

Combating Climate Change: A Need for Food & Water Security

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Abstract: Climate change refers to the average increase or decrease in earth's surface temperature. It is a natural phenomenon. We cannot prevent it but, we can minimize its negative effects to some extent (Sherjit and Mohon, 2015). Nowadays human enhances climate change rapidly and it becomes a global issue. The record of human modification of the environment spans at least 2.5 million years. The study of human evolution shows that human have evolved over a long period of time in the face of environment challenges and opportunities (Arunkumar, 2013). Human activities like burning of fossil fuels, using of air conditioners and refrigerators produces greenhouse gases (GHGs) that increases earth's surface temperature. The increase in temperature causes loss of land (due to sea level rise) and biodiversity (due to submerging of land) etc. that threatens the food & water security of the people. Combating climate change is not an easy task. Sustainable development (development without harming the environment), participatory management of land (may be forest or mountain) and water resources are the means to combat climate change. We should reduce the emission of GHGs as far as possible.

Keywords: Climate change, food security, sustainable development, GHGs, participatory management, capacity building, wetland conservation

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I. Introduction

Global Climate change is the biggest threat to our planet and it will affect everyone on the earth. The increase in surface temperature causes sea level rise, loss of habitat and agricultural area. Loss/reducing of agricultural lands threaten food and water security of the people. *Food security* is considered as a situation where people have physical, social and economic access to sufficient, safe and nutrition food that meets their dietary needs and food preference for an active and healthy life. *Water security* means the water which is physically available with appropriate quality and quantity for drinking purpose, agriculture & industries, accessible when required. At the same time, Human population is rapidly increasing. Urban areas are rapidly expanding and agricultural lands are rapidly declining. These add another problem to the food & water security of the people.

II. Discussion

Climate change refers to the variation in the earth's global climate or in regional climate over time. It is the gradual increase/decrease in the average temperature of the earth's atmosphere and its hydrosphere. Rapidly rising temperature causes sea level rise and submerging land areas including habitat and agricultural areas. It threatens the water and food security of the people. Combating climate change is not an easy task. Only a nation cannot combat it. We should work hand in hand to combat climate change. There are some steps to combat the climate change. They are-

Joint forest management; Most of the forests are inhabited by tribes. They have right to use forest resources like timber and woods for construction and fuel respectively. Their main source of livelihood comes from forest. So, Joint Forest Management is necessary to check the forest resources and to prevent deforestation. In India Joint forest management was initiated by Ajit Kumar Banerjee during 1970s at degraded Sal forest in Arabari Range, West Bengal. It helped to restore degraded Sal forest in a short period of time.

Sustainable development: According to Brundtland report (1987), sustainable development is development that meets the need of present without compromising the ability of future generations that meet their own needs. The United Nations Conference on Environment and Development defines sustainable development as the right to development which must be fulfilled so as to equitably meet development and environment needs of the present and future. Developmental works should be done with environment conservational efforts. We should reduce emission of GHGs as far as possible.

Participatory management of river source and catchment area; *Catchment area* refers the area from where a river or lake receives water flow. *Participation/participatory* refers to all actions by which citizens take part in

the operation of administration. There are many cities in the world on the river banks since immemorial time, e.g. Indus valley civilization. Many big cities are located just on the river banks. They produce and discharge waste (both domestic and industrial) in the river causing water pollution. Beside this, expansion of settlement area and developmental works on the river bank and catchment area leads to the ecological degradation and imbalance which in turn threatens the water and food security. So, people's active participation and their help are necessary to manage catchment area effectively.

Wetland conservation and rejuvenation: *Wetlands* may be defined as the areas those are inundated by water or where the land is saturated to a depth of few centimeters for at least a few days per year. It includes swamps, marshes, bogs and salt water swamps. Wetlands act as kidney of the earth. They can filter polluted water to a great extent. They are also a good source for groundwater. They can also absorb heat. Encroachment of wetlands (either legal or illegal) may lead to frequent flash flood besides disturbing to hydrological cycle. So, wetland should be conserved to combat climate change.

Participatory irrigation management: It means processes and mechanisms that enable those people who have a direct stake in water (irrigation) resource to be part of decision making in all aspect of irrigation management from managing resource to formulating and implementing institutional framework. This will reduce expenditure and staff of the irrigation department and it will encourage the cultivators and direct shareholders. Thus, the cultivators will get direct benefit. Hence it will help to get desire goal of food security.

Women's participation in development and decision making: Women are the protector of the environment. They can sacrifice their own life to protect forest and environment. Chipko movement and khejri movement of India may be mentioned. They have directly linked to the environment. In tribal areas food and fodders are collected from the forest by the women only. Giving opportunity to the women during decision making will help to conserve the environment in many ways. In Kenya, Green belt under the leadership of *Wangari Maathai* planted more than 30 million trees in both public and private areas.

