

POKHARA
RESEARCH CENTRE



Agriculture and Sub Sectors

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**Background paper on
Agriculture sector in Gandaki Province**

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Introduction

Introduction of the first five year plan (FY2020-FY2024)¹ in Gandaki Province set a target of double-digit economic growth within five years (by FY2024), emphasizing boosting investment in the sectors or thematic issues that are considered as drivers of economic transformation of the province. These sectors include agriculture alongside tourism, energy, industry, physical infrastructure, manpower development, and good governance, among others. Province has so far completed the first five year plan whose strategy included achieving rapid, sustainable, economic employment and production and productivity enhancement through rapid and intensive expansion of irrigation facilities, effective implementation of land use policy, adoption of advanced seed seeding, fertilizer and modern technology, mechanization, modernization, industrialization, commercialization of agriculture with emphasis on low cost/high volume and organic agriculture production and processing.

Status of Agriculture in Province

With about 86%² of the workforce involved in agriculture for livelihood, employment and income, agriculture is the most dominant sector of the economy (Gandaki Province Annual Economic Activity Report, 2022/23). The Government of Nepal (GoN) has prioritized agriculture in its plans, policies, annual budget, and programs. Recently the second five year plan has been propelled and even before the formation of provinces, Fourteenth (Three-Year Interim Plan 2017-2019)³ of the country had prioritized the agriculture sector to alleviate poverty and achieve economic growth and overall development (Gaihre, S., & Dhakal, S. C., 2022) ; however, the province economic growth rate remains stagnant, with an average rate of 5.5% per annum, which is far below the targeted 10.2% in the First five year plan of Gandaki⁴.

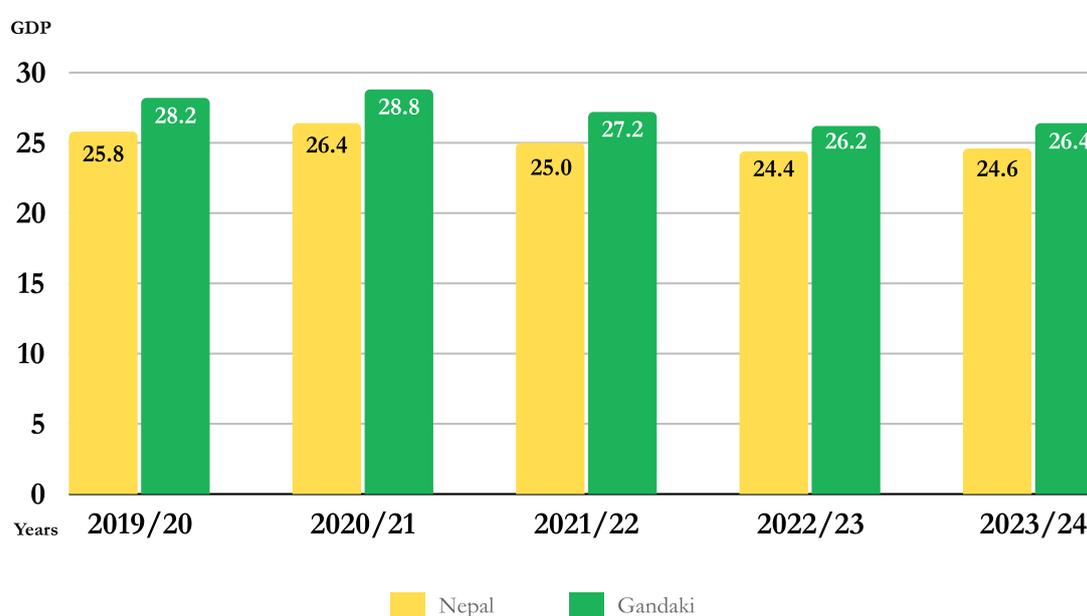


Figure 1: Contribution of Agriculture sector to GDP (in Percent)

¹ [गण्डकी-प्रदेशको-प्रथम-पञ्चवर्षीय-योजना_compressed-1712140846.pdf\(gandaki.gov.np\)](https://www.gandaki.gov.np/compressed-1712140846.pdf)

² [Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf\(nrb.org.np\)](https://www.nrb.org.np/Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf)

³ Gaihre, S., & Dhakal, S. C. (2022). Overview of agriculture in different periodic plans of Nepal. *Food and Agri Economics Review (FAER)* 2(2)(2022) 79, 84

⁴ Ibid. (2020)

In FY 2023/24, agriculture sectors including fisheries and livestock occupy 24.6% in national GDP which was around 25.8% in 2019/20⁵. Contribution of agriculture sectors is decreasing in national GDP; but is still far above the targeted 22.3% in the First five year plan of Gandaki. The target for the agriculture sector was 22.30%, but a contribution of just 24.6% was reached in 2023/24 as per the First Five Year Plan of Gandaki⁶.

In addition, analyzing the data of the last five years of the province, the agricultural sector contribution to provincial GDP between 2019/20 to 2023/24 has been in the same trend. While its contribution in GDP has stood at 28.2% in 2019/20 and 28.8% in 2020/21, in 2021/22 it dropped to 27.2%. Likewise, it has come down to 26.2% in 2022/23 and in 2023/24 it slightly expanded to 26.4% subsequently (Economic Survey, 2023/24)⁷. Thus, the share of agriculture in provincial GDP is in decreasing trend but is still far above the targeted 23.7%⁸ in the First five year plan of Gandaki. The target for the agriculture sector was 23.7%, but a contribution of just 25.9% has been reached as per the concept paper of Second Five Year Plan of Gandaki⁹.

