

Agricultural Transformation in Bangladesh: A Case Study on Rajshahi District, Bangladesh

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Abstract:- This study contains a study of Agricultural transformation in Bangladesh, which is a case study on Rajshahi District. Agricultural transformation means the systematic change in cultivation pattern. This study shows the crop cultivation pattern of two upazillas of Rajshahi district, namely Bagha and Charghat. Details information of cultivation has been collected for two specific years that is; 2010 and 2016. This study mainly based on primary data. Necessary information are being collected through a structured questionnaire by face to face interview method. Primary data are being collected from the farmers and agriculture offices from the two upazillas. Collected information are being analyzed with mainly descriptive statistics. This study highlighted the basic information about change in area of cultivated land, amount of production, cost of production, revenue and profit of cultivation of different crops. The study results show that, land area and amount of production of rice and other cereal crops has been decreased. On the other hand, cultivated area and amount of production of mango production has been increased at a huge amount. As a result, the supply of food product is decreasing and price of food products are increasing. For the better future this study suggests that, public awareness should be increased about the effects of this transformation and government should take necessary steps to change the present trend of agricultural transformation. Necessary facilities for the farmers should be increased.

Keywords:- Agricultural Transformation, Crop Farming, Mango Farming, Change in Farming System.

I. INTRODUCTION

Among the three main sectors of Bangladesh (agriculture, industry and service), agriculture holds a huge portion of employment generation and had a large contribution to the GDP of Bangladesh. The main agricultural products are rice wheat, maize, potato, jute, sugarcane, pulses, onion, garlic, oilseeds etc. Fruits are one of important elements of agriculture. Farmers who are previously crop farmers are now transforming their production into fruit farming.

Agriculture is a labour intensive sector where farmers have to spend a lot of time and labour in every season of the year. On the other hand the fruit cultivation is a seasonal production and less labour is required here. Farmers who have his own land in those areas of the village which are not

reachable by the flood-water are now more interested in fruit production rather than crop production. Fruits like mango, litchi, banana, guava, papaya, and dragon-fruit are much popular among the farmers now a days. Bangladesh has a huge progress on these types of non-crop agriculture. It has an important contribution towards the recent GDP growth and per-capita income of Bangladesh. The changed status of Bangladesh from lower income country to lower middle income country is an ultimate result of development of agricultural sector.

In this study, change of the cultivation process from crop based production to non-crop production is defined as agricultural transformation. Suppose, a regular farmer who were a rice or jute producer has become a mango or litchi producer can be defined as transformation. Another example of agricultural transformation could be like, a crop producer who has stopped crop production and started dairy farm.

As the country steps to the 21st century, it aims at accelerated economic growth, human resource development and self-reliance. Central to all the efforts to reach those targets will be poverty alleviation, rural development, involving women in all national activities and creating a well-educated healthy nation to be able to face up to the challenges of a fast moving technologically advanced global society. But we are living in an era where agriculture profession provides lower wage than any other profession.

Many countries arranged alternative industries for employment forcing developing countries to depend on agriculture fundamentally with a silent decline to the share of GDP. Even though income potential is sluggish but the countries that are unable to arrange alternative form they have to depend on agriculture. But we have to understand that a proportion of the people must have to involve in agriculture in order to continue the food supply for the population.

In this circumstance stopping agricultural industry is not a resolution but we have to discover those ways which can give us more productivity in this sector in less time and less human resources. This will only be possible if a well-timed agriculture education is delivered targeting different groups and also collaboration of education, training and agriculture policy of a country.

Objectives of this study are as follows:

- to analyze the agricultural transformation process of the study area,
- Find out the reasons of agricultural transformation, and
- Providing policy suggestions about agricultural transformation

II. METHODOLOGY

We wanted to represent agriculture transformation system of Bangladesh. Among the 64 districts of Bangladesh we have selected Rajshahi districts as our study area. There are 4 Metropolitan Thana and 9 Upazilla in Rajshahi district. We have collected our data from Bhaga and Charghat thana. Random sampling method was applied to select our respondents. Primary data are being collected through a questionnaire by face to face interview. Descriptive method is used to analyze the collected data and information in Microsoft office application package.

III. LITERATURE REVIEW

Growth of agriculture in the 6th five year plan was 3.5% along with the huge growth in fiscal year 2010 and fiscal year 2011. Bangladesh has achieved the self sufficiency status of food for the country. It also has improved the nutrition status along with the growth of vegetable, fish and meat production (GoB, 2015).

