


Chapter 19

Designing a Framework for Agri Sector Considering Disaster and Climatic Change: A Case Study of Odisha

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ABSTRACT

Change of technology, utilization of genetically modified crops, and organic farming can be used to improve the fertility of land and to increase production in farming, but the effect of climate change is a big problem for the Indian farmers. Farmers have to face extreme weather conditions, the heavy workload during the fieldwork like weeding, harvesting, etc. The conventional method of farming and lack of advanced technology makes farming too difficult. Due to climate change, high heat, heavy rain, and frost, productivity decreases and lands become barren, and farmers also suffer from mental and physical disorders. Hence, an effort is taken to design a framework for the agriculture sector keeping climate change factors in view. To improve the agricultural system in Indian agrisector, some implications must be done to avoid wastage of rainwater. By creating an efficient drainage system in the crop field, the extra water can be reused. To avoid loss due to heavy rain, greenhouse or poly house can act as an effective way during natural calamities.

INTRODUCTION

Agricultural sector is a very challenging sector. It is dominated by nature and man made disasters. Rain is essential for increasing production of vegetables, pulses and agriproducts but sometimes heavy rain fall acts like curse and due to heavy rain flood washes away everything. Similarly sunlight is like a blessings for farming but hot climate dries fertile farming land and creates draught situation .There are

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many causes for Climate change like deforestation, pollution, population rise, waste disposal system, industrialization etc. The rise of air and water temperature rises sea levels, so supercharged storms and higher wind speeds, more intense and prolonged droughts, heavier precipitation and flooding takes place. Climate hazards are natural events in weather cycles. hurricanes and droughts, flooding and high winds always witnessing a scale of damage and destruction that is new and terrifying. It always makes millions of people homeless and indigent. Flooding and strong winds from an extraordinary succession of powerful hurricanes have destroyed homes and crops barrens fertile lands. Extreme weather disasters affect all countries, rich and poor. Climate change is forcing people from their homes, bringing poverty on top of poverty and increasing hunger.

Agriculture is the back bone of India and it acts as the skeleton of India's economy. More than 50% of the rural households manage their bread and butter on agricultural commodities by supplying food and necessary products to all over the world . It is found that the agricultural sector is the highest contributors of Gross Domestic Product (GDP) of India. Although the demand of agricultural sector is very high and the govt. Provides loans and subsidies for the development of Agricultural workers/farmers, still the problems of farmers remains un resolved.

LITERATURE REVIEW

The nominal farmers of agricultural sector of India has to work in high noise, vibration and pollution . Modification of equipments have solved the problems of lengthy working procedure some how able to reduce heavy work load, safety related problems but created problems due to pollution and sustainability. Sustainability has turned out to be a principal concern for the country, researchers and international businesses (Drexhage and Murphy, 2010). The sustainable agricultural development was primarily concerned on the environmental factors followed by economic, social as well as political factors (DFID, 2003). Therefore the economic, social, and environmental dimensions need to be integrated to achieve sustainable development, because a subsystem's development on long-term basis is dependent on the others to some extent (Voinov and Smith, 1998). Political decisions at the local, regional or national levels are involved for sustainable decision-making aiming at impartial growth of socio-environmental systems. Further, defining as well as measurement of the sustainable development is a critical issue in sustainable decision-making. Moreover, as there is no exclusive sustainable pathway, and therefore, different criteria and approaches should be chosen by policy makers for efficient sustainable decisions for every country (Andriantiatsaholiniaina et al., 2004). An extensive and integrated way for dealing the social, monetary and natural processes for development was found to be fundamentally included for sustainability (Sathaye et al., 2007; Tracey and Anne, 2008) and a shared activity plan seemed of requiring differing partners interest and view points to build up for the development (Kates et al., 2005). Agricultural sustainability has been a fundamental concern because of its major impacts on production of foods, continual use of natural resources and environmental outcomes (Bell and Morse, 2008). The economical, social and environmental concerns were reported to be included for the sustainability of agriculture (Jackson-Smith, 2010; Nedeia, 2012). Economic sustainability comprised of the ability of farmers for producing an adequate amount of food for feeding them as well as their society, and also maintaining the economic agricultural feasibility (Van Calker et al., 2008; Jackson-Smith, 2010). While, social sustainability comprised of the fairness along with the quality of life of farm workers, consumers as well as the community members. However, the environmental sustainability included the enrichment

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