On analyzing both national and provincial data from the past five years¹⁰ i.e. from 2019/20 to 2023/24; the share of agriculture in provincial GDP is in increasing trend compared to national. Above descriptions of Figure (1) clarified that the agriculture sector is one of the prioritized sectors of the Nepalese economy. Agriculture policy of Nepal emphasized on agro-industrialization, mechanization, modernization, commercialization of agriculture with emphasis on low cost/high volume; however, government effort does not bring positive sign in agriculture sectors and annually thousands of youths divert from agriculture sectors to other sectors. Only a limited number of people utilized the government support and published success stories of Nepalese agriculture which is far from the reality. Reality is reflected in the contribution of agriculture in the national and provincial economy which is far above the targeted percent in the First five year plan of Gandaki. Therefore, the agriculture sector can be the foundation of a productive economy only through modernization and commercialization of agriculture.

Agriculture is the cornerstone of the provincial economy employing 57.6%¹¹ of the economically active population in Gandaki province (Second Five Year Plan concept Paper). Livelihood, employment and economic and social transformation which have also been a major sector of the province's economy is covered by the agriculture sectors.

⁵ Ministry of Economic Affairs.(2023). Economic Survey-2022/23. Ministry of Economic Affairs, Government of Nepal. Pokhara, Nepal (gandaki.gov.np)

⁶ गण्डकी-प्रदेशको-प्रथम-पञ्चवर्षीय-योजना compressed-1712140846.pdf (gandaki.gov.np)

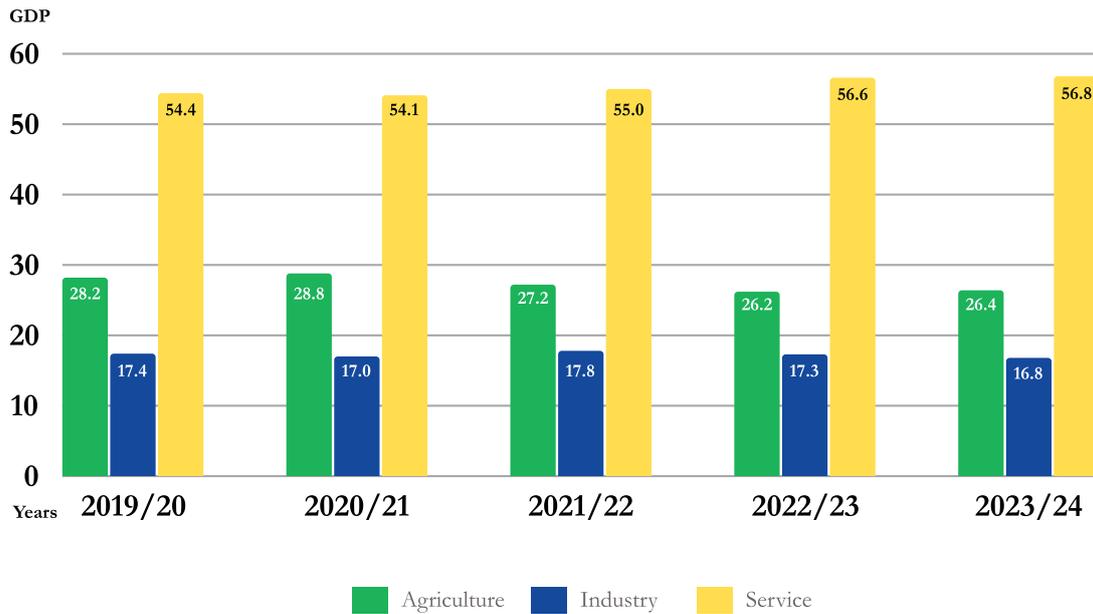
⁷ Ibid.(2022/23)

⁸ गण्डकी-प्रदेशको-प्रथम-पञ्चवर्षीय-योजना compressed-1712140846.pdf (gandaki.gov.np)

⁹ दोस्रो-पञ्चवर्षीय-योजना-आधारपत्र-२०८०-1712120788.pdf (gandaki.gov.np)

¹⁰ Ministry of Economic Affairs.(2023). Economic Survey-2022/23. Ministry of Economic Affairs, Government of Nepal. Pokhara, Nepal (gandaki.gov.np)

¹¹ दोस्रो-पञ्चवर्षीय-योजना-आधारपत्र-२०८०-1712120788.pdf (gandaki.gov.np)