According to the ministry of labour, employment in agriculture sector has been increased to 25.7 million in 2010 from 16.4 million in 1984. Although, the share of employment in agriculture has been decreased to 47.3% in 2007 from 51.7% in 2003, agriculture sector has a continuous growth.

An analysis of 60 years (1949 to 2008) shows that, during this sixty years there was an average growth of bovine population was 1% and in case of sheep and goat this growth was 5.2% (Rahman, Begum and Alam, 2014).

Before thirty years from now there was an acute shortage in supply of fertilizers (early 1990s), but this problem was solved in the late 1990s. Subsidies in fertilizers are continued since 1996 and operating a buffer stock system to maintain a stable price of fertilizer (Hossain and Deb, 2010).

There is also a huge growth in production of milk, eggs and meat in recent years. There are two major sources of fish production the inland water fish and the marine fisheries. Bangladesh has a huge growth in both of the sectors (Rahman, Begum and Alam, 2014).

Income of farm households has been increased more than eighty percent and rural income has been increased to forty percent because of the growth in agricultural sector. As a result of technological improvement, better market facilities and expansion of income generating non-farm assets per-capita income in the rural area has been

increasing rapidly (Deb, Bantilan, Pramanik and Khan, 2015).

Irrigation facilities has been made easy for the farmers since late 1980s by huge expansion use of low lift diesel operated pumps and allocation in public sector for irrigation in public sector has been increased to support the farmers (Hossain and Deb, 2010). A study result shows that, there is a positive effect of home gardening and nutrition education on the consumption of vegetables among the children and female members of the family (Bloem et. al., 1996). Other findings suggested that increasing the varieties of vegetables in the garden was associated with increased vegetable and fruit intake (Talukder, 1999).

IV. RESULTS AND DISCUSSIONS

- *Change in Rice Production:*

In 2010 total amount of rice cultivation was 55.75 Bigha and in 2016 total amount of rice cultivation is 17.5 Bigha. This shows a decrease of rice cultivation of 38.25 Bigha. It shows a huge amount of fall of rice cultivation.

Total amount of rice production in 2010 was 689 maunds and in 2016 it becomes 159 maunds. This shows a decrease in rice production of 530 maunds. We can show this by the following chart:

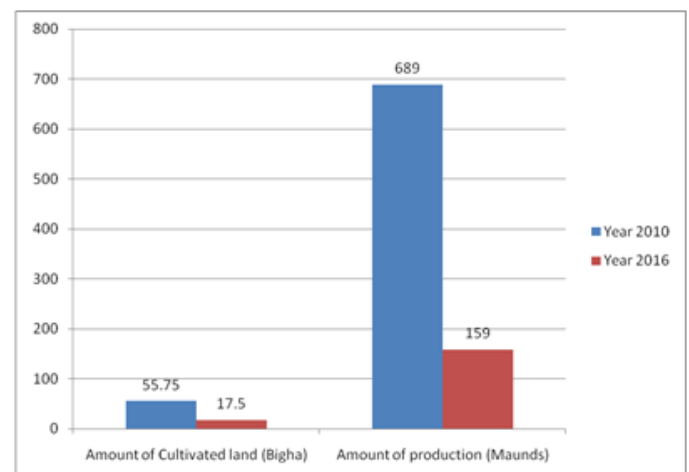


Fig 1:- Change in Rice Production

- *Change in Mango Production:*

In 2010 total amount of mango cultivation was 76.5 Bigha and in 2016 total amount of wheat cultivation is 120 Bigha. This shows an increase of mango cultivation of 43.5 Bigha. It shows a huge amount of rise of mango cultivation.