Capacity building and change/improvement of livelihood: Capacity/capability-it refers to physical, human and social capital inherent in a community. Hence it is a combination of all the strengths and resources available within a community, society and or organization that determine its resilience in the face of a disaster catastrophe. Capacity building includes efforts aimed at developing human skills and societal infrastructure within a community or organization to reduce the level of risk. Capacity building also includes development of institutional, financial, and other resources such as technology at different levels and sectors of/in the society. Improvement of livelihood leads to the less dependency to the forest resources. The people may take other occupations like service sectors and IT-sectors etc.

Policies and programs: Proper policies and programs should be made to combat climate change. It may include both long term and short term programs. Implementation and timely monitoring the programs is the most important part. Mass awareness and education should be done right from the primary standard.

Change in cropping pattern: Change in cropping pattern may include double cropping. plantation of Indigenous drought resistant varieties, Cross breeding product of High yielding varieties & local drought/flood resistant varieties as well as agro-forestry. This will increase the food production.

Good governance and decentralization of power: Good governance can be understood as comprising the ideal orientation of a state that works to achieve self-reliant and sustainable development and social justice. It includes administrative transparency and decentralization of power. This will encourage the people to actively participate in environment conservation, land and water resource management.

Co-operation, co-ordination and knowledge sharing: *Cooperation* means sharing and management of common environmental unit, and *Coordination* means the challenging task of working together with all involved while providing a degree of direction and control. Proper co-operation and co-ordination is needed among the people, among the people and government and among the nations because climate change is a global issue. We all have responsibility to combat climate change. Latest information and technology should be transferred from developed countries to developing and under develop countries to combat climate change.

Rehabilitation and resettlement; Rehabilitation work is the work that is carried out on a sustained basis. It includes all measures at reconstruction and social, economic, environmental and psychological aspects of rehabilitating the disaster-affected. A planed and proper rehabilitation and resettlement is necessary to conserve the environment. Resettlement should not be done in reserve forest areas, national parks, sanctuaries and wetland areas. Capacity building for vulnerable groups should go simultaneously with the rehabilitation and resettlement processes.

Using of latest technology to combat climate change: Using of latest technology like GIS for hazard mapping and vulnerable area identification, remote sensing satellites for continuous monitoring of climate change and early warning systems may help to take proper action timely. Green technology like solar energy harvesting, rain water harvesting and wind-mills for wind energy will reduce the emissions of GHGs. Using of bio-diesel, bio-gas and eco-friendly products should be encouraged.

III. Conclusion

Climate change is the biggest threat to the planet earth and it will affect everyone on the earth. The record of human modification of the environment spans at least 2.5 million years. The study of human evolution shows that humans have evolved over a long period of time in the face of environmental challenges and opportunities (Arunkumar, 2013). The increasing surface temperature causes sea level rise and submerging land areas. Besides this, it causes fluctuation of monsoon. Hence, flood and drought commonly occur side by side. The same is true for other countries also. This will lead to a decrease in food production and hence threaten food security. To combat climate change, we should reduce the emission of GHGs. Joint forest management, sustainable development, participatory management of land and water resources, women's participation in decision making, capacity building and improvement of livelihood, change in cropping pattern, good governance, proper rehabilitation and resettlement of vulnerable groups and using of latest technology to monitor climate change etc. are the means to combat climate change and hence food & water security of the people.

References

- [1] **Arunkumar** "Climatic Influences on Human Evolution" Souvenir & Abstract of Regional Science Congress (North Eastern Region), Organized by ISCA-Imphal Chapter & Manipur University, 30-31 December 2013 p26 &31
- [2] **Brundtland commission report** on "Our Common Future" 1987
- [3] **IGNOU PGDDM (MED-004)** "Towards Participatory Management: Block 1,2,3 &4' 2005
- [4] **IGNOU PGDDM (MPA-001)** "Understanding Natural Disasters' 2005 p214-243
- [5] **IGNOU PGDDM (MPA-004)** "Disasters Preparedness' 2014 p149-169
- [6] **IGNOU PGDDM (MPA-007)** "Rehabilitation, Reconstruction and Recovery' 2013 p91-98,152-160 & 237-244
- [7] **Kh Mohon Singh** "Climate Change and the Facts" Report on Two-Day International meet on Climate Change organized by Department of Social Work, Indira Gandhi National Tribal University, Regional Campus Manipur (September 22-23) 2015 p14
- [8] **L Sherjit Singh** "Climate Change and Increasing Water Demand in Manipur" Report on Two-Day International meet on Climate Change organized by Department of Social Work, Indira Gandhi National Tribal University, Regional Campus Manipur (September 22-23) 2015 p15

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