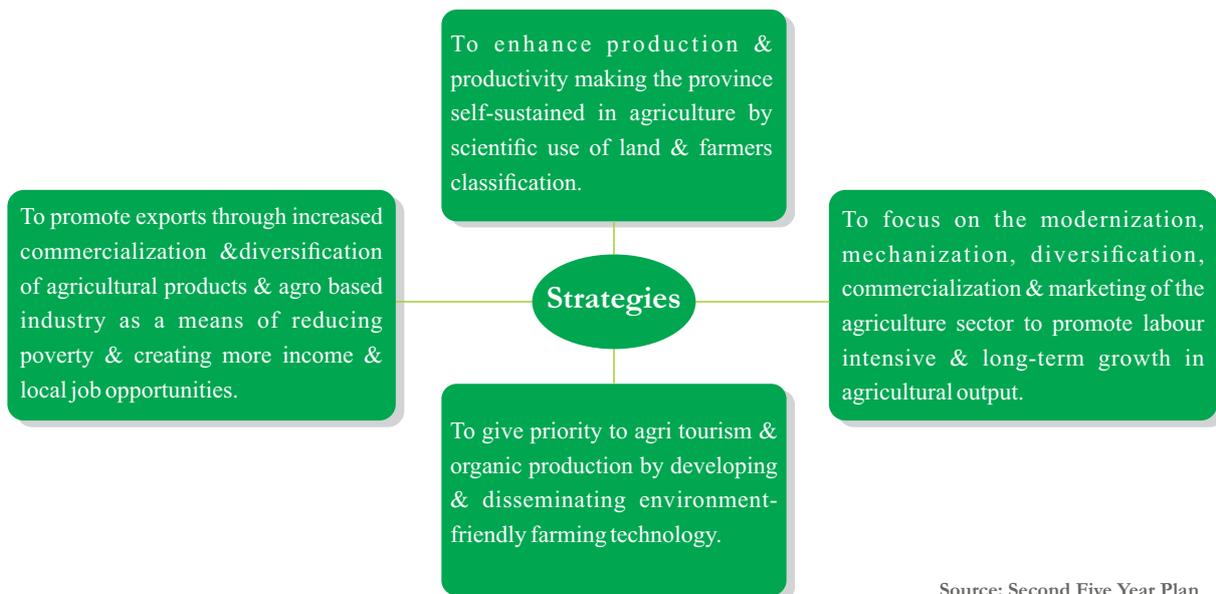


Source: Economic Survey, 2023/24

Figure 2: Sectoral Contribution in Gandaki GDP

Based on the Figure (2), its contribution in provincial GDP fairly deserves the topmost concern because the economy is still caught up in the initial stage of its development where the income generated through the industrial and service sector depends upon the development of the agriculture sector. In FY 2023/24, approximately 50% of the province's GDP i.e 56.8% is from the service sector¹². Agriculture contributed the second largest amount (26.4%), while just 16.8% came from the industry sector¹³. Elimination of poverty and malnutrition is one of the promising factors of agriculture.

The main strategies for the coming year of Gandaki province is;



Source: Second Five Year Plan 2024/25-2028/29, Gandaki

Figure 3: Strategies of Gandaki Province

¹² Ministry of Economic Affairs.(2023). Economic Survey-2022/23. Ministry of Economic Affairs, Government of Nepal. Pokhara, Nepal (gandaki.gov.np)

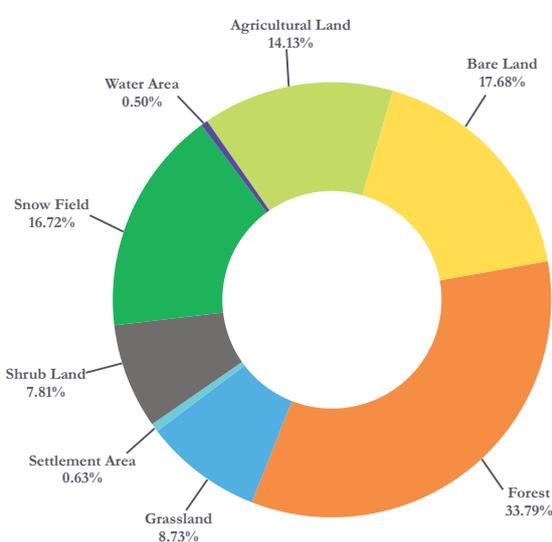
¹³ Ibid. (2023)

Land Use and Irrigation Status of Gandaki

Out of the total 21914.97 sq.km land area of Gandaki Province, 33.8% of provincial land is covered by forest¹⁴. About 14.1% of the land area of the province is agricultural land and 17.7% of the province land is barren¹⁵ (MoF, Economic Survey 2022/23). The current situation of the agriculture sector in Gandaki is in a low expansion stage. Though the majority of the provincial population is engaged in the agricultural sector, there exists low productivity and competitiveness due to barren land as well as due to lack of improved technology.

In dairy processing, poultry, tea, vegetable seed, and fisheries like sub sectors still, positive signs are not yet sufficient to obtain secured food sufficiency in the province. The government has emphasized on crop and livestock on insurance, subsidies in fertilizers and seeds, increasing research and development for topics food-grain crops, biodiversity, conservation, climate change measures, food, and seed buffer stock. However, improvement in such sectors has a probability to make a dramatic indent in reducing malnutrition and guarantee food security of the province (Farooq, M., Rehman, A., & Pisante, M., 2019).

Land Use Category	Area (sq. km)
Agricultural Land	3111.52
Bare Land	3892.51
Forest	7439.96
Grassland	1921.54
Settlement Area	138.40
Shrub Land	1719.94
Snow Field	3682.14
Water Area	109.00
Total	22015.01



Source: MoF, Economic Survey, 2023/24

Figure 4: Status of Land Use in Gandaki

By the end July of FY 2022/23, 364,885 hectares of agricultural land was cultivated, which implies an increase of 0.002 percent compared to the previous year¹⁶. 33.24 percent of the total cultivable area of this province (149758 hectares) has been reached with irrigation facilities¹⁷. With the above increase, during the review period (2023/24), there has been an increase of 0.24¹⁸ percent in the total irrigated area. Out of which, 40.78 percent is irrigated from wells and 58.56 percent by canals, while the remaining 0.66 percent is irrigated from ponds, boring and drip irrigation systems¹⁹. Also, total cultivable area has decreased by 0.6²⁰ percent (Annual Economic Activity Report, 2023). Irrigated area is limited and not equally spread throughout the province. Irrigation system is still in the developmental phase that restricts growing more crops per season.

¹⁴ Ibid. (2023)

¹⁵ Ibid. (2023)

¹⁶ [Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf \(nrb.org.np\)](#)

¹⁷ Ibid. (2023)

¹⁸ Ibid. (2023)

¹⁹ Ibid. (2023)

²⁰ Ibid. (2023)

