

## 論文内容の要旨

Climate change along with urbanization has devastating effects on people's life. For example, an increase in surface and ground-water salinity due to climate change is reported to have become a great threat to the health of coastal inhabitants in Bangladesh. With ongoing climate change and urbanization, there is an urgent need to adopt adaptation and mitigation strategies for reduction of the associated risks. However, different strategies are unlikely to be effective without an understanding of people's economic and health behaviors at household level. Thus, it is important to analyze household economic and health related actions under climate change and urbanization to suggest some feasible ways to minimize the risks and achieve sustainable development goals (SDGs) within the expected time frame. To this purpose, the thesis applies field experiments and questionnaire surveys to empirically examine the effects of salinity resulting from climate change on human health, explore cooperation and cognition gaps for reducing salinity problems and identify the inequality of food intake among household members at household level between urban and rural areas for the betterment of health and sustainable societies.

The first study in this thesis examines the association between water-related diseases and coastal salinity along with sociodemographic and anthropometric factors. We conduct questionnaire surveys with 527 households: 273 subjects from the non-salinity and 254 subjects from the salinity rural coastal areas of Bangladesh. The logistic regression analysis demonstrates that the probability of suffering from water-borne, water-washed and water-related diseases are 8 %, 14 % and 11 % higher in the salinity areas than in the non-salinity areas, respectively. However, it is also identified that people who consume rainwater as a drinking source even in the salinity areas have less chances and people who belong to "underweight body mass index" have more chances of being affected by water-related diseases. Overall, the results suggest that the long-term reservation of rainwater and addressing community-based food security & nutrition programs shall be effective countermeasures to reduce the risk of health problems in the coastal population and to sustain their lives even under the threat of land salinity.

In the second study, we examine the effect of information provision on people's cooperation and cognition for reducing salinity problems in urban and rural areas. It is hypothesized that information provision about salinity through some lecture is effective at reducing cooperation and cognition gaps among people. We conduct a field experiment, collecting data on donations, prosociality, cognitive and sociodemographic factors of 900 subjects from one urban and two rural areas in Bangladesh. A climate donation game is instituted to measure cooperation among people where they are asked to donate to salinity risk reduction with or without the information provision. The analysis shows that people who have prosocial orientation and perception of human-induced climate change donate more than do those who do not, and urban people tend to donate less than do rural people. However, urban people are identified to increase their donations by receiving the information provision much more than do rural people. These results can be interpreted that urban people become more cooperative in response to the lecture than do rural people, and cooperation gaps become smaller due to a change in cognition via information provision. Overall, the results demonstrate that informational and education programs for salinity and climate change shall be effective and prioritized especially in urban areas to enhance cooperation for sustainable development goals

through affecting people' s cognition.

In the third study, we examine dietary diversity scores of household members with a focus on their family roles (fathers, mothers, sons, daughters and grandparents) and age groups (children, adults and elderly). Whereas theory suggests that members in a household should have equal dietary diversity by receiving a certain share of available foods, this research hypothesizes that they do not do so by their roles and/or age groups. We conduct questionnaire surveys, collecting sociodemographic information and dietary data using a 24-hour recall method of 3248 subjects in 811 households from one urban and two rural areas in Bangladesh. The statistical analysis demonstrates three findings. First, poor and rural people have lower dietary diversity than non-poor and urban people, respectively. Second, grandparents (children) have lower dietary diversity than do fathers (adults), confirming an existence of intrahousehold food intake inequality by the roles and/or age groups, irrespective of poverty level and areas of residence. Third, father and mother educations are crucial determinants to uniformly raise the standard of dietary diversity for their household, however, they do not resolve the inequality. Overall, it is suggested that awareness programs of dietary diversity shall be necessary with a target group of fathers and mothers for the betterment of intrahousehold inequality and health at household level, contributing to SDGs.

Key Words: Climate change; salinity; economic behavior; health behavior; household; urbanization.