

## Chapter 6

### CONCLUSION

Our study was conducted on totally 20 upland fields and 109 soil samples of six households. The study shows that in two out of three cases, the rich farmers have better soil quality than the poor farmers. And in the other case, the rich and poor farmers have the same soil quality. According LSC/ITC Ghent method, the soil physical properties of all cases are evaluated “suitable” and “very suitable” for maize cultivation. The chemical properties are evaluated from “marginally suitable” to “suitable” for maize crop. In our study, the comparison between the economic status of the six households and soil fertility did not indicate a clear correlation. Major limiting factors for maize cultivation are the topographical parameters and chemical parameters. More than 75% of the research areas have inclination from 15<sup>0</sup> to 38<sup>0</sup>. In present, the soil fertility of all fields are slightly high productive for maize crop. But in the future the soil quality will not be suitable for maize because of soil erosion, leaching and depletion. The local authorities and land use planners should take into account these circumstances, when making strategies for long term land use plans.

In addition, soil erosion, landslide, leaching and depletion are caused by cultivating intensive hybrid maize, short fallow period and plough on steep slope land. All investigated fields have been cultivated by the farmer households for about 30 years and the hybrid maize has been planted since 1999 and 2000. Since then, soil erosion has occurred on soil surface, especially during the rainy season. Actually, in recent years the natural soil fertility and soil production ability have reduced due to

intensive hybrid maize cultivation, short fallow period, soil erosion and no application of conservation measure. However, in present the maize yield of the farmers increases slightly year after year. To have high yield, the farmers had/have to increase the application of chemical fertilizers and the use of super hybrid maize. Preventing soil erosion, landslide, leaching and depletion are big challenges for the farmers in the next ten years.

The second hypothesis compares the input of the farms and the total size of cultivated area between the rich and poor farmers. In all three cases, the wealthy farmers have larger land area than the poor farmers. In two cases, the rich farmers spend more money per hectare for maize seed than the poor farmers, and in other case the rich farmer invests less money than the poor farmer. The correlation between expenditure for maize seed and the economics status of the households can be indicated in the two cases. In all three cases, the wealthy farmers invest more money for chemical fertilizers than the poor farmers. Furthermore, the rich farmers have higher labor ratio than the poor farmers.

It can be concluded that from the soil analysing the farmers are richer, if they have better soil fertility, more land and investment more in seed and fertilizer. In all cases at least three of the four parameters apply. However, the land use is not sustainable; therefore all farmers will face a significant drawback without conservation measures.