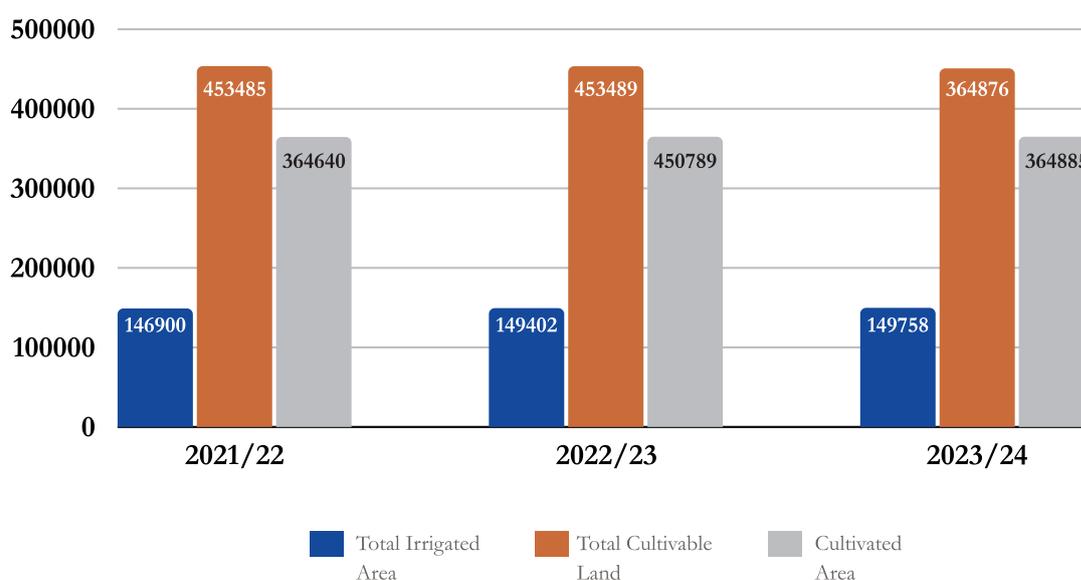


Figure 5: Area of Cultivable & Irrigated Land (In hectares)

Source: Annual Economic Activity Report, 2023

22.2%²¹ of the land in the province is suitable for cultivation. The province has 4,87,823 hectares of cultivable land, of which only 76.0 percent are under cultivation and 24 percent of cultivable land is barren²². While irrigation systems currently support around 36.1 percent of the province's agricultural land, only 46.1 percent have access to year-round irrigation²³. The global challenge of water scarcity is equally relevant in Nepal, affecting more than half of the world's population for at least one month annually. Since the province's agricultural system is monsoon-based (June-September), unstable and subsistence oriented, leading to unpredictable and extreme weather patterns, including floods and droughts, which reduce agricultural productivity. Most agricultural lands are left fallow during post and pre-monsoon season, except for a few areas with irrigation facilities, causing significant crop productivity loss.

MATERIALS AND METHODOLOGY

The background paper draws from the validation of key sub-sectors held by stakeholders. Based on the high growth potential, market demand, less middlemen interference, high agricultural production, low post harvest loss and price consistency of commodity all over the season/off-season, the agriculture sector in Gandaki province has been further categorized into five broad sub-sectors namely, Vegetables, Potato, Dairy, Meat and Fisheries. Likewise Key Informant interviews provided ideas about searching qualitative information in field settings, digging out the richer information.

Agriculture sub-sectors

The economy of Gandaki Province is primarily based on agriculture, just like much of Nepal. Province agriculture is dominated by paddy, maize, wheat, millet and buckwheat while a variety of pulses, vegetables and spice crops are grown. Fruits, tea and coffee are also grown in sizable

²¹ Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf (nrb.org.np)

²² Ibid. (2023)

²³ Ibid. (2023)

amounts. Potatoes and oil-seeds are the principal cash crops of Gandaki Province. The province has a diverse range of livestock including ruminants and non-ruminants (NRB, Annual Economic Report, 2023/24).

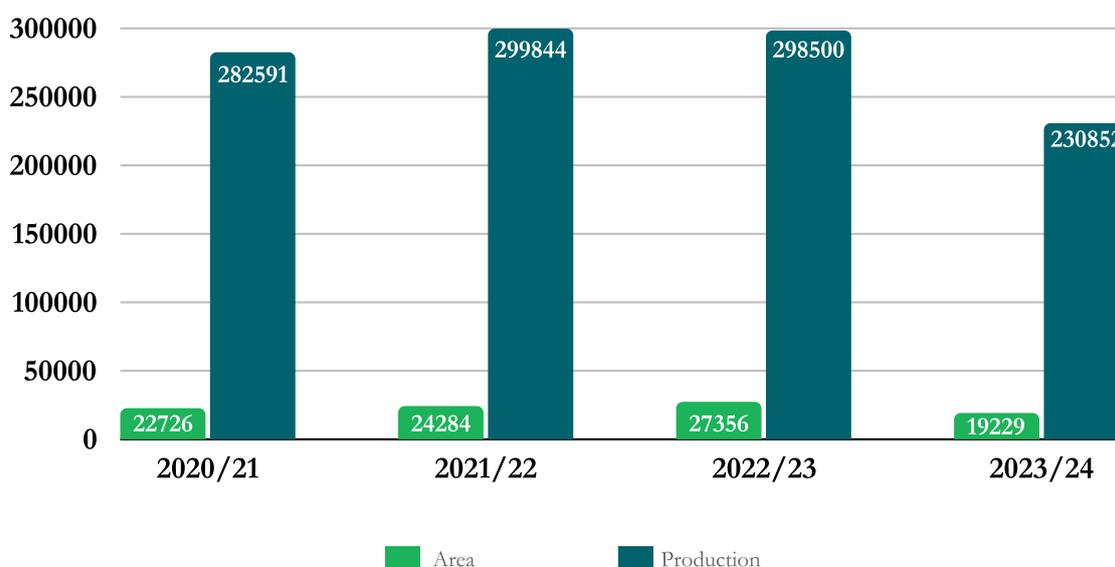
Agriculture sector in Gandaki is gradually transitioning its growth from subsistence to commercial scale. Further, Vegetables, Potato, Dairy, Meat and Fishery sub-sectors have been selected based on matrices.

	Sub-sector	Selection Matrices
AGRICULTURE	1. Vegetables 2. Potato 3. Dairy 4. Meat 5. Fishery	Market demand of commodities
		Growth Potential
		Middlemen interference
		Low post-harvest loss
		Price Consistency

Figure 6: Categorization of Agriculture Sub-sectors as per matrices

Vegetable Production

As per Annual Economic Activity Report (2023/24) of Nepal Rastra Bank, despite of last six decades efforts with the given strength and opportunities in the agricultural crop development in province, productivity of vegetable has remained low, hovering around 230852 MT/ha²⁴, which is very low compared to the past periods.



