

## **Coping Strategies to the Damaged Crops by Heavy Rain in 2007/2008 - A case of Sinazeze, Southern Province of Zambia -**

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We aim to use a multi-spatial and temporal approach to trace people's livelihoods from a village to a regional level. For this, we have accumulated various spatial data and considered the seasonal and inter-annual changes. The principal data is composed of satellite images, aerial photographs and a crop allocation map determined by field investigation. Our concept of a multi-spatial and temporal approach is used to integrate the various kinds of data.

In FY2009, we have analyzed how the villagers cope with serious damage to crops from heavy rain in 2007/2008 by using the crop allocation map in 2007/2008 rainy season and 2008 dry season, and the results of the interviews about cash income situation at each household in FY2007 and FY2008.

The annual rainfall in site A and B was recorded in more than two times of the long term average 694.9 mm/yr in Sinazongwe district. According to the area totalization from the crop allocation map, about 20% areas of all maize fields in our study Site A, B and C were damaged from heavy rain. As for the every site, the ratios of damaged area were 34%, 28% and 4% in Site A, B and C respectively. There are the differences among three sites. It is supposed that the topographic differences are affected. From GIS analysis of the damaged fields during 2007/2008 rainy season, flood damages are concentrated in ill-drained fields in Site A lower terrace, steep fields in Site B mid-escarpment, and valley bottom fields in Site C upper terrace. As for the coping to flood damages, about 60% of all damaged fields were land in fallow and the other fields were used as crop field after damage. 22% of damaged fields were planted maize again in Site A. Contrastingly, 26% of damaged fields were planted sweet potato in Site C.

We also measured the area of damaged fields for each household. The ratio of households of which more than 80% fields were damaged was about 20 % in Site A. Accordingly we compared the cash income situations in FY2007 and FY2008 for those households. In FY2007, those households got cash by selling Maize and Cotton mainly. However, the way to get the income was changed to selling domestic animals, fisher and piece work instead of selling Maize in FY2008. This is also one of the coping strategies by non-agricultural activities.

In near future, we will clarify other coping strategies by giving and receiving of food and labor force in relatives and neighbors networks.