

# Overview of Agriculture in Nepal

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Nepal is an agrarian Country with around 67% percentage of people involved in agriculture and livestock rearing. The contribution of agriculture to the National GDP is around 24% and is the Nation's economic backbone. Most of the rural people embrace agriculture and livestock as their major occupation. Around 62% of Households have Farming as the main occupation. (**National Economic Survey 2080/81**). The topography and microclimatic variation provide opportunities for agricultural activities in Nepal. The plain land of the terai is also known as the basket in Nepal due to increased agricultural production. In addition, the medicinal and aromatic plants are grown in the Mountains or high hills of Nepal. MAPs are the high-value, low-volume goods and provide great investment in Country's Economy. The tropical weather of the terai region, sub-tropical and temperate weather of mid hills and hill regions provide the advantage of growing various fruits and vegetables all around the country.

In Nepal, rice, maize, wheat, millets, and pulses are the main food crops. In the mid-hills and high mountains, barley, buckwheat, potato, and other minor crops are important food crops. Similarly, cotton, sugarcane are the important cash crops of Terai region, whereas potato, vegetable seed production, and medicinal herbs have prospects in the high hills of Nepal. Mostly, Livestock Farmers rear cattle, buffalo, and goats in the country. Sheep and chyangra goat are reared by the hilly farmers. The nation has a significant comparative advantage in producing several high-value, low-volume cash crops, including tea, cardamom, and ginger. However, the production is not sufficient to meet the demand of the increasing population. lack of fertilizer, irrigation, and superior cultivars, in addition to an infestation of pests and diseases, are the production constraints of the high-value crops in Nepal. Moreover, Lack of modern technologies, minimal market access, poor infrastructure, and land planning have led to a decrease in agricultural productivity in Nepal, which eventually hits the food and nutritional security of Nepal.

Agriculture and Food security can be compared to the two wheels of a cart. Food security can be defined as an individual's access to sufficient and nutritious food. The state of food security has improved recently. Nepal was placed 76th out of 114 nations in 2021 by the **Global Hunger Index**, a holistic method of assessing hunger. Numerous factors, including low agricultural growth, a drop in national agricultural priority, the global food crisis,

political instability, and climate change, pose a threat to Nepal's food and nutritional security. Most of the farmers have small land holdings, and the best way to utilize the areas around their houses is through the nutrition garden. The small spaces surrounding a home or within walking distance that are planted with fruit trees, vegetables, and other spices, particularly at the subsistence level, are known as home nutrition gardens. Furthermore, it is possible to incorporate livestock, such as pigs or chickens, into a home garden. The nutrition garden's primary purpose is to provide the family with a range of wholesome foods, while occasionally, the products sold can bring in extra cash for the household. In our context, home nutrition gardens have played a vital role in enhancing food security, mainly in rural areas.

In the context of Nepal, both marginal and medium-holding farmers are engaged in agriculture and livestock activities. As per Census 2011/12, around 80% farmers are small landholders comprising less than 1 ha of land. The fewer land holdings, no access to agricultural inputs, and lower economic status of farmers are the stumbling stones in Nepal's agriculture. Additionally, the continuation of traditional farming systems or the lack of Agri mechanization lags agricultural development in the nation. Furthermore, Nepal doesn't own the fertilizer company and needs to depend upon neighboring country India. Most of the time, farmers only get the manure and fertilizers after the harvest of their crops, which is all in vain. Moreover, the lack of irrigation in agricultural fields is worsening the production and productivity of food crops in Nepal. Apart from these constraints, Climate change has greatly affected the agriculture of the whole world, including Nepal. This has caused great variation in temperatures and rainfall. The erratic precipitation, extreme hot and cold weather, as well as risks of flood and drought, have challenged the farming activities. Another worrying trend is the brain drain in a country. Mostly, Youth are migrating overseas for better employment opportunities, and it has caused an increase in the fallow lands, which eventually decreases the agricultural production of a country. Preliminary Census 2021 results show that 2.1 million Nepalis are residing overseas. Accordingly, at least one member of every three households was either living outside of Nepal or absent. In an effort to provide their children with higher education, mothers from numerous migrant households are moving to the cities in greater numbers. Therefore, rather than producing crops on their own, most of them leave their lands bare and spend money to buy food from others.

People in Nepal are turning away from growing their own food and toward buying it from the market since it is less expensive to buy than to raise. The agriculture trade deficit has increased as a result of the increase in food imports. The nation's economy as well as household food and nutritional security, are significantly impacted by this.