Source: Annual Economic Activity Report, Gandaki Province, 2022/23

Figure 7: Area (ha) & Production (Mt) of Vegetable in Gandaki

²⁴ [Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf \(nrb.org.np\)](#)

Available data shows that the cultivation area, production, and yield of vegetables are in increasing orders on analyzing data from the past three years²⁵ i.e. from 2020/21 to 2022/23 (Figure 1 and 2 respectively) except in the fiscal year 2023/24 which had a swift decrease in production. Because of the fact that arable land remains barren, scattered areas of cultivation, low productivity, high prices of production inputs, poor rural infrastructures, high transportation costs, high marketing costs and poor cultivation and post harvest technologies, province produce are less competitive even in the domestic markets (NRB, Annual Economic Activity Report, 2022/23).

Figure 5 shows the district wise area and share of vegetables in Gandaki province in the fiscal year 2023/24. As per NRB (2023/24) data, Kaski district accounts for about 24.76%²⁶ of the total area under vegetable production, whereas Manang district accounts for 0.70%²⁷. As a result, Kaski district is dominant in terms of vegetable cultivation.

Districts	Area (Hectare)	Share (%)
Gorkha	1780.00	8.35
Manang	148.00	0.70
Mustang	123.00	0.58
Myagdi	1150.00	5.41
Kaski	5260.00	24.76
Lamjung	2843.00	13.38
Tanahun	4206.00	19.80
Nawalparasi (East)	694.30	3.27
Syangja	2934.10	13.81
Parbat	938.00	4.41
Baglung	1170.00	5.51
Total	21246.40	100

Source: Economic Activity Study, Gandaki Province, 2023/24

Table 1: Land area covered by Vegetables (District wise)

Likewise, the Government of Nepal launched the Prime Minister Agriculture Modernization Project (2016-2025) and introduced the concept of pockets, blocks, zones, and super zones for agriculture products to address the fragmentation of arable land, which is considered to be a major barrier for agriculture commercialization and mechanization in the country.

²⁵ Ibid. (2023)

²⁶ Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf (nrb.org.np)

²⁷ Ibid. (2023)



Source: Annual Progress Report 2023/24 of PMAMP

Figure 8: Superzone & Zone of Gandaki

In 2024/25, PMAMP declared Nawalparasi east as an upgraded vegetable super zone in its report. Likewise, Kaski for cow/buffalo zone, Mustang for Potato zone and Dhading for potato zone respectively.

The cash profit assurance from vegetable farming often from small acreages within a short period of time makes it tempting. Vegetables have a higher benefit-cost ratio (1:3) than cereals (1:1.5)²⁸. Likewise, vegetables have a greater (30–50%)²⁹ commercialization rate than fruits and cereals (CASA Nepal, 2020). As a result, the total area under cultivation has risen from 2020/21 to 2022/23 as more farmers have been engaged in vegetable farming except in the fiscal year 2023/24 which had a swift decrease in production.

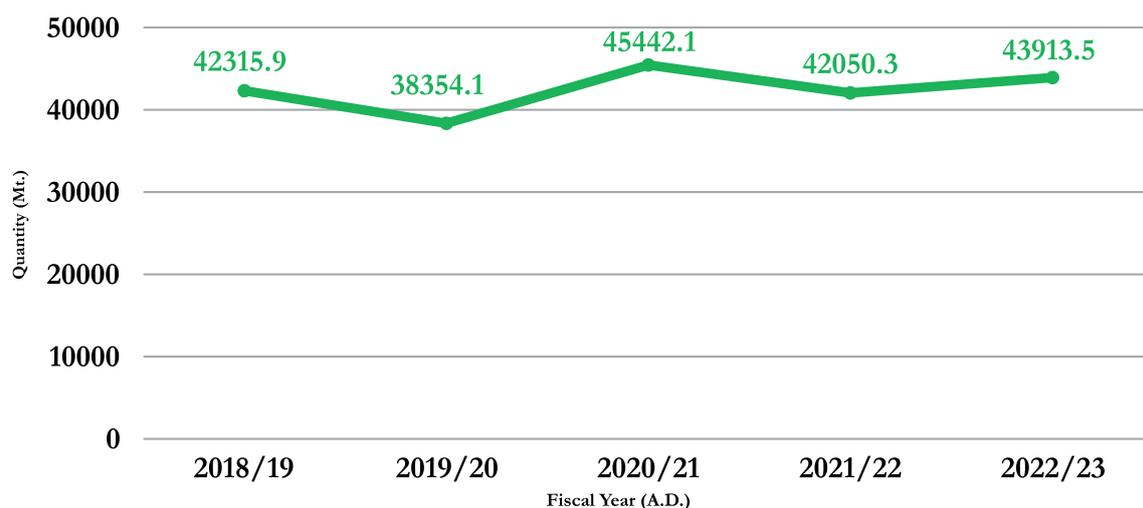
Increasing production in the province is correlated with the commercialization of the vegetable sub-sector, improved infrastructure development, and an increased knowledge of farming techniques and practices. Furthermore, the governing factors for higher vegetable production are also driven by favourable meteorological conditions, the availability of seeds and fertilizer, and mechanization of vegetable growing (Pandey et al., 2017).

Vegetable Import Trend in Gandaki

The vegetable market is the most fluctuating and price-sensitive market in the context of Gandaki as the supply is season bound and goods are perishable along with consumer's preference to get cheaper options.

²⁸ TEAM, C.N.C. (2020). Vegetable Sector Strategy-Nepal.

²⁹ Ibid. (2020)



Source: Agriculture Market Management Committee, Pokhara, Kaski

Figure 9: Import Quantity of Vegetable Sub-Sectors in Gandaki

On analyzing vegetable import data from the fiscal year 2018/19 to 2022/23, the average quantity of imports is 45442.06³⁰ kg in FY 2020/21. The import quantity varies from year to year, showing fluctuations over the years (Figure). Due to poor industrial and economic growth and being surrounded by two bigger nations with high economic growth rates, the local enterprises have struggled to capitalize on the opportunities created by the growing demand for vegetables. Similarly, the government is unable to implement several plans effectively which are brought to achieve self-sufficiency in the vegetable sub-sector (Adhikari, B., & Pokharel, A. 2020).

