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Resilience of farming households to the Indian Ocean Tsunami Disaster in Tamil Nadu, India

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In the morning of 26th December 2004, a large scale earthquake that occurred in Indian Ocean and caused tremendous damage to the eastern coastal area of India. In India alone, the earthquake casualties reported were more than 16,000. Most affected coastal areas were Tamil Nadu, Kerala, Andhra Pradesh, and Andaman and Nicobar Islands. In Tamil Nadu state, four districts were mostly affected, namely Nagapattinam, Cuddalore, Kanniyakumari. Among three districts, the damage by tsunami in Nagapattinam was largest with more than 7,000 casualties and 5,000 hectares of agricultural lands. It is of primary importance for government and communities to consider how and in what way the affected people and communities in coastal ecosystems recover from a huge disaster such as tsunami.

This paper investigates the magnitude of income shocks and their recovery of tsunami affected households during the post-tsunami period 2005-2008 in Nagapattinam District, Tamil Nadu, India. We focus more on mid-term recovery and changes rather than short-run recovery immediately after the tsunami. Most farmers suffered from decline of income and assets immediately after tsunami. During the 2004/05 planting season, our estimate indicates that farming households saw their income drop by as much as 30 percent. By 2007/08 agricultural season, households showed a near complete recovery of their incomes. After tsunami, there is a major transformation of the livelihood from agricultural production to wage labor. The major coping strategies dominated by receiving aid, borrowing money for most households. Other coping strategies included consumption reduction followed by removing children from school.

Our empirical approach is inspired by Carter, Little, Mogue and Negatu (2007) asset growth model that allows transitional dynamics and shocks to play explicit roles in determining the growth of household wealth. The empirical results showed strong growth convergence during post-tsunami period. During the post-tsunami period, nearly in all categories of nominal incomes, the recovery was observed. However, when the price increase is taken into account, the effect of the recovery become less obvious. Shock sensitivity analysis indicated that the access to factor markets such as aid received, access to credit market and access to labor market are an important household resilience enhancing factors in terms of income shock recovery. As the results, the speed of the recovery was different in biophysical environment and in social environment in tsunami affected area. Government needs to carefully monitor soil and water to suggest recovery of agricultural production and support disaster affected people by providing access to factor market so that they can recover from income loss quickly.

Keywords: Resilience, Tsunami, Factor Market Access, Sustainable Livelihood Approach, Social-Ecological System, India