On the other hand, Nepal has many agricultural advantages. Firstly, the suitable climate fosters the growth of several varieties of food and vegetable crops. The high hills of Nepal with a temperate climate promote growing medicinal and aromatic plants. Potato is the staple food of the high hills. Also, the region is suitable for seed production. Besides, temperate fruits such as peach, pear, apple, and walnut are grown mainly in the high hills of

Nepal. Similarly, the mid-hills have a sub-tropical/temperate climate favorable for cereal crops as well as citrus fruits. The plains of Terai is good for cereal crop production followed by tropical fruits. The variation of crop farming is due to micro microclimatic variation of the country. In addition, the advantage is a low-cost workforce or the availability of abundant laborers. It has been found that 74% of women are employed in agriculture in Nepal, which is almost 2 times higher than the average female workforce in South Asia (39%). Also, most of the rural inhabitants are involved in farming activities as their primary occupation. Moreover, the availability of water resources is a major advantage for crop production in a country. Whatsoever, the total irrigated land in Nepal is only 1.8 mil ha out of the total cultivated land, i.e. 2.6 mil ha. Whereas, rehabilitation of farmers managed irrigation systems has contributed to the marginal and vulnerable farmers through the building of permanent structures such as irrigation canals for year-round cultivation.

### **Women in Agriculture**

In the context of Nepal's agriculture, rural agriculture is primarily overseen by women. Another argument that could be made is that since there are more women than men working as smallholder farmers in rural Nepal, agriculture is becoming more feminine there. In addition, a large number of men migrated mostly to India and other Arabian countries in search of employment and money for a good living for their families. This led to higher engagement of women in rural agriculture.

Since women have been the ones providing food for their communities on a front-line basis, the national, provincial, and municipal governments should pledge to support them in their efforts to empower them, as well as INGOs and NGOs working on issues linked to agriculture and food security. To encourage more women to engage in agriculture in rural areas of the nation, it is necessary to ensure that relevant policies, training, legislative acts on parity on farm payment, land ownership distribution, input availability, and transfer of modern innovation and technology have been put in place.

The mission of women empowerment several programs have been initiated at national as well as local levels by various authorities. The authorities responsible have been forced to implement training and capacity-building programs aimed at women living in rural areas in Nepal due to the growing involvement of women in resource management and decision-making related to agricultural activities. Rural women are empowered by teaching climate-resilient agricultural techniques, less labor-intensive agricultural machinery, and other farming methods to sustain their economy. Furthermore, several organizations have provided access to credit and finance to the rural women involved in agriculture.

### **Upside of Traditional Farming Practices in Nepal.**

The traditional farming practices in Nepal have several advantages. To begin with, the mixed farms, including crop, vegetables, and livestock, ensure the availability of a diverse food supply to the household for a balanced diet. The integrated farm management is found to be more productive and cost-effective. The crop residues, such as rice bran, straw, and stubble, can be used as feed for the livestock. Also, the manure from the livestock can be

used in the fields for crop production. It is environmentally friendly as well. The cattle can be used for tilling the soil. Therefore, the integrated farming system practiced in the rural households is a wholesome package on its own. Secondly, the use of natural pesticides such as cow urine and Jholmol (a mixture of several plants such as Tobacco leaves, Titepati, Neem, Timur) in the crop. Traditionally, farmers use cow dung as manure in the fields, and composting practices enrich the soil fertility. The use of chemical fertilizers gives healthy produce and helps to maintain soil health. These practices also help to conserve the soil microorganisms and natural predators. Moreover, the use of home laborers in the field is found to be cost-effective. The investment in workers is saved, and the cost of production can be reduced.

### **Upgrade the existing agricultural system in Nepal**

#### **I. Promote Sustainable Agriculture:**

Sustainable agriculture refers to farming practices that make efficient use of non-renewable resources, conserve the environment, and at the same time fulfil the needs of human food. Some of the examples of sustainable agriculture are

Organic farming involves raising cattle and crops using natural methods rather than using artificial pesticides or fertilizers.

