Chapter VII

Conclusion and recommendation

7.1 Conclusion

Crop intensification is needed to meet future food demand and to raise farmer income and thus reduce poverty and improve family livelihoods. Nevertheless, this strategy it is felt that there is tendency that sustainability of rice production is being jeopardized, mainly by poor soil fertility. The result of survey conducted in Beong Tranh Khang Tboung commune revealed that the intensification of rice cultivation has substantially augmented output of rice production. But at the same time soil fertility is declining. Consequently, the decline in soil fertility inherently makes soils less fertile resulting in very low productivity (1.51 t/ha). This is further augmented by lack of credit facility for the poor farmers to buy inorganic fertilizers. This showed that poor farmers are exploiting poor soils by intensive rice farming without proper replenishment of nutrients. The soil fertility problem is further endangered by application of poor quality adulterated fertilizers. The poor quality of fertilizer has created further problem of over and imbalanced use of fertilizer by resource rich farmers to achieve high yield. In farmers perception soils are becoming harder and difficult. This trend is expected to continue future aggravate the stability and sustainability of rice ecosystem in the commune.

The incorporation of crop residues (rice straw) significantly increases the grain yield of rice - rice pattern. Secondly the incorporation of residue has no effect on yield of subsequent rice crop but significant increase the yield of mung bean. In third cropping pattern the incorporation of residue has no effect on rice yield but increases yield of subsequent maize crop significantly. This shows incorporation of rice straw has mixed effect on subsequent crop yield mostly it has significant positive effect on crops like mung bean and maize. The best ways to increased grain yield applied in combination with fertilizer and residue.

Based on the experiment results among three cropping patterns Mung bean-rice double cropping is found most suitable option for rainfed lowlands particularly where supplementary irrigation is available. The rice yield is higher in rice-rice pattern but due to low price of rice it is not found profitable against mung bean-rice pattern. Mung bean-rice pattern is found more profitable (gross margin) and it is beneficial for soil fertility enhancement in long run by the incorporation of legume crop. On the other hand addition of mung bean into the rice based cropping system is more difficult, as often heavy rainfall or drought in the early wet season cause crop failure.

7.2 Recommendations

Based on the results of the study, it is worth making some relevant recommendations, which are as follows:

1. Attention should be paid on preserving the health of soil in long run by minimizing the negative effects to be originated from the use of inorganic fertilizers. This has precisely opened an opportunity for researcher to involve themselves in training framer on integrated nutrient management in which the incorporation of organic fertilizer, such as residue and compost.

2. Rice-based system can be intensified with a second rice crop in the favorable areas and particularly where farmers have access to strategic supplementary irrigation