Similarly, as per table presented below, vegetable products are imported to Gandaki primarily from: Gorkha, Kaski, Lamjung, Tahanun, Syangja, Parbat and Baglung. The fastest growing import markets in Vegetable Products for Gandaki between 2022 and 2023 are Kaski (7990869 Mt), Tanahun (262823 Mt), and Gorkha (121172 Mt)³¹.

Districts	Quantity (kg.)
Gorkha	121172
Manang	0
Mustang	0
Myagdi	0
Kaski	7990869
Lamjung	32295
Tanahun	262823
Nawalparasi (East)	0
Syangja	63841
Parbat	154490
Baglung	80282

Table 2: District wise Import Quantity of Vegetables

Source: Agriculture Market Management Committee, Pokhara, Kaski

³⁰ Agriculture Market Price Information System (AMPIS)

³¹ Agriculture Market Price Information System (AMPIS)

Challenges

- a) **Role of middlemen:** In farmer societies, the role of middlemen especially in the vegetable sub-sector as marketing institutions is highly strategic. However, their existence often creates controversy. High margin of profit taken by middlemen is becoming parasites for farmers. Farmers are constrained with lack of knowledge and information and this affects their agricultural produce. This is the reason that farmers are at the mercy of middlemen who made good profit while the farmers are less rewarded for their efforts. For example, the farm gate price of brinjal is 35/kg while the retailer selling price becomes 135/kg on the same day, at the same place.
- b) **Lack of proper irrigation:** Irrigation deficit results in dry land, fragmentation of arable land and poor functioning of fertilizers and seeds resulting in degrading agricultural productivity.
- c) **Post harvest losses:** Being delicate fruits and vegetables, if not handled properly, deteriorate fast. Due to poor packaging practices, poor grading, storage practices (staking method), transportation (loading, unloading) from vehicles, post harvest losses results ;leading in low prices in the market which affects farmers.
- d) **Monkey menace:** Gandaki province farmers are under assault from gangs of roving monkeys that destroy all the crops, leaving farmers with little to harvest. Farmers grow crops on a piece of land and by the end of the harvest season,crops become the food of monkeys.
- e) **Frequent price fluctuation:** Prices of agricultural products widely fluctuate more and more frequently, hurting both producers and consumers. Transportation costs; crop yields, food stock levels as stock fall, price rise, droughts; low technology; elastic food demand are the factors contributing to price fluctuation where small changes in supply can result in large changes in prices. Other than that, supply and demand factors that include population growth, weather conditions affect the output related to price. Poor linkages and ineffective communication related to market information (prices and standards, supply and demand information) between stakeholders along the system often affects the cost/performance of other business as a result of which consumers have to fetch high/low prices in the market.
- f) **Epidemics:** Vegetable diseases in vegetable farming cause losses in production and deprive farmers from expected profits. Increasing incidence and severity of plant disease outbreaks poses significant and growing risks to primary productivity, directly impacting food security as well as provincial economies.
- g) **Inadequate supply of quality improved seeds:** A significant cross-cutting component in which the private sector has shown interest is seed. Improved seed supply and demand are rising domestically. Vegetables and Potato seeds are currently primarily sold by agro-vets and traders. As per recent data of Seed Quality Control Center, MoALD, over 23 seed suppliers are registered in Gandaki . Of the registered seed suppliers, improved varieties of rice (4) and maize (2) along with many breeder, foundation, certified and labelled seed of maize and rapeseed are supplied in Gandaki. The quality of the seed in the market at present is low and there is no

production of better quality seeds inside the country as such the farmers have to depend on imports for accessing better quality seeds. They are imported from Thailand, China, Korea, Japan, and India. The lack of good quality seed as such leads to increase in disease and pest infestation in plants.

- h) Lacking land unit wise insurance facility:** Insurance facility is implemented by the government to protect farmers. Just like the insurance amount equal to 100,000 rupees must be insured for vegetables on 5 acres of land, yet no insurance standards and amount of insurance is developed for farming on 1 acre of land by the Nepal insurance authority.
- i) Lack of agro product storage:** Almost all stakeholders consulted during FGD cited a lack of proper warehousing facilities, especially with controlled temperatures, as one of the primary drawbacks in the vegetable and potato sub sector. Cold storage being an indispensable part of perishables farm-to-market chain to retain and add value to commodities, in the widespread absence of it, farmers are compelled to sell their produce at low prices at harvest. Storage of agro products would contribute to stabilizing market prices by evenly distributing goods on both a demand and time basis. Province farmers are facing market difficulty and loss of their agricultural produce (fruits, vegetables) due to the lack of sufficient cold storage and collection centers within the province.
- j) Lacking sector wise up-to-date and accurate records:** Despite the technological advancements, data from the government relating to production, productivity, training programs held for farmers, provided subsidy related details and so on is not yet up-to-date, accurate and systematically shared in open formats and so it is not yet widely used by the range of people who could be supporting the government's efforts to grow the economy, reduce poverty and address inequality.
- k) Inadequate credit support to farmers:** Majority of farmers are small and marginal, often constrained by finance and thus cannot afford high costs for management. Farmers face limited access to institutional credit because of collateral requirements. The credit amount again is quite inadequate and not advanced in time. They are also not eligible for micro-credit of NGOs that deal mainly with landless farmers. The situation compels these farmers to apply inputs, especially expensive P and K fertilizers far below the recommended doses that finally result in low yield.
- l) Small land holding:** Due to small land holding of farmers, small scale farmers production marketing being low: Due to prominent constraints of marketing among the small-scale farmers such a lack of access to credit, lack of access to storage facilities, lack of market information, lack of finance for farming, poorly developed village markets, poor producer prices and high transportation costs.

Recommendations

- a) Government support in irrigation:** Government must provide support in irrigation facilities through autonomous irrigation boards for large and major irrigation schemes, as a means for

providing sustainable irrigation service through efficient irrigation facilities by mobilizing user organizations, government agencies and local bodies which results in arable land, proper functioning of fertilizers and seeds improving agricultural productivity.