- **Agroforestry;** Trees can lessen the adverse environmental effects of modern agriculture, according to ecological principles. They can also strengthen the resilience of food production systems and counteract farm pollution.
- **Integrated pest management** employs a variety of pest management techniques, minimizing the need for chemical pesticides, safeguarding beneficial creatures, lessening the impact on the environment, and preserving a balanced ecosystem.
- **Cover crops:** Cover crops are planted primarily for the protection of soil rather than the harvest. The exposed soil is prone to erosion; thus, the roots of the cover crops possess anchoring effects on the soil and eventually prevent soil erosion and runoff. In addition, the covered soil has minimal evaporation loss, thereby enhancing the water retention capacity of the soil. Moreover, it suppresses the weed and green matter incorporation improves soil fertility and quality.
- **Crop rotation:** The tendency of growing varieties or sets of a crop in a proper sequence over the same piece of land. The pattern of growing should follow the specific order, such as, planting cereal crops after the leguminous crops helps in obtaining nitrogen fixed and accumulated in the soil by the legumes. Also, planting the crucifers after leguminous plants helps in nitrogen uptake fixed by the legumes. The location of crucifers needs to be rotated to avoid pests and diseases. However, recent studies have also shown that crop rotation practice is not mandatory. The same crops grown one after another in the same plot didn't show much alteration in the productivity or

the quality. **As per the article posted on Vegetable Academy in October 2023**, it was found that when the two crops of broccoli (Gypsy broccoli) were planted in the same plot in the same season, there were very few variations in the yield and the head size (0.8 kg per head and 0.75kg per head in the two plantations). Additionally, planting tomatoes in the same bed in two consecutive seasons following the same production practices, there was no significant difference in the harvest (Plum regal tomato harvest in 2022 and 2023 was found same, that is 111 kg). Moreover, the experiment was also conducted in the maize. The plantation of corn in the same bed in three consecutive years showed similar yields. The yield in the years 2021, 2022, and 2023 was 23.9kg, 19.65 kg, and 19.5 kg, respectively. The yield was slightly higher in the year 2021 because of the counting of secondary cobs (only primary cobs counted in 2022 and 2023, thus, the yield was the same in these 2 years). Otherwise, the results in all three years would be similar.

- **Conservation tillage:** Sustainable agricultural practices also include healthy soil, storing carbon on farms, preventing erosion, and promoting biodiversity.

## II. Upgrade Policies

Policies, organizations, and technological advancements currently prioritize adult male farmers who are physically fit over women and older farmers. Since farmers cultivate on different scales (big, medium, and small) for distinct goals, policies should concentrate on enhancing both techniques. Policies also need to take into account the requirements of older and female farmers, whose roles in agriculture are growing.

## III. Attract youth in Agriculture

Presently, migrating to foreign lands has become a major problem in a country like ours. the youth, skilled workers are moving overseas in search of money and employment. This has a direct impact on the agricultural system, too. The increase in fallow lands and decrease in agricultural production led to enormous imports of food in the country. This has increased the agricultural trade deficits and eventually, the national economy got affected. Therefore, the government should make policies, create opportunities for the youth in their homeland. Specifically, there is a need to allure youth to agriculture. Commercialization of agriculture will directly support the national economy, and on top of that, it will foster food security in our country.

## IV. Agri mechanization

The process of replacing human labor throughout the whole agricultural value chain with alternative energy sources, such as animal power, fossil energy, or renewable energy, is known as agricultural mechanization. The conservative methods of farming can be replaced by modern technologies. Manual ploughing can be replaced by a tilling machine. The harvesting and winnowing can rather be done with a thresher or combine harvester. These techniques are adapted in a few regions of a country, but should be widespread. Developed countries use machines for ploughing, seed sowing, intercultural operations such as irrigation and fertigation, and for

harvesting and packaging as well. The nature of farming is a commercial type with no drudgery. Therefore, the agricultural yield is higher to meet the demand of citizens as well as for export to other countries.

In conclusion, agriculture will always play an important role in the Economy of Nepal. The majority of rural people are engaged in farming activities and also contribute significantly to the National GDP. However, the country couldn't fulfil the demand of its own citizens and imports a huge amount of agricultural goods every year from neighbouring countries, mostly from China and India. Also, the contribution of the agriculture sector to the National GDP has significantly decreased over the decade. The contribution to the National GDP was 31.27% (**Krishi Diary, 2072**) in the year 2071/72, while the figure has decreased to 24.09% (**Krishi Diary, 2082**) in the year 2080/81. The prime causes to reduce the contribution are urbanization, traditional agricultural practices, and a lack of agricultural mechanization. Therefore, Modernization of agricultural practices, agri-mechanization, commercialization, and promotion of sustainable agriculture practices with adequate supply of farm inputs to the farmers will transform the agriculture sector in Nepal. The development of the agriculture sector is crucial for enhancing food security, poverty alleviation, and overall economic development of the country.