy needs of the country overall, and over 80% of those in rural areas, and are the backbone of forest-based communities in terms of livelihood and sustenance. Forests sequester billions of tons of carbon dioxide in the form of biomass and soil carbon. The objectives of

this mission are increasing the forest cover and density as a whole of the country and conserving biodiversity. Under the Greening India Programme, 6 million hectares of degraded forest land would be afforested. The national target of area under forest and tree cover is 33% while the current area under forest is 23% Conservation of wildlife and biodiversity in natural heritage sites including sacred groves, protected areas, and other biodiversity 'hotspots' is crucial for maintaining the resilience of ecosystems. Protecting flora and fauna, creation of biodiversity registers, effective implementation of the Protected Area System are the objectives of this mission.

National Mission for Sustainable Agriculture

Contributing 21 % to the country's GDP, accounting for 11% of total exports, employing 56.4% of the total workforce, and supporting 600 million people directly or indirectly, agriculture is vital to India's economy and the livelihood of the people. The proposed national mission will focus on four areas crucial to agriculture in adapting to climate change, namely dryland agriculture, risk management, access to information, and use of biotechnology. Development of drought and pest-resistant crop varieties, improving methods to conserve soil and water, suitable training for farming communities and financial support to enable farmers to invest in and adopt relevant technologies to overcome climate related stresses are the part of this mission.

National Mission on Strategic Knowledge for Climate Change

This national mission envisages a broad-based effort that would include the research in key substantive domains of climate science, global and regional climate modeling to improve the quality and specificity of climate change projections over the Indian sub-continent, strengthening of observational networks and data gathering and

assimilation and creation of essential research infrastructure.

The Mission will also have, on its research agenda, socio-economic impacts of climate change including impact on health, demographic migration patterns and livelihoods of coastal communities. It would also support the establishment of dedicated climate change related academic units in Universities and other academic and scientific research institutions in the country which would be networked.

IV. SUMMARY and CONCLUSION

Economic activity and human well-being depend on the Earth's ecosystems and the services these ecosystems provide such as food, fresh water, climate and flood regulation. Forest store carbon, provide timber and other valuable products as well as habitat to a wide array of species. Greening the economy is essentially about improving human well-being, while significantly reducing environmental risks and ecological scarcities. Economies can be directed towards the green economy by means of a combination of resource management and innovation policies.

India is faced with the challenge of sustaining its rapid economic growth while dealing with the global threat of climate change. This threat emanates from accumulated greenhouse gas emissions in the atmosphere generated through long-term and intensive industrial growth and high lifestyles. Climate change may alter the distribution and quality of India's natural resources and adversely affect the livelihood of its people. With an economy closely tied to its natural resource base and climate-sensitive sectors such as agriculture, water and forestry. India may face a major threat because of the projected changes in climate. The National Action Plan for Climate Change identifies measures that promote our development objectives, while also yielding co-benefits for addressing climate change effectively. It lists specific opportunities to simultaneously

advance India's development and climate related objectives of both adaptation as well as greenhouse gas mitigation. A green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency and prevent the loss of biodiversity and ecosystem services.

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