Total amount of mango production in 2010 was 2510 maunds and in 2016 it becomes 5765 maunds. This shows an increase in mango production of 3255 maunds. We can show this by the following chart:

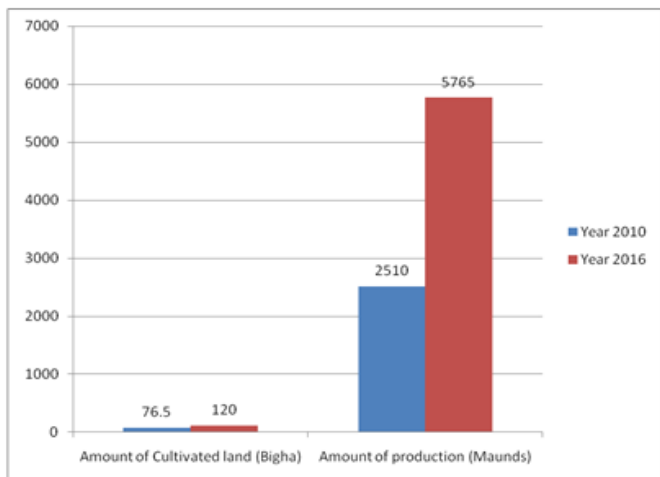


Fig 2:- Change in Mango Production

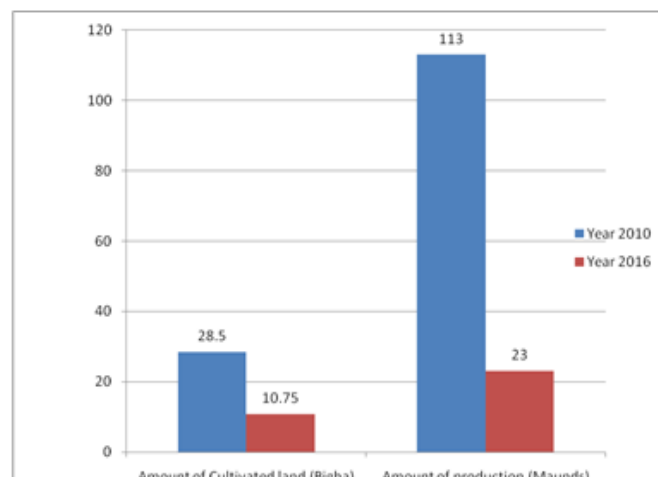


Fig 4:- Change in Lentil Production

➤ *Change in the Production of Wheat:*

In 2010 total amount of wheat cultivation was 36.25 Bigha and in 2016 total amount of wheat cultivation is 20 Bigha. This shows a decrease of wheat cultivation of 16.25 Bigha. It shows a huge amount of fall of wheat cultivation.

Total amount of wheat production in 2010 was 392 maunds and in 2016 it becomes 157 maunds. This shows a decrease in wheat production of 235 maunds. We can show this by the following chart:

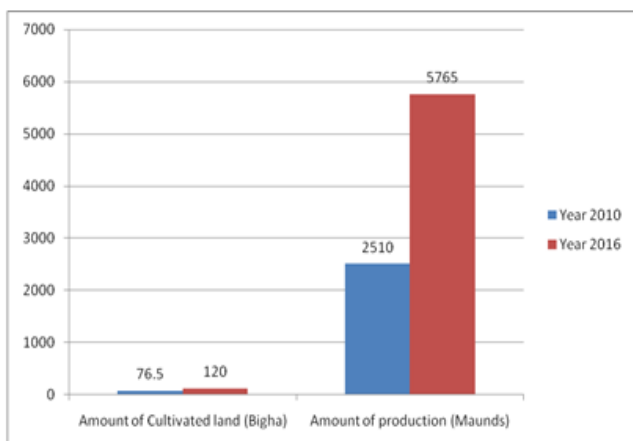


Fig 3:- Change in Wheat Production

➤ *Change in the Production of Lentil:*

In 2010 total amount of lentil cultivation was 28.75 Bigha and in 2016 total amount of lentil cultivation is 10.75 Bigha. This shows a decrease of lentil cultivation of 17.75 Bigha. It shows a huge amount of fall of lentil cultivation.

Total amount of lentil production in 2010 was 689 maunds and in 2016 it becomes 113 maunds. This shows a decrease in lentil production of 576 maunds. We can show this by the following chart:

➤ *Change in the Production of Onion:*

In 2010 total amount of onion cultivation was 2.5 Bigha and in 2016 total amount of onion cultivation is 7.25 Bigha. This shows a increase of onion cultivation of 4.75 Bigha.

