

Impact of Climate Change Events

Lakshmi M. Paloti¹ and Uma S.Hiremath²

¹Department of Extension and Communication Management College of Rural Home Science,
University of Agricultural Sciences, Dharwad-580008, Karnataka, India

²University of Agricultural Sciences, Dharwad-580008, Karnataka, India
E-mail: ¹parvatipaloti@yahoo.in, ²hiremathus@uasd.in

Abstract—Climate change affects everyone and posing frightening scenario around the globe. Prolonged drought and heavy flooding are occurring in different parts of the world frequently and intensely. Climate change affects the balance of natural and socio-economic systems. India has emerged as one of the most vulnerable countries in the world, with a high-dependence on climate sensitive sectors such as agriculture, water resources, natural ecosystems and forestry, health, sanitation, infrastructure and energy. Climate change is one of the biggest environmental threats to Indian agriculture, potentially impacting food production and security due to its exposure to extreme weather aberrations like drought and flood. As a result of having less capacity to cope with impacts of drought on agriculture, small and marginal farmers livelihood activities are threatening and there is an increasing trend in shifting of agricultural occupation to unskilled non-farm occupations. Prolonged dry periods in the natural climate cycle has more obvious and best recognized impacts on human health like malnutrition, mortality, malaria, chicken gunya, dengue fever etc. Drought and floods are leading migration of male members of poor farm families and relying increased burden on female members. Flood of 2010, in Pakistan had endangered the life of the pregnant women and their offsprings. Based on the survey and study reports of 2004 in the tsunami affected areas of Tamilnadu, India revealed that tsunami has left major and deep physical, socio-economic and psychological impacts on women adolescent girls and children. Hence the climate change is impacting rainfall patterns, food production, biodiversity, fish availability, water resources etc. Thus the main message is that climate change is not a distant phenomenon, but it is already happening now and affecting the work patterns of farm women, health of our children and almost all livelihood activities of human beings.

1. INTRODUCTION

Climate change is one of the most daunting global challenges of our time and is generally considered as a global environmental issue. It is one of the most fundamental challenges facing the international community today. The earth's climate has been relatively stable for thousands of years. When a stable climate is modified beyond its critical point, it gets out of balance and losses its equilibrium. Extreme or abnormal climate related events are occurring around the globe and even in India at a faster rate. India experienced many adverse events recently like Hud - Hud cyclone in the coastal Andhra Pradesh, the unprecedented rain

and floods in Jammu & Kashmir, the cloud burst in Uttarkhand, the Tsunami and the list goes on.

Climate change means significant differences in weather patterns over an extended period of time. In a wider sense, the climate is the description of the state of the climate system. Climate is usually defined as the "average weather or more rigorously as the statistical description of weather in terms of the mean and variability of relevant quantities over periods of several decades" (World Meteorological Organization). Some of the important climate change events are changes in rain fall patterns such as drought, excessive rain fall, early or late arrival of monsoons and rain fall at unusual periods, increase in temperature, heat waves, global warming related ozone depletion with increased UV radiations. These climate change events are leading adverse impact on earth's environment and human activities as well as live stock populations including microbial communities. Changes in rainfall patterns such as drought, excessive rainfall and rainfall at unusual periods are becoming common. livelihood and sustenance of development in a countries of diverse climates like India are highly climatic driven. Floods, droughts and cyclones regularly batter economic sectors and infrastructure and cause deaths to human and livestock population. Hence, this paper examines the impacts of most common climate change events namely drought and flood with special reference to women. The paper also defines the depression and other emotional disturbances of women during the Indian Tsunami 2004.

1. Drought

Drought occurs when the rainfall in an area falls below its normal pattern for an extended period of time. In India the area which receives rainfall between 750mm and 1100mm, is considered as drought prone. If an area receives less than 750mm of rainfall that area is considered to be chronically drought prone. The effects of drought can be classified as short term and long term. Decline in the crop area, crop yield grain quality, grain quantity, decrease in soil fertility, scarcity of drinking water, malnutrition starvation, poverty, disinvestment in human capital, death and distress sale of cattle, human health disorders and shift in agricultural activities etc. are the short term effects of drought. The

consequence of drought in the long run leads to distress sale of assets and migration out of the village.

Agriculture sector has immediate impact due to drought since agriculture and climate are inextricably linked. Agriculture, forestry and fisheries are all climate sensitive. Higher temperatures not only reduced yields of desirable crops but also encourage weed and pest proliferation. As a result of having less capacity to cope up with impacts of drought on agriculture, small and marginal farmers livelihood activities are threatening and there is increasing trend in shifting of agricultural occupation to unskilled non-farm occupations. Drought is also leading greater uncertainty and heightened risks for farmers and potentially eroding the value of traditional agricultural knowledge and developing suicidal tendency in farmers.

Migration of male members to nearby towns and cities due to lack of job opportunities as a result of drought and relying additional responsibilities on women members of poor agricultural families. When male members migrate out during drought, the female members became the head of the family, which increases their work burden along with household activities (Itishree Patnaik, 2012). In India, drought of 2002 was considered the severest droughts of the last hundred years during which the overall rain fall received was only 19 per cent, water storage in reservoir was less than 33 per cent and 21.50 million ha of cultivable area was not sown.

