

Chapter 37

Coastal Poverty, Resource– Dependent Livelihood, Climate Change, and Adaptation: An Empirical Study in Indian Coastal Sunderbans

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ABSTRACT

Millions of people in Sunderbans generate their livelihood and sustenance through fishing, honey collection, fuel wood and timber. The paper attempts to examine the issues of coastal poverty, food security as well as livelihood insecurity and the adaptation options that help to the resilience of climate change. The paper is based on field survey conducted in the villages of Sunderbans in 2011. The study revealed that fishing and crab collection, honey collection are the important sources of livelihood. The fishing resources have been declining which leads to the insecurity of livelihoods of the fishing communities. The study has identified the key adaptations like dependency of money lenders, fishing and crab collection, formation of Self Help Groups, livestock rearing and migration. This paper has important policy implications for poverty, livelihood vulnerability and migration.

1. INTRODUCTION

In India 700 million rural populations directly depend on climate-sensitive sectors like agriculture, forest and fisheries, and natural resources for livelihood generation. Fisheries-related activities provide important sources of livelihoods for nearly 7 million people in India (Government of India, 2000). Climate change is considered to be one of the major threats to sustainable development because of its effects on health, infrastructure, agriculture and food security, and forest ecosystems (IPCC, 2007 a). Moreover, climate change deteriorates living conditions in many parts of the world including India. People are severely affected by environment degradation or restrictions imposed on the access to it. As a result of

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this dependency, the impact of climate change threatens the livelihoods, food intake and health of the poor people (Smith and Troni, 2004). A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain its capabilities and assets both now and in the future, while not undermining the natural resource base. (Carney, 1998b).

Poverty in coastal areas is more than that of non-coastal areas. Based on the definition of poverty as the inability to secure a minimal standard of living (National Institute of Rural Development – NIRD, 1998: 5), the majority of coastal fishers can be defined as poor. Climate change affects the environmental and socio-economic drivers of food insecurity, as its impacts are largely affected by poverty and inequality. Over time, climate change will affect all four components of food security: availability, access, utilization and stability (FAO, 2009; Vermeulen *et al.*, 2012). Changing climatic conditions will affect crop growth and livestock performance, the availability of water, fisheries and aquaculture yields and the functioning of ecosystem services in all regions (Foresight, 2011). Saltwater intrusion threatens some of the major food-producing regions in the world that are located in mega-deltas, where also much of the world's population lives (Beddington *et al.*, 2012).

There exists extensive literature on poverty, its definition, measurement, and alternative conceptual approaches to it in development and environmental economics (Sen, 1999; Alkire 2002, Dasgupta 2001; Nussbaum and Sen (1993) and Qizilbash 1996). Sen provides “Capability Approach” to poverty and human well-being which makes a distinction between well-being, agency achievement and freedom. Dasgupta's (2001) version of well-being is more operational and includes liberties, income, health and education. He suggests focusing attention on the sustainability of well-being and talks in terms of need for comprehensive measurement of wealth.

The analysis of poverty is highly related to the analysis of food security. Gulati (2006) expressed food security at national to household level as it is more a matter of economic access than that of physical availability in developing and developed countries. In the views of Mishra (1998) food security would mean ensuring all people to have physical and economic access to the basic food they need to work and function normally.

George (1999) while analyzing food security situation in India found that economic access to food could be achieved through a mix of employment and income policies for farm sector.

While analyzing food security and nutrition: Vision 2020, Reddy (2004) said that while India achieved success in combating transient food insecurity caused by droughts or floods, it miserably failed to make much dent in chronic food insecurity as reflected in the low energy intake and high incidence of malnutrition.

Swaminathan (2000) has equated food security with livelihood security at the levels of each household and all members within and involves ensuring both physical and economic access to balanced diet, safe drinking water, environment sanitation, primary education and basic health care.

A better understanding of the complex nature of livelihoods has derived largely from work conducted in research into poverty (Sen, 1981; Narayan *et al.*, 2000). Income measures and ownership of assets like land which failed to capture many key issues of poverty like marginalization and vulnerability. IFAD (2002) considers coastal areas in Asia are prone to poverty and coastal fishing households are regarded as being amongst the poorest of the poor, largely on the basis of their dependence on an open-access resource where competition is high and increasing. The ability of the rural poor to sustain their livelihoods is believed to be constrained due to adverse environmental conditions – high ecological vulnerability and low resource productivity – and limited access to land and other natural resources (UNCHS, 1996; World Bank, 2002). In a pioneering study in the Indian context, Jodha (1986) found that there is

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