- b) **Expanding the domestic market for organic and safe vegetables:** Urbanizes are becoming more and more trendy in organic products, especially vegetables, a niche market with growth potential and prices unaffected by the Indian market. The quality of organic food, urban consumers' purchasing power, and willingness to pay for healthful foods have all increased demand for organically cultivated vegetables. Education and health awareness about the benefits of organic farming have also contributed to this demand. Organic vegetable production is offered by many of the selected locations in Provinces 3, 4, and 5. Catering to this demand, a few companies involved are reportedly performing well.

As the organic agriculture sector gains momentum in Nepal, Nepal as well as Gandaki province has the potential to be competitive. Province is home to many potential products, namely cereals, spices, fresh fruits and vegetables. The enabling environment for the sector also seems to be favourable, with the recent establishment of the National Organic Agriculture Accreditation body (NOAAB) and the National Coordination Committee for Organic Agriculture Production and Processing System (NCCOAPPS), as well as policies supporting organic agriculture. A national standard for organic agriculture has been established and endorsed by the government, and working guidelines for two certification systems (the Internal Control System and the Participatory Guarantee System) are being developed. Both will serve as important instruments for taking advantage of international and domestic markets.

- d) **Land consolidation:** Consolidation to reduce fragmentation of small holder plots; and cooperative farming, where farmers retain ownership of their land but farm it jointly. Usually must be applied to form larger and more rational land holdings through mechanization for large scale farming on single land resulting in increasing production.

- i) **Reducing post harvest losses:** To reduce post-harvest losses considerably, logistic control activities such as,

- harvesting stage: Planning harvesting quantity
- storage stage: Planning stocking levels
- processing stage: grading and packaging, planning processing quantity
- transportation stage: Determining mode and type of transportation, determining vehicle scheduling and routing must come into action

- j) **Quality control practices:** must be adhered to in order to reduce loss due to deterioration and spoilage.

- harvesting stage: Determining maturity to harvest, harvesting practices
- storage stage: Monitoring of storage conditions (temperature and humidity), storage practices
- processing stage: Deciding on grading standards, selecting packaging material, grading practices
- transportation stage: Monitoring of transportation conditions

- k) Processing of domestic agro-products:** There are many processing companies for tea, coffee, ginger and fruit in Nepal as well as in Gandaki. As for vegetables, there is increasing interest among private companies in forward and backward linkages between agriculture and the industrial sector. This area is at an early growth stage and is a potential investment opportunity. The importance of agro-industry to agricultural and broader economic development is immediately apparent. Agro-industrialization contributes to employment and increase in incomes for those whose livelihood is linked to the agro-food economy. It also has impacts on the quality, availability and price of food and non-food products. So provincial production of commodities must get linked to industry. Vegetables, tomato and mushroom processed products such as tomato paste, puree, powder, ketchup, mushroom flour, mushroom powder, mushroom pickle, dried mushroom chop must be manufactured at local and province level. A 24hr electricity facility must be provided for the industry sector.
- l) Monitoring of temperature during storage:** Monitoring temperature during storage is necessary for vegetable crops. Suboptimal storage temperatures can negatively impact product quality and contribute to food losses. Proper storage conditions, including temperature and humidity, help prevent rapid deterioration and bacterial proliferation.
- m) Open Government Data:** The government's data on production, productivity, farmer training programs held, subsidy details, and other related topics should be up to date, accurate, and consistently shared in open formats, in the era of technological advancements. As a result, a wider range of people who could be supporting the government's efforts to grow the economy, combat poverty, and address inequality can make intensive use of this data.
- n) Access to improved varieties:** Government should provide access to improved varieties of seed that have longer shelf life than local varieties: Public policy interventions (in the form of laws, regulations and public investments) should target the diversified and improved varieties of seed in order to enhance farmers' access to sufficient quantity of quality seed and other planting materials, to increase seed replacement rate through increased production and supply of quality seeds and to promote local seed security through conservation and sustainable use of agro biodiversity.
- o) Minimum Support Price:** The agriculture sector in the Gandaki province comprises various activities pertaining to commercial farming, livestock, poultry, beekeeping, dairy, and other farming activities. In the province, the agriculture sector is unable to generate mass employment. Because the government has not prepared a policy to generate employment in the agricultural sector, it is confined to the household sectors. It is rare for the government to determine the minimum price for agricultural products. Brokers typically have a role in determining prices. With an objective of increasing the attraction of agribusiness to the general population, the minimum support price of paddy, wheat, and sugarcane has been fixed for the fiscal year 2020/21. Likewise, the minimum support price of particular vegetable commodities must be fixed by the provincial government with a view to get a fair price for the commodities based on the cost of production.
- p) Credit management:** Under the circumstances, farmers must have an access to the credit of the

institution without any collateral requirement. The credit should be disbursed before planting time and realized at the end of the cropping season or after the harvest of the crops. The institution must have an in-built provision for a strong monitoring unit to monitor the use of credit at regular intervals by its staff.

- q) Market monitoring and frequent guidance to the vegetable growers:** Market monitoring supports farmers in making informed decisions, increasing productivity, and minimizing environmental impact, which results in improved economic outcomes and long-term agricultural sustainability. Monitoring provides essential information about crop health, growth, and environmental conditions.

Potatoes

Potato ranks second in terms of area covered and first in total production among the cash crops grown in the country, but still the productivity of this crop is far below its potentiality. (MOALD, 2021/2022). According to statistical information of Nepalese agriculture, the area, production and yield of potato in Gandaki are 20,263 ha, 340,633 t and 16.81mt/ha respectively; which is lower than that of other provinces³² (Figure) (MoALD, 2021/22).

