

# Agricultural growth for food security

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Nepal's agriculture is barely yielding enough to match population growth. The World Bank has also mentioned it in its 1998 report. As a result, Nepal experiences food deficit every year. The number of food deficit districts increased from 27 in 1991 to 33 districts in 1995. Five years later, the food deficit districts were 45 as mentioned in the report of Karim Hussein and Sarah Montagu. In a recent report, Shrikant Adhikari has mentioned that 57 districts are facing food crisis.

This shows that the country is in food deficit and most of the mountain and hill districts run short of food for six months. The problem of food deficit is more acute in western hills than the eastern part. FAO has estimated that one hundred thousand tones of cereal need to be imported for the year 2003/04 so as to overcome food deficit problem.

Now, the key issue is how to increase productivity within Nepal's geological condition with farmers' practice, and available inputs and technology. History of agricultural production states that Nepal was producing surplus until 1970. This scenario changed afterwards. That may be because of high population growth and low growth in agricultural land areas as well as crop production. Even today, though more than 80 percent of the people are engaged in agriculture, its contribution to the total GDP is only 38 percent. The problem of food deficiency is increasing. The reason behind this could be slow agricultural development.

The views of Gill and Jodha reflecting Nepal's fragile and vulnerable geology may have also brought a negative thought with regard to investing in agriculture. However, in spite of this susceptibility, the Nepali farmers did not have other alternatives. Otherwise, they would have moved to new farming practices. The need of this shift was realized in order to fulfill the increasing demand of food, clothes and other commodities that were hard to fulfill through the current agricultural practice. This new concept of agriculture increases cultivation frequency within cultivation cycle for the higher yield. For some people, it is an agricultural practice with higher use of chemical fertilizers, pesticides and labor for higher yield. "Green Revolution" is also an example of intensification. Though the neighboring countries achieved a big agricultural transformation through it, its effect was insignificant in Nepal.

The intensification is mainly focusing on more productive and market-oriented crops unlike traditional cereal crops. Though the process of intensification is spreading throughout the country, it is still more concentrated on certain pocket areas such as Panchkhal, Nagarkot, Thimi, Malekhu, Naubise, which are nearer to the capital city. These pocket areas are focused on vegetables with the fact that cereals yield much less than potato and vegetables from the same area of land.

The market value of the vegetables is also higher than cereals in the urban centers. In addition, researchers have found that potato and vegetables yield more than 10-40 tons per hectare unlike maximum of five tons per hectare for cereal crops. This could be the reason for adopting cash crops and vegetables more intensively. Intensification has contributed to higher income and yield. Though the yield of cereal crops like rice has also increased from one ton to 3.2 ton per hectare in the terai, hill farmers are concentrating on cash and vegetable crops.

There are mainly two major forms of intensification in Nepal. One is crop intensification and the other is chemical intensification. Practice of single crop to one to two and two to three rotations

per year is an example of crop intensification whereas the rapid increase in the use of fertilizers and pesticides is chemical intensification. Use of chemical fertilizer during the 1960s was less than 0.5 kg per hectare whereas it increased to 25 kg per hectare in 1998. Even though cash crops and vegetables need more care, inputs and are susceptible to pests and diseases, farmers prefer them because of income.

Some researchers have raised the question of fertility loss, erosion, and pollution because of agricultural intensification but these issues are complex and debatable. The natural process and geological conditions may have higher influence on the occurrence of eroded soil, loss of productivity and pollution of water in the hills. Since there are positive trends on agricultural production and income because of intensification, there is a need to promote it as a tool to solve the problem of food shortages and poor socioeconomic condition of farmers.

Adoption of modern agro-technologies by financially sound farmers may occur afterwards. So, in the long run, it may also help check soil and nutrient loss with the management and conservation practice by financially and technologically well-equipped farmers, which will be the solution to both socioeconomic and environmental problems.

The government policy on the construction of agricultural road is much supporting towards intensification and also on distribution of agricultural products. Good road access is an important factor in increasing socioeconomic condition of farmers.

However, there are some controversies in government policies. On the one hand, the 20-year Agriculture Perspective Plan emphasizes on increased production through the use of agricultural inputs, road network, marketing infrastructure and rural electrification, on the other hand, the non-subsidies and open market policies are new challenges for farmers aiming to intensify their production.

Earlier, the subsidy policies on chemicals helped farmers boost the economy through higher production. The initial investment on fertilizers, irrigation and land management increases the production cost for which farmers need assistance from governmental and other organizations. The recent withdrawal of subsidies and involvement of the private sector in agricultural input supply has directly affected the intensive agricultural practice.

Since 1998, the data shows that the use of chemicals has decreased whereas the price has increased during the same time. This has also exerted pressure on farmers to use inputs insufficiently. Insufficient nutrients and intensive farming in the long run may degrade soil and create production problems in future.

Sufficient use of fertilizers helps for higher yields. Irrigation diversifies and improves production. Till now, only about 29 percent of the total cultivated areas receive round-the-year irrigation. Therefore, new agricultural policies need to be concentrated in practicing agricultural intensification to overcome the food deficit problem. There are some cases where countries have experienced rapid growth in agriculture and overcome the problems of food and poverty. Both rural and urban poverty reductions can be achieved through accelerated agricultural growth.

It is too early to analyze the impact of agricultural intensification in the hills on solving food deficit but there are cases where agricultural intensification has improved the economic condition of farmers with higher production and good market price.