Prolonged dry periods in natural climate cycle, has more obvious and best recognized impacts on human health. Usually malnutrition and mortality impact of drought are often indirect and complex. Research study conducted in drought prone area of western Rajasthan of India reported that childhood illnesses at the time of drought like respiratory (7.50 %), gastroenterological (7.50 %) and fever (5.60%) were higher in males than females (Singh et al., 2006). Drought associated malnutrition affects not only on protein energy content of diet, but also exhibits different types of malnutrition. Drought associated malnutrition can lead two types of consequences.

- 1) Micro nutrient malnutrition viz., anemia, vitamin A deficiency, night blindness, scurvy etc.
- 2) Anti nutrient consumption viz., Aflatoxicosis due to eating mould affected food.

Prolonged droughts interrupted by heavy rains, favor population explosions of both insects and rodents and spread vector and rodents borne diseases like malaria, chicken gunya, dengue fever etc. Warmer average temperatures will likely lead to hotter days and more frequent and longer heat waves which could increase the number of heat related illness and deaths. Since pregnant woman are particularly vulnerable to malaria, there is an increased risk of spontaneous abortion, premature deliveries, still birth and low birth weight babies. Droughts and drying can lead to social instability, food

insecurity and long term health problems and can damage or destroy related livelihoods (Pachaura and Reisinger 2007).

2. Monsoon floods

Floods are the most common climate change events worldwide with an impact on the health of human populations and related livelihood activities. Heavy rainfall and more frequent flooding damages crops and seed beds leading to heavy losses for farmers especially small and marginal farmers. Flood makes people of affected regions homeless, landless or both and also hampers their livelihood opportunities.

Flood causes temporal displacement which some time leads to migration in large scale. During severe flooding events in countries like Bangladesh, women and children often have to live on a Macha (raised platform) and thus risk of falling into the water and drowning especially children. If displaced, women and children usually take shelter besides a road or embankment, making temporary shelter from grass and wood which lack sanitation facilities. So that in an emergency, woman do not relieve themselves during day time. Due to seasonal migration of male members, women left as the sole family care taker and burdened with more work including securing food for the family. This forces woman to take up income generating activities in addition to doing all the household work. In many cases, the children are pulled out of school and engage in household and income generating work (Shamsuddoha et al., 2009).

Exposure to floods is associated with long term malnutrition in the rural communities of coastal belts of India. Children exposed to flood during their first year of life presented higher levels of chronic malnutrition like, stunted growth, under weight and wasting compared with those in non-flooded ones (Jos Manuel Rodriguez-Llanes et al., 2008).

Approximately 5, 00,000 pregnant women were affected by the 2010 flood in Pakistan and about 1.5 million woman of reproductive age were in a strong need of emergency obstetric care as reported by News listing. Flood had endangered the life of the pregnant woman and their offsprings and the maternal mortality rate found three times more than general mortality rate of India.

3. Tsunami

Tsunami of 2004 caused by 9.0 magnitude earthquake affecting 18 countries in south east Asia and South Africa, killing more than 2,50,000 people in a single day and living more than 1.7 million homeless. Tsunami is series of ocean waves typically caused by large under sea earthquakes or volcano eruption at tectonic plate boundaries.

Reports from tsunami affected parts of India revealed that woman are becoming widows due to lack of interest in life, girls becoming orphans and they become more vulnerable, sexual and physical assault on woman by others and their

family members, lack of knowledge of legal help, lack of privacy in emergency and semi permanent shelters creating a feeling of insecurity, increase in domestic violence and increased responsibility towards families (Gokhale 2008).

Indian Ocean tsunami occurred on December 26, 2004 and took away the lives of 12,000 people, displaced 6,50,000 and injured over 5,000 in Tamil Nadu. In the event, more woman and children died in the worst affected areas of Nagapattinam in Tamil Nadu, were about 2,406 woman died compared to 1,883 men.

Women are especially hard hit by the social impact of climate change. Women are particularly vulnerable because they have fewer resources in their own right and under their own control. They have no permanent place in decision making systems and they suffer traditional, routine and gender biased oppression. By virtue of their lower economic, social and political status, women tend to be more vulnerable to disasters.

Impact of tsunami on women

Physical impact	Emotional impact	Socio-economic impact
Soreness, sleep disturbance, eating problems, gynecological injuries, miscarriages, and pains, physical impairments, rape etc.	Anxiety, fear, humiliation, dreams and nightmares, disbelief, listlessness shame, embarrassment, denial, irritability, anger etc.	Dealing with new societal roles like being a widow , single parent or head of house, inability to work, feeling isolated, feeling stigmatized, withdrawal from external life, loss of trust, disorganization and discontinuity of routine life activities etc.

2. CONCLUSION

Climate change will have a profound impact on human and ecosystems during the coming decades through variations in global average temperature and rainfall which will result in

extreme climatic events like droughts and floods. Climate and climatic change events affects every aspect of society from the health of the global economy to the health of our children. It is about the water in our wells and in our taps. It is about the food on the table and at the core of nearby all the major challenges we faced today which are not noticing by us.

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