POTATO	Province							
	Koshi	Madhesh	Bagmati	Gandaki	Lumbini	Karnali	Sudarpaschim	
Area (Ha.)	58,813	27,648	35,159	20,263	25,900	13,919	16,554	
Production (Mt)	1,010,202	446,390	701,188	340,633	412,164	237,598	262,655	
Yield (Mt/H)	17.1	16.15	19.94	16.81	15.91	17.07	15.87	

Source: Statistical Information on Nepalese Agriculture, 2021/22

Table 3: Area, Production & Yield of Potato among Seven Provinces

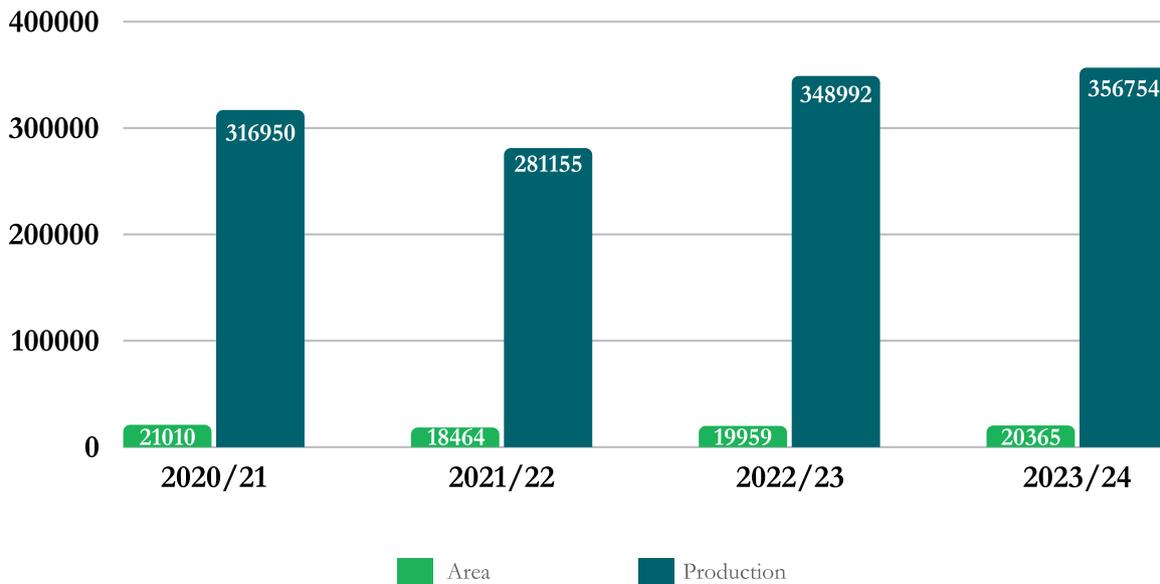
Table 1 shows fluctuations in the area, production and yield of potato cultivation among seven provinces. The highest area cultivated as well highest total production is recorded in the Koshi province and the lowest is in Karnali. Likewise, Bagmati province is leading and Sudurpaschim has the lowest one in terms of yield.

Table 2 shows fluctuations in the area and production of potato cultivation in the province over the years. The highest area cultivated was recorded in the year 2020/21 (21010 ha) and the lowest was in 2021/22 (18464 ha)³³. There is an increasing overall trend in the area cultivated. It has varied between a minimum of 18464 ha to a maximum of 21010 hectares³⁴.

³² [Statistical-Information-on-Nepalese-Agriculture-2078-79-2021-22.pdf](https://moald.gov.np/statistical-information-on-nepalese-agriculture-2078-79-2021-22.pdf) (moald.gov.np)

³³ [Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf](https://nrb.org.np/pokhara-annual-economic-activity-report-2080-FINAL_.pdf) (nrb.org.np)

³⁴ Ibid.(2023)



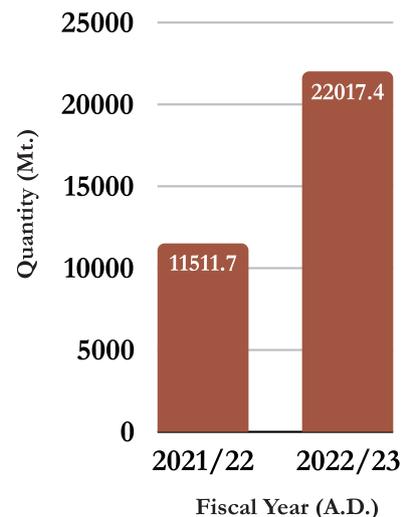
Source: Annual Economic Activity Report, Gandaki Province, 2022/23

Figure 10: Area (ha) & production (Mt) of Potato in Gandaki

It also shows an increasing trend in potato production over the years. The highest production was recorded in the year 2023/24 (356754 Metric Tons) and the lowest was in 2021/22 (281155 Metric Tons)³⁵. The overall trend indicates a consistent rise in production from 2021/22 to 2023/24. As expected, there is generally a positive correlation between cultivated area and production. Increase in cultivated area leads to higher production. As per the annual progress report of PMAMP (2023/24), Gandaki province's Baglung, Gorkha, Manang and Myagdi districts are declared as four of Nepal's seventeen potato zones³⁶. In 2024/25, PMAMP declared Mustang district as a potato zone in its report.

Potato Import Trend in Gandaki

Due to the favourable environment, Gandaki province produces and consumes potatoes every year. The use of potato as a processed and fresh food is increasing day by day in Gandaki as well as in Nepal for its nutritional effects.



Source: Agriculture Market Management Committee, Pokhara, Kaski

Figure 11: Import Trend of Potato

³⁵ Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf (nrb.org.np)

³⁶ Ibid.(2023)

In figure 7, the quantity of potato imports varies from year to year, showing fluctuations over the years. Potato import along with onion under cash crop in the current FY 2022/23 is estimated to increase as compared to FY 2021/22 with 22017.359 Metric tons³⁷.

On the other hand, compared to the productivity of other food crops in Gandaki Province, the quantity of consumable potato is thrice the metric ton required by the province population. But the suffering of potato growers is increasing day by day even though their yield is high, as they are stuck with surplus stocks of 271.95 %³⁸ and low exports.

POTATO	Consumable Metric Ton	Metric Ton Required by Province Population