CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Basically, the study aimed to investigate the extent of food insecurity at household level. Besides, it also aimed to recognize the main factors that were affecting to the food availability and food insecurity itself at household level. So in order to achieve those objectives interviews and group discussions were conducted. From interviews socio-economic status of the households were collected and from group discussion, consumption behavior and problem were collected. Moreover, rich picture was constructed in order to find out the factors affecting food insecurity. Besides, regression was used to find the major contributing factors food availability at household level of the study area. After analyzing the fact it was found that *Sudra* caste was the most severely affected by the food insecurity and followed by *Tharu* and then *Brahmin* and *Chhetri*. Besides, the study has found that adult equivalent, animal equivalent and expenditure on agriculture were the main factors affecting to food availability at household level. Moreover, small landholding, low income, inadequate knowledge about improved practices were the major factors that were found affecting to the food insecurity of the study area.

6.1 Conclusions

The major conclusions of the study have been summarized as following.

1. Since, agriculture was playing major role for providing food and income in the study area. Consequently, the performance of this sector largely determines the food insecurity or security status of the households.

2. Generally, food insecurity largely threatening to the all households despite their caste and their ethnicity. But, the severity of food insecurity was found highest on

Sudra, and to less extent on *Tharu* than that of *Brahmin* and *Chhetri*. Though food insecurity was not found so conspicuous in *Tharus*' households at the time of data collection, but they are vulnerable in the near future. However, in the case of *Sudra*, food insecurity was seen very conspicuously seen.

3. Relatively households of the study area were having less access to production resources in general. But, whatever the household have access on it that was skewedly distributed in favor of *Brahmin* and *Chhetri* as compared with another caste/ethnic group. Factors such as landholding size, irrigated landholding, household head's years of education, stock of capital, and amount of expenditure were found higher in case of *Brahmin* and *Chhetri. Tharu* were found slightly better than *Sudra* in case the access of resources and other enabling conditions.

4. Generally, small landholding and less irrigated area, higher family size, less livestock holdings and less income were the major characteristics food insecure households. Most of the food insecured households were under *Sudra*. Besides, improved livestock breed and application of improved seeds were also not found in most of the household.

5. Landholding size was found one the important factors for cultivation of crops. Conversely, lower landholding size revealed higher possibility of household to fall under food insecured state. Since households were mainly engaged in subsistence farming, increasing the landholding size was the only way to increase the production thereby the amount of food for consumption. But, unfortunately due to increasing population pressures and separation of families holding size per household has been decreasing year after year therefore, the households were under greater risk. So, in the future even *Brahmin* and *Chhetri* would also likely to fall in the food insecure stage under prevailing condition though majority of households were found relatively better than other caste or ethnic group.

6. The major crops grown by *Brahmins* and *Chhetris* were paddy, wheat, maize, lentil, rape seed vegetables, some fruits. In livestock they kept animals like cow,

ox, buffaloes, and goat; whereas in case of *Tharu*, paddy, wheat, maize and rape seed were mostly grown. The most common livestock under *Tharu*s' households were ox, chicken and pigs. But in case *Sudra* mostly chicken, sometimes oxen were found in their households.

7. In study area, the food availability was found fluctuating up during the harvesting season and down during the planting season especially the paddy crop season. Harvesting and planting season also determine the major pattern of expenditures and incomes. Consequently, during the months of May to August income remains low, expenditure and food shortage were higher that ultimately created the condition of temporary food insecure condition for even those household which barely meets their food requirement year round. This kind of food insecure condition could not be captured if the analysis was done on the solely on the basis of annual calories account. On the annual basis some household might fall on food secure stage but during these months they might fall below the threshold level of basic minimum calorie requirement. During this period, the severity of hardship would be more for the households which were having fewer calories below than threshold level.

8. On going conflict in the country directly or indirectly affect to the food production and employment opportunities; which ultimately further deteriorating food insecurity condition in the study area. Due to the conflict people were displaced from their villages or farmland. Therefore, such farmland was found either left fallow or given as sharecropping (usually in the case of whole family displaced) or left partially fallow due to the shortage of male labor force (usually only male active members migrated). Due the semi or permanent displacement of active male members, agriculture was found heading towards more feminized condition. But, at the same time, women were found relatively uneducated to their male counterpart irrespective caste/ethnic groups. Therefore, the ultimate effect was decreased in area of cultivation; lower adoption of improved technologies consequently lower in production and productivity.

9. There was difference on average calories per adult equivalent per day among the four selected caste/ethnic group due to differences in the access of landholding, capital, expenditure and other enabling conditions. But the difference was not found statistically significant among *Brahmin, Chhetri, and Tharu* whereas with *Sudra* all other castes were found highly significant.

10. By taking the basic calories requirement 2250 kilocalories per person per day there were only about one third households out of 90 households; met the basic requirement of calories rest 70 percent were found food insecure based on annual calories calculation. Among all these food secure households, 44 percent households were found under sharecropping. That means these households were food secure on the point of time when study was done; but they might fall below threshold level if they were evicted from sharecropping arrangement. Similarly, while taking the threshold limit, kilocalories per person per day, which is recommended for *Tarai* region, only 33 percent of households were found food secure and rest 67 percent, were found food insecure.

