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Subjective Measurement of Resilience of Agricultural Systems to Increased Salinity Intrusion in Vietnam

MINH TU NGUYEN, ZITA SEBESVARI, FABRICE RENAUD

United Nations University, Institute for Environment and Human Security, Germany

Abstract

The resilience concept has provided a new insight and approach to the conventional perspective of agricultural management by emphasizing the need to maintain a diversity of future options while increasing production efficiency to adapt to inevitable and often unpredictable changes. The concept has developed into various academic disciplines and covers a wide range of development sectors, yet ways to define and operationalize resilience as a practical and measurable concept are still being developed. This study combined a subjective resilience measurement based on the 5-point Likert scale of farmers' perception on the capacities of their agricultural systems to cope with and recover from salinity damage, and to change to other systems in the case of increased salinity intrusion with a qualitative resilience assessment. We conducted case study research in villages located along salinity transects in the Mekong delta and at different distances to sea dykes in the Red River delta in Vietnam. Empirical data consisted of interviews with local authorities, 11 focus group discussions, 118 semi-structured and 226 structured interviews and 3 role-playing games with farmers carried out between September 2015 and May 2016. Results from the subjective resilience measurement at the household level show that there is no significant difference of resilience between farming systems ($p\text{-value} < 0.05$, Kruskal-Wallis test). None of the agricultural systems has a higher score than others of all resilience capacities, implying that an increase in one resilience capacity by switching systems would be achieved at the expense of other resilience components. Adjustment of resilience capacities e.g. through policies and interventions to sustain agricultural production or facilitate transformation to alternative systems when necessary is a critical task in agricultural management and will be discussed.

Keywords: Agricultural systems, salinity intrusion, subjective resilience, Vietnam