Farmers' perception of climate change induced drought in the Northeast Thailand

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Monsoon Asia has two distinct seasons; the rainy season and the dry season. This region has 52% of the total population of the world and future population is anticipated to increase. In this situation, climate change will greatly affect the social economy. There are two directions to control the progress of warming. One is emission reduction measures (mitigation measures) to suppress global warming, and the other is adaptation measures to the adverse effects of global warming. Northeast Thailand has an area and population approximately one-third of Thailand but Gross Regional Product (GRP) is the lowest in the country. In this region soil has low fertility and low water retention capacity and some areas have salt damage. The irrigation rate is the lowest in the country. So this region is vulnerable for climate change. So we have to promote adaptation measures.

We conducted a questionnaire survey in Khon Kaen province, Thailand in order to grasp farmers' condition of basic profile, agricultural management and perception of climate change. Three villages were selected to compare the different availability of agricultural resources in terms of salt damage and irrigation water. After that we analyzed objective data of rainfall monitoring and agricultural statistics in order to validate the results of questionnaire survey.

According to the 72 farmers' questionnaire result, the type of water used mainly differs by village. Many farmers recognized seasons from weather forecast and they decided to plant rice at the same time as last year or when they thought rainy season start. And they thought their farmland is not stable because of water shortage. About perception of climate change, many farmers thought rainfall had decreased and it caused low yield.

Crop calendar is more same in villages without water restrictions. According to the analysis of rainfall and agricultural statistical data, it's difficult to think that rainfall in cultivation period had decreased. In addition planting area, harvested area and production had also increased. So analysis result differed from farmers' perception.

According to the analysis of the relationship between rainfall and production, the timing of rainfall affecting production was different between the 1900s and 2000s. And dry spell which is the period of little rain in the rainy season appears in various timing. So we thought farmers thought rainfall had decreased and yield had decreased because rainfall patterns had changed compared to the past and they could not adapt that pattern. So if we could forecast the rainfall a few months ahead and propose a crop calendar suitable for the rainfall in the year, we thought it would be an adaptation measure.

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