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Impact of Global Warming on Fisheries

We know India is one of major fish producing countries in the world with third position in fisheries and in aquaculture. Fishery sector has high potentials for rural development, domestic nutritional security, employment generation, gender mainstreaming as well as export earnings. In the pace of globalization and population growth, the demand of fish and fishery products are increasing considerably, both at domestic and export fronts. The fisheries of natural waters, including coastal and inland is under pressure due to high fishing intensities, pollution, open access, manmade modifications, water abstraction, etc. and lead to problems in maintaining sustainable fisheries as a result affecting the livelihood of fishery workers.

In India, more than 11 million fishermen and fish farmers depend on fisheries & aquaculture for their livelihood, but due to projected demand in fishery sector more than three-quarters of fisheries are fully exploited, overexploited or depleted. Thus affecting livelihood of millions of fishery workers

GREEN HOUSE EFFECT AND THE CLIMATE CHANGE

The green house effect is the process by which the atmosphere traps some of the sun's energy, warming the earth and moderating our climate. A human driven increase in greenhouse gases is increasing. This effect artificially, rising global temperatures and disrupting our climate. These greenhouse gases include carbon dioxide produced by burning of fossil fuels and through deforestation, methane released from agriculture, animals and landfill sites, and nitrous oxide resulting from agricultural production plus a variety of industrial chemicals. The main cause for climate changes is due to enhanced global warming.

GLOBAL WARMING IMPACT ON FISHERIES.

Global warming will confound the impact of natural variation on fishing activity and complicate management. The negative impacts of climate change which the TAR (Third Assessment Report) identified, particularly on aquaculture and fish water fisheries, include:

1. Stress due to increased temperature and oxygen demand and increased acidity.
2. Uncertain future water supply.
3. Extreme weather events.
4. Increased frequency of disease and toxic events.
5. Sea level rise and conflict of interest with coastal defense needs.
6. Uncertain future supply of fish meals and oils from capture fisheries.

Effects of temperature on fish growth

Experimental studies reveal negative effects for rainbow trout on appetite, growth, protein synthesis and oxygen consumption with a 2°C temperature increase in the summer. Thus, temperature increase will cause risk to fish populations at the upper end of their thermal tolerance zone. The consequences of these interactions are speculative and complex.

Disaster impacts on the fisheries sector

There is a disastrous effect on the fisheries sector in many different ways due to global warming. The loss of lives is the most dramatic impact, affecting not surviving household members but also potentially upsetting economic and social activities and systems outside the immediate family. Natural disasters that strike suddenly without warning can cause tangible losses in the form of damaged and lost boats, gear, fish cages, aquaculture bloodstock and other productive assets; destruction of infrastructure such as landing and fish processing facilities; and loss of production, for example, fish impacting from aquaculture ponds. The longer-term effects may also affect considerably but

sometimes difficult to appreciate, especially since the immediate impact is overwhelmingly visible.

Environmental damage through accidents, such as oil spill, may result in the closing of a fishery. In some cases, alternative job opportunities may be created but changes in lifestyle may be difficult to deal with and the social and cultural patterns of affected communities may be influenced.

EFFECTS COASTAL SHIPPING ON ENVIRONMENT

AIR POLLUTION:

Coastal shipping has emissions of harmful chemicals such as carbon dioxide, carbon monoxide, hydrocarbons, particulates and nitrogen oxides. It is estimated that around 44.18 million tons of carbon dioxide is pumped into the air by coastal shipping only and supplement for global warming. Besides this also create noise which affects the fish spawning, breeding and other fish activities.

OIL POLLUTION:

The soluble aromatic fractions of oil severely affect the marine organisms. Adult marine organisms don't survive after exposure to 1-100ppm of soluble aromatic- for larvae; the lethal dose is 0.1ppm. Even sub lethal dose is of these compounds disrupts chemical sensing and communication system of marine organisms. The recommendations given below deal specifically with concerns regarding for the prevention of marine as well as inland water pollution for sustainable fishery to maintain the livelihoods of fishers.

CONCLUDING REMARKS

Climate change is already impacting the livelihoods of fishery workers, and is expected to destroy the livelihoods of millions of people in the developing world, as well as ecosystems and species, in the coming decades. Its reality can be seen in disintegrating polar ice, thawing permafrost, dying coral reefs, rising sea level, shifting of fish population and fatal heat waves. If we don't take any immediate action to stop global warming, the damage could irreversible. This can only happen through a rapid reduction in the emission greenhouse gases into atmosphere.

REFERENCES:::

1. Aaheim, A. and L. Sygna, 2000: Economic impacts of climate change on tuna fisheries in Fiji Islands and Kiribati, Cicero Report 4, Cicero, Oslo, 21pp.
2. Hoegh-Guldberg, o., 2004: Coral reefs in a century of rapid environmental change. Symbiosis, 37,1-31.
3. [http:// www.livelihoods.org/info/guidance_sheets_pdfs](http://www.livelihoods.org/info/guidance_sheets_pdfs)
4. Whittingham, E., J. Campbell and P. Townsley, 2003: Poverty and Reefs. DFID/IMMIOC/ UNESCO, Exeter, 260 pp.

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