11. The log-linear model (natural logarithm on dependent variable) was found to be the best model describing factors affecting food availability at the household level in the study area.

12. While looking at the factors contribution of food availability at the household level, ratio of economically active female member to the total economically active members, number of adults equivalent, animal equivalent units and expenditure on agriculture were major factors that were affecting the food availability significantly. Number of adults equivalent and ratio of economically active female member to the total economically active members have found to have inverse relationship with the household calories availability per adult equivalent. Dummy of *Sudra* was found negatively significant, which showed lower average than other caste under study.

13. Government policies such as privatization of fertilizers sector and removal of subsidy have negative effect on the poorer households. Due to the privatization of fertilizer sector, fertilizer price has gone up and quality control becomes the problem. Therefore, poorer households cannot purchase it even if they will be able to get improved seed from other sources. Similarly, the cost of irrigation has also gone up especially on the shallow tube wells. Moreover, the government's group approach to agricultural extension method has not been able to deliver agricultural extension services to the poor and rich farmers. This has ultimately contributed to food insecurity of the study area.

6.2 Recommendations

At the household level, there were many socio-economic factors determining the fate of households' food security or insecurity. Based on the on the analysis following recommendation can be made.

1. In order to reduce the incidence of food insecurity, those vulnerable households should be identified and special agriculture package (materials and skill) such as short term income generating agriculture activities such as bee-keeping, mushroom cultivation, poultry production should be introduced immediately to vulnerable groups. Such activities would also be beneficial for those households, which do not have big landholding size. This kind of agriculture activities could be able to generate the off-farm employment also.
2. Since the study area is basically under the subsistence farming; even households having sufficient landholding have not used the improved agriculture cultural practices therefore, their productivity is also very low. In order to resolve this problem agriculture extension program such as trainings, demonstrations, improved seed distribution should be carried out more effectively to reach to the every corner of the communities according to the needs of those households and based on their cropping systems.

3. Research should be carried out in order to find out the suitable crop to fill the gap during the month of May to August crops cycle. In these months mostly field were left fallow. Introducing a new crop in this period will help to boost up the total production thereby increasing the calories of household.

4. Since agriculture is becoming more and more feminized due to the conflict, the existing agricultural development packages should be reshaped so that it could fit for enhancing the skill and capability of women. It will help to increase production and productivity of the farm.

5. From the analysis it is seen that the family size of the study area was found higher than the national average irrespective of any caste/ethnic groups. Therefore, it warrants implementing effective family planning programs in the study. Besides, lots of people are migrated from hills to settle down in this district that; increases the pressure on land and natural resources even if birth control measures are implemented in the study area. Therefore, in order to control the migration from hill, there should be the special development packages for districts from where people are migrated so that migration rate can be slowed down to some extent.

6. Households under *Tharu* and *Sudra* were getting food items such as fish, vegetables even some kinds fruits from the nearby forest and natural water bodies. Due to unsustainable practices; these recourses are under threat thereby increasing the vulnerability of food insecurity of households. Therefore, these resources should be utilized sustainably by enriching their quality and quantity. Besides, unsustainable grazing; which is a common practice, should be discouraged by introducing the program such as fodder tree/grass plantation, or by maintaining suitable sustainable grazing system.

7. The education level of the household head was found very low in all caste/ethnic groups; but the situation was more serious in case of *Tharu* and *Sudra*. The informal education program should be launched to that area so that they can at least understand and read training materials provided by the agricultural extension

workers. Effective free schooling program should be introduced in order to attract the children especially from *Sudra* and *Tharu* communities.

8. Infrastructures such as road, irrigation channel, market sheds, storage facility should be developed in order to integrate these communities with each other and with the market (input and output markets). This will enhance the technology transfer and marketing of the agricultural commodities.

9. Cooperatives or self-help group should be formed in order to bind small farmers so that they can sell their products efficiently in the market.

10. Basic community health program such as clean drinking water, de-worming should be launched in order to boost up the health of household members. Besides, nutritional awareness program should be launched in order to make the people identify the right combination of diet that is needed for the body.

11. Local skill such as netting, making earthen pots and other small scale local entrepreneurship activities should be enhanced so that locally people will be able to get employment and can make some extra income apart from agriculture.

12. Since, after the participation of private sectors, the price of major inputs has gone up therefore, in order to boost up production at households level, there should be the subsidized inputs supplies to the poor households. Besides, current extension strategy should be revisited in order to make it fit all sections of the households.

6.3 Future possible researches

Since this study is related to the household level food insecurity by assuming that the distribution within the family is equal; which in fact not seen in many cases. Particularly, this situation is more severe when the household is just or below its food demand. Therefore, the future research can be conducted on the pattern distribution of

food among family members. Moreover, inter households' relationship to cope the situation of food insecurity can also be possible topic for studying.

Since this study was conducted in food surplus district, therefore there should be the study on the food deficit district so that the results of the study among two areas can be compared. Another avenue of research could be within the same caste how food insecurity or security varies depending upon different spatial and temporal situations. Finally, within the *Sudra* there are many sub-castes so the future study can address on how the incidence of food insecurity exists among sub-caste of this particular caste.