



SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE: IN THE CONTEXT OF FISHERY INDUSTRY

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ABSTRACT :

Fish is a particularly important resource for people living in developing countries. First, fish is an important food for combating undernourishment and malnutrition as it contains unique nutrients. Second, artisanal fishery provides employment and a livelihood for millions of families. However, overfishing and unsustainable management practices have meant that nearly 90 per cent of fish stocks used worldwide are considered to be overfished or exploited up to sustainability limits. Some 59.9 per cent of the major commercial fish species that FAO monitors are now being fished at biologically sustainable levels. By 2050 humans will face the challenge of having to provide food and livelihoods to a population likely to exceed nine billion people. This challenge is well reflected in the United Nations Agenda 2030 for Sustainable Development, a global commitment to end poverty and hunger and to ensure that economic, social and technological progress occurs in harmony with nature, through the sustainable management of natural resources. Climate change affects communities and livelihoods in fisheries and aquaculture, and efforts to adapt to and mitigate climate change must therefore be human centred. Climate adaptation strategies must emphasize the need for poverty eradication and food security, in accordance with the Paris Agreement, the United Nations 2030 Agenda for Sustainable Development and other international instruments, such as the Voluntary guidelines for securing sustainable small- Scale fisheries in the context of food security and poverty eradication. Predictions of the future impact of climate change on the poverty and vulnerability of fisheries and aquaculture arise out of climate change models, which indicate, for example, increased fish productivity at high latitudes and decreased productivity at low- and mid-latitudes, with considerable regional variations. By 2050, total maximum catch potential globally has been projected to decrease under climate change by 2.8 percent to 5.3 percent under representative concentration pathway (RCP) 2.6 and by 7.0 percent to 12.1 percent under RCP8.5 from present yields, but with substantial variability across national exclusive economic zones. This papers aimed is explore the effects of climate change on fishery industry in the context of Indian economy, also how much important for sustainable development of natural water resources.

KEYWORDS : Sustainable Development, Climate change, Scenario.

INTRODUCTION

Fisheries and aquaculture play a key role in provision of food security and livelihoods of millions of people for their social, economic and nutritional benefits. The sector is crucial in numerous coastal, riverine, insular and inland regions, with fishing- and aquaculture-dependent people often located in places that are at particularly high risk of extreme events. There has been a major expansion in fish production, trade and consumption over the last decades, but more recently, while still expanding, a slowdown in growth rates is being experienced. The sector is globalized through trade, but production (especially in the case of inland

fisheries and aquaculture) is concentrated in certain countries/regions. Developing countries, in particular in Asia, have a growing share of production and trade, with a high percentage of small-scale/artisanal fishers and fish farmers playing a part.

Fish is a particularly important resource for people living in developing countries. First, fish is an important food for combating undernourishment and malnutrition as it contains unique nutrients. Second, artisanal fishery provides employment and a livelihood for millions of families. However, overfishing and unsustainable management practices have meant that nearly 90 per cent of fish stocks used worldwide are considered to be overfished or exploited up to sustainability limits. Some 59.9 per cent of the major commercial fish species that FAO monitors are now being fished at biologically sustainable levels, while 33.1 per cent are being fished at biologically unsustainable levels—a situation that SOFIA 2018 describes as "worrying." (The other 7 per cent are under fished). Just 40 years ago, 90 per cent of FAO-monitored fisheries were being utilized at biologically sustainable levels, and just 10 per cent were being fished unsustainably. These trends do not necessarily mean that no progress has been made toward achieving Sustainable Development Goal 14, which calls on the international community to effectively regulate fish harvesting end overfishing, illegal fishing, and destructive fishing practices, and to implement science-based management plans aimed at restoring stocks. India on Monday assured the ongoing climate change conference at Katowice in Poland that the country is committed to meeting its climate goals. In 2015, the country, as part of the requirement ahead of the finalisation of the Paris Agreement, listed a series of specific actions it would take to fight climate change. One of the important promises that India made was that it would create 2.5 to 3 billion tonnes of additional carbon sinks through extensive afforestation. This paper aims to explore the effects of climate change on fishery industry in the context of Indian economy, also how much important for sustainable development of natural water resources.

Present Scenario and Policy Framework Regarding Climate Change:

Parliamentary Union (IPU) and participated in all meetings, he said. We cherish our relationship and engagements with the IPU family, Climate change is disturbing the natural ecosystems and is expected to have substantial adverse effects in India, mainly on agriculture (on which 58 per cent of the population still depends for livelihood), water storage in the Himalayan glaciers which are the source of major rivers and groundwater recharge, sea-level rise, and threats to a long coastline and habitations, floods, and droughts. These in turn will impact India's food security problems and water security. As per the Second National Communication submitted by India to the UNFCCC, it is projected that the annual mean surface air temperature rise by the end of the century ranges from 3.5°C to 4.3°C, whereas the sea level along the Indian coast has been rising at the rate of about 1.3 mm/year on an average. These climate change projections are likely to impact human health, agriculture, water resources, natural ecosystems and biodiversity. Concerned of the threats imposed by climate change and pressures on centre stage in the Indian policy domain. India has been part of 94 multilateral environmental agreements. India has also voluntarily agreed to reduce its emission intensity of its GDP by 20-25 per cent over 2005 levels by 2020, and emissions from the agriculture sector would not form part of the assessment of its emissions intensity. Indian economy is already moving along a lower carbon and sustainable path in terms of declining carbon intensity of its GDP which is expected to fall further through lower carbon strategies. It is estimated that India's per capita emission in 2031 will still be lower than the global per capita emission in 2005 (in 2031, India's per capita GHG emissions will be under 4 tonnes of carbon dioxide equivalent (CO₂ eq.) which is lower than the global per capita emissions of 4.22 tonnes of CO₂ eq. in 2005). Together with the national efforts in different sectors, India also recognises that rural areas are equally prone to stress and pressures from natural resource exploitation. In this context, schemes for rural development and livelihood programmes are very relevant. A vast majority of the works under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) are linked to land, soil, and water. There are also programmes for non-timber forest produce-based livelihood, promotion of organic and low-chemical agriculture, and increased soil health and fertility to sustain agriculture-based livelihoods. These schemes help mobilise and

