Evaluation of the Farmland at Rural Area in Northern Malawi

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1. BACKGROUND

Malawi is an agricultural country whose agricultural products account for 90% of the country's total export value, and agriculture is one of the important industries in Malawi's economy. Maize is the ingredients of their staple food, Nsima and almost all farmers are producing maize. The production of maize is getting high in Malawi, but it isn't stable the past few years. Total area of maize harvesting have not increased these years, and it may mean the limitation of land expand. Total maize yields increased dramatically in 2006 due to the government policy for fertilizer, but it's unstable past few years. It's needed to know the current situation in the village.

Especially in northern part, land development is slower than south, middle part because of settlement by England started from Southern part. In addition, northern part is mountainous and there are more slopes than southern, middle area. Soil erosion may happen if they manage the land in same way. There is a NGO introducing technology for soil fertility called DBFT, but efficiency is not clear.

The aim of this study is to evaluate the farmland in northern Malawi from the view of maize production through geographical features and inputs to farmlands. In addition, I conducted research to know about how people live in this village.

2. STUDY SITE

The survey was conducted in Chikosera village located in Muzimba District. There were totally 31 households. People relied on rain water for agriculture. The altitude is 1202 to 1308 m, and agricultural fields were located on the mountain slope. The climate is rainy season from November to April and dry season from May to October.

3. MATERIALS & METHODS

To understand topography, I conducted measurement by remote sensing using drone,

Soil survey was conducted collecting 1 each sample from 20 agricultural fields. Sampling points were categorized to 4 types (distance from each house and slope degree). I measured total Nitrogen, and available Phosphorus.

The area measurement of each land use and land ownership was conducted using GPS. Interview for villagers was also conducted.

4. RESULTS & DISCUSSION

⑴ Characteristics of farmland

In Chikosera village, more than 93% of total farmland was used for maize. 3 households were growing local variety. 7 households were growing hybrid variety. Other 21 households were growing both. The content of total Nitrogen and available Phosphorus had no feature between each slopes. People moved to Chikosera village in 1970s and agricultural land has not been use for many years, so it's considered that soil erosion is not severe. The ratio of agricultural land total area was small and it meant there were land that could be used for agriculture in the future. In the land introducing DBFT had high available Phosphorus content. It's considered that application of manure raised this, and therefore DBFT is effective for improving soil fertility.

⑵ Livelihood of villagers and possible improvement for usage of farmland

In Chikosera, households having hired labor were producing large amount of maize, and they were selling after achieving self-sufficiency. These households can increase production adding more labor and expanding land. On the other hand, households not achieved self-sufficiency need to increase land productivity in the limitation of labor force. DBFT can be effective to increase maize yields by improving soil fertility. It also would be possible to grow maize at low wetland in dry season. By seasonally spread of limited labor force, they can increase production.