Total amount of onion production in 2010 was 150 maunds and in 2016 it becomes 530 maunds. This shows a increase in onion production of 380 maunds. We can show this by the following chart:

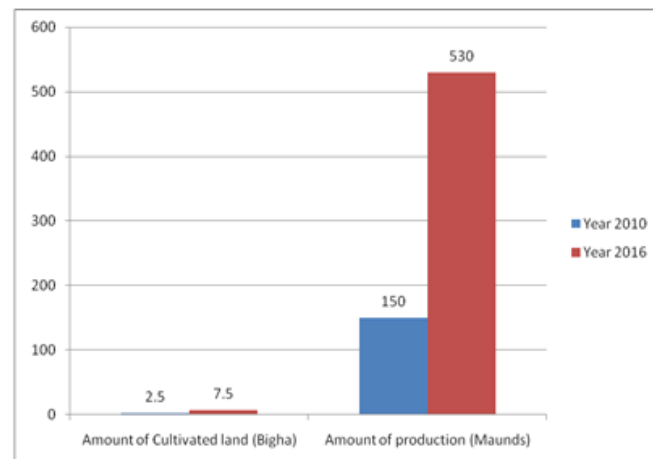


Fig 5:- Change in the Production of Onion

➤ *Change in the Production of Jute:*

In 2010 total amount of jute cultivation was 6 Bigha and in 2016 total amount of jute cultivation is 2 Bigha. This shows a decrease of jute cultivation of 4 Bigha. It shows a huge amount of fall of jute cultivation.

Total amount of jute production in 2010 was 46 maunds and in 2016 it becomes 17 maunds. This shows a decrease in jute production of 29 maunds. We can show this by the following chart:

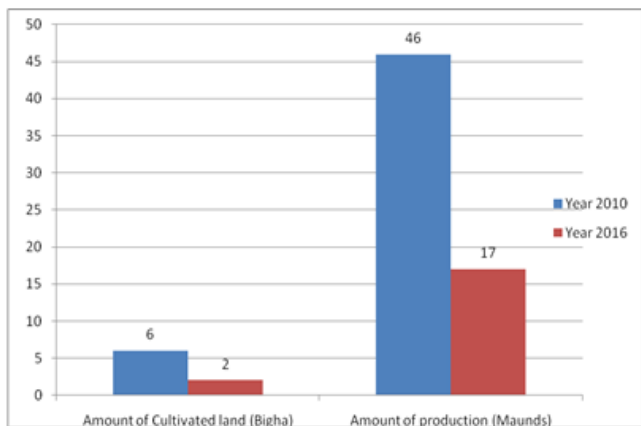


Fig. 6: Change in Jute Production.

➤ *Change in the Production of Turmeric:*

In 2010 total amount of turmeric cultivation was 6.75 Bigha and in 2016 total amount of turmeric cultivation is 1.75 Bigha. This shows a decrease of turmeric cultivation of 5 Bigha. It shows a huge amount of fall of turmeric cultivation.

Total amount of turmeric production in 2010 was 276 maunds and in 2016 it becomes 56 maunds. This shows a decrease in turmeric production of 220 maunds. We can show this by the following chart:

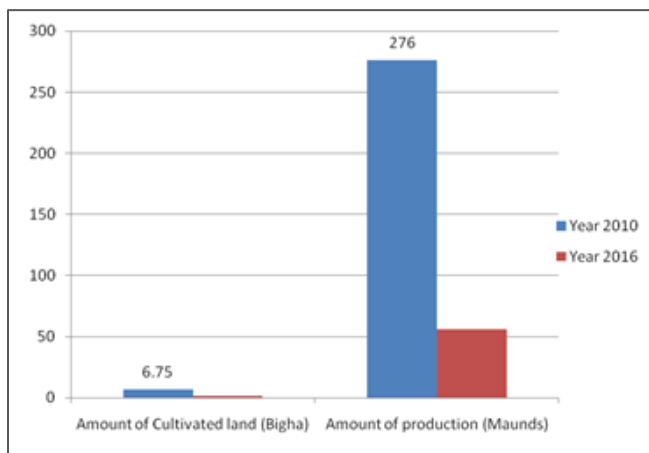


Fig 7:- Change in the Production of Turmeric

➤ *Change in the Production of Sugar Cane:*

In 2010 total amount of sugar cane cultivation was 41 Bigha and in 2016 total amount of sugar cane cultivation is 16.5 Bigha. This shows a decrease of sugar cane cultivation of 24.5 Bigha. It shows a huge amount of fall of sugar cane cultivation.