develop capacities of community institutions to utilise natural resources in a sustainable manner and their potential can be further developed. Along with efforts to incorporate sustainability in the rural development process, India is increasingly making efforts to integrate the three pillars of sustainable development into its national policy space. In fact, environment protection is enshrined in our Constitution (Articles 48 A and 51A). Various policy measures are being implemented across the domains of forestry, pollution control, water management, clean energy, and marine and coastal environment. Some of these are policies like Joint Forest Management, Green Rating for Integrated Habitat Assessment, Coastal Zone Regulation Zone, Eco Labelling and Energy Efficiency Labelling, Fuel Efficiency Standards etc. Over a period of time, a stable organisational structure has been developed for environment protection.

India and Climate Change:

India's concerns and actions towards climate change appear in its policies by early 1997 itself when it officially accepted the idea of sustainable development. Since then, several sectoral initiatives have been taken by the country. By 2008, India had launched its eight national missions on climate change. Over the time, India has not only played a very dynamic role at the international fora but it has also taken appreciable domestic efforts in this direction.

NAPCC: A major component of India's domestic actions against climate change is the National Action Plan on Climate Change (NAPCC). In March 2016, the PM's Council on Climate Change (PMCCC) directed the missions under the NAPCC to enhance their ambition in respect of adaptation, mitigation and capacity building and reprioritize them, besides recommending the setting up of some *new missions* in addition to the existing eight:

1. Considering the adverse impacts that climate change could have on health, a new 'Mission on Climate Change and Health' is currently under formulation and a National Expert Group on Climate Change and Health has been constituted.
2. The proposed 'Waste-to-Energy Mission' will incentivize efforts towards harnessing energy from waste and is aimed at lowering India's dependence on coal, oil and gas for power production.
3. The 'National Mission on Coastal Areas' (NMCA) will prepare an integrated coastal resource management plan and map vulnerabilities along the entire (nearly 7000-km-long) shoreline.
4. The 'Wind Mission' seeks to increase the share of wind energy in the renewable energy mix of India. It is likely to be given an initial target of producing about 50,000–60,000 MW of power by the year 2022.

India's Effort to Counter Climate Change:

1. India is the world's third largest economy and fifth largest greenhouse gas (GHG) emitter, accounting for about 5% of global emissions. India's emissions increased 65% between 1990 and 2005 and are projected to grow another 70% by 2020.
2. By other measures, India's emissions are low compared to those of other major economies. India accounts for only 2% of cumulative energy-related emissions since 1850. On a per capita basis, India's emissions are 70% below the world average and 93% below those of the United States.
3. India is also at the frontlines of facing the impacts of climate change. Shifting rainfall patterns, recurring floods, stronger cyclones and droughts or soil erosion are exacerbating the challenge of poverty eradication and necessitate the allocation of scarce national resources for preventing loss of human life.
4. Despite resource constraints, India is undertaking ambitious actions to undertake adaptation and mitigation actions, including thorough lowering of the energy intensity of our economic growth, increasing energy efficiency across sectors and making greater use of renewable.
5. India has doubled the Clean Energy Cess on coal, which very few countries have, and the Clean Energy Fund already has over 3 billion US dollars to be used for promoting clean technologies.

6. India's National Solar Mission is being scaled up five-fold from 20,000 megawatts to 100,000 megawatts. This will mean an additional investment of 100 billion dollars and savings of about 165 million tonnes of CO2 emissions per year.
7. India is releasing 6 billion US dollars in one go for intensive afforestation which will result in more carbon sinks.

Outlook for the Future:

The year 2015 has been commendable regarding world's actions towards environmental protection and climate change. We see the world agree to a common framework on climate change and a set of SDGs in a single year was indeed a monumental achievement. In this regard, there will two important challenges in front of the India:

1. Mobilization of the funds for realizing the bold targets envisaged under both; and
2. Need of a clear action plan for implementation.

Budgetary sources of the countries (especially, in case of the developing countries) will not be sufficient enough for the successful implementation of the Paris Agreement, the SDGs and the ambitious targets set out in the INDCs. Looking at the size of funds which will be needed to realise these goals, the experts have advised to mobilise all channels in this regard; private finance, public finance-both national and international.

CONCLUSION:

Fisheries are a major source of food for the majority of poor and vulnerable communities in developing countries. The sector also provides jobs to many men and women and is one of the most traded food commodities in the region. Fish trade supports economic growth processes in developing countries in general, by providing an important source of cash revenue to service international debt, funding the operations of national governments, and importing food for domestic consumption, thus contributing to national food security and diversification of diets. However, climate change poses a significant threat to fisheries in the region. The potential impacts of climate change on fisheries are categorized as physical and biological changes: physical changes include water surface temperature rise, sea level rise, increasing water salinity and ocean acidification; biological changes include changes in primary production and changes in fish stock distribution. Such changes could lead to disruptions in the food chains of aquatic flora and fauna, habitat destruction, depletion in food stock and prey-predator composition, destruction of coastal fish landing, and risk to processing and marketing sites.

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