

## CHAPTER VII

### CONCLUSIONS AND RECOMMENDATIONS

#### 7.1 Conclusions

For land use planning and prioritization, it is important to be aware of the potential erosion risk of land rather than a calculated estimate of soil loss.

Most of the soil in the study area is sandy and sandy loam soil with poor to moderate in fertility status. Crop productivity is generally low. Cropping systems did not change over the past 15 years. Hybrid varieties and chemical fertilizers could not use to the extent as needed according to various reasons. There are problems of infrastructure, especially transportation network and irrigation facilities. Farmers are facing insufficient credit amount, uncertainty of rain, lack of irrigation water and poor marketing systems, lack of quality seed and higher price of chemical fertilizers and pesticides.

From the farmers' perception, the multinomial logit model identified the socio-economic factors that influencing soil erosion. Low education levels of household heads are related to high erosion risk in their fields. Land use type such as forest land, barren land and agricultural land, which are significantly varied in erosion risk. Depend on cropping systems such as mono-cropping and multiple-cropping; erosion risk occurrence is significantly varied in severity. General topography of land such as flat, rolling and hill and erosion risk occurrence is statistically significant in the study area.

The result of the ICONA erosion risk model shows that especially range land, barren land and dry agricultural lands, generally found on steep slopes and hilly and mountainous areas have high erosion risks. The dry agricultural land needs good management practices, since they are mostly sandy and sandy loam soils and very sensitive to wind as well as water erosion.

From the erosion risk map, it can be seen that approximately more than 75% of the area have a relatively low risk from erosion point of view. In addition, during the field studies, it was seen that some of the areas are found to be under high erosion risk have already been eroded in the past. Therefore, due to the lack of top soil even base rock is visible in these areas, and significant amount of erosion is not expected.

The ICONA erosion risk model is useful for forming erosion risk assessment framework of large areas. Although the model does not consider climatic data, by integrating climatic data such as rainfall intensity and distribution parameters together with farmers' perception may improve estimations and accuracy of the model.

## **7.2 Recommendations**

The central Dry Zone of Myanmar has been experiencing the impacts of land degradation mainly due to human activities and partly due to natural phenomena. It is suggested that the relevant policy measures, strategies, and actions should be formulated to address the erosion and land degradation problems in the region.

Nitrogen fertilizer should be applied with care, particularly where water is a main limiting factor and where no other conservation measures are applied. There is no research on soil losses and erosion in the whole Dry Zone of Myanmar. Agriculture research stations do not include runoff and soil erosion measurement

plots. No erosion and land classification studies and maps defining the capability of the land in terms of sustained production of major kinds of land uses are available. It is then almost impossible to estimate with accuracy peak runoff discharges, data on soil losses and erosion trends if not by using empirical models and approximate estimations.

There has been less research on crops suitable for the Dry Zone conditions, soil management practices and soil conservation and water harvesting measures. Agricultural University and schools do not emphasize much on soil conservation, particularly for the Dry Zone conditions, and practical experience is virtually non-existent.

Myanmar Dry Zone agriculture is heavily dependent on the monsoon rains. The heavy reliance on monsoons is a major handicap for region's agriculture. Another impediment to agricultural improvement is the inability of farmers to secure adequate loans to enhance cultivation. Therefore, financial services need to be improved to make funds available to the cultivators of the region.