Total amount of sugar cane production in 2010 was 582 maunds and in 2016 it becomes 155 maunds. This shows a decrease in sugar cane production of 427 maunds. We can show this by the following chart:

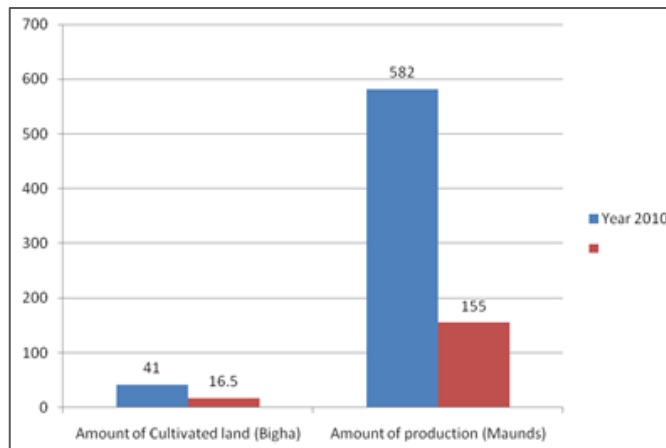


Fig 8:- Change in Sugar Cane Production

➤ *Change in the Production of Vegetables:*

In 2010 total amount of vegetables cultivation was 4.75 Bigha and in 2016 total amount of vegetables cultivation is 3.75 Bigha. This shows a decrease of vegetables cultivation of 1 Bigha. It shows a huge amount of fall of vegetables cultivation.

Total amount of vegetables production in 2010 was 71 maunds and in 2016 it becomes 63 maunds. This shows a decrease in vegetables production of 8 maunds. We can show this by the following chart:

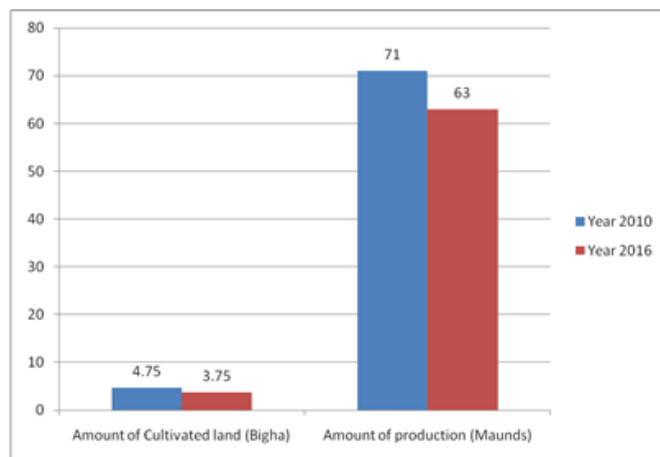


Fig 9:- Change in Vegetables Production

➤ *Change in the Production of Other Crops:*

In 2010 total amount of others cultivation was 4 Bigha and in 2016 total amount of others cultivation is 2.5 Bigha. This shows a decrease of others cultivation of 1.5 Bigha. It shows a huge amount of fall of others cultivation.

Total amount of others production in 2010 was 66 maunds and in 2016 it becomes 55 maunds. This shows a decrease in others production of 11 maunds. We can show this by the following chart:

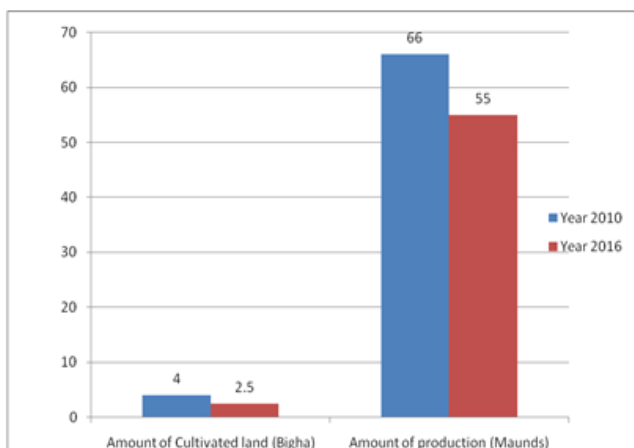


Fig 10:- Change in the Production of Other Crops

➤ *Changes in Costs:*

The figure below shows the production cost of 60 farmers. There is a huge difference between the costs in 2010 and 2016. For example, in rice production cost per bigha was 3031 taka in 2010 and in 2016 it increased to 3685 taka per bigha.

On the other hand, production cost of mango was taka 8745 per bigha, which is also increased to 12287 taka in 2016. Not only the production cost of rice and mango has been increased but also the production costs of other crops has increased, such as- wheat, lentil, jute, sugar cane, vegetables and others. Change in production costs is one of the important factors which cause the agricultural transformation in this area.

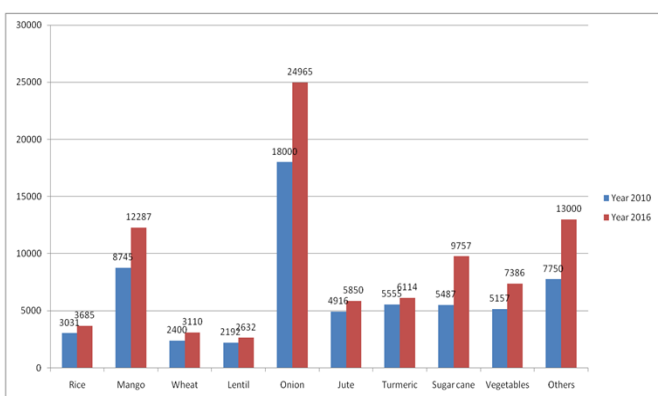


Fig 11:- Changes in Production Cost in Different Crops.

➤ *Change in Profit:*

Change in profit in different crop cultivation has been presented by the following figure. Here we can see that, profit in rice production has been decreased in 2016 than 2010. That is; profit per bigha was Taka. 2340 in 2010 and it decreased to Taka. 1714 in 2016. This is the important factor for the reduction of rice production in this area. Not only the profit from rice has decreased but also the profit from wheat, lentil, jute and turmeric has been reduced.

On the other hand, profit from mango, onion, sugar cane, vegetables and other crops have been increased. But among them, profit from mango has been increased significantly. We can see that, in 2010 profit from mango per bigha was Taka. 20058 and in 2016 it has been increased to Taka. 37587 per bigha. Which is a huge change in profit and it attracts the farmers to produce mango more and more than other crops.

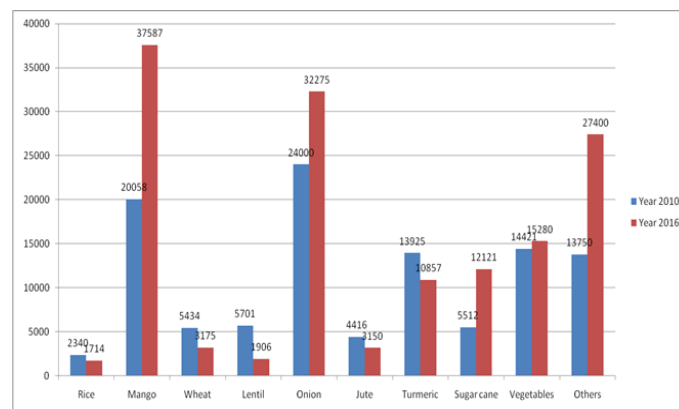


Fig 12:- Change in Profit.

V. SUMMARY AND CONCLUSION

This study shows that agricultural changing trends in Bagha and Charghat upazilla of Rajshahi districts from 2010 to 2016. Our result shows that total cultivation area of cereal production has been decreased from 2010 to 2016. Especially the rice production has been decreased at a huge amount. On the other hand, mango production has been increased at a huge amount.

Cost of production of every crop has been increased in the difference of these 06 years. On the other hand, profit from rice, wheat, lentil and turmeric has been decreased and profit from mango, onion and sugar cane has been increased.

As a result, the trend of agricultural production has been changed in this area. Rice and other cereal crop production mostly decreased and production of mango and onion has been increased. This is causing shortage of food supply and increase in food price day by day.

➤ *Policy Suggestions:*

Based on our study there are some policy suggestions for the betterment of agriculture of Bangladesh. Those are given below:

- There should be a huge increase in rice production of this two upazilla.
- Though mango production is profitable, but a large-scale production of mango specially decreasing the rice production. So further increase in mango production may cause a serious food supply shortage in these areas.
- Government support to the farmers should be increased to produce more and more of the cereal crops.

- Irrigation facilities should be increased to produce more crops.
- Subsidies for agriculture sector especially for the cereal crops should be increased.
- Technological innovation should be implemented in agriculture to produce more crops from the same land.
- Public awareness should be increased about the negative effects of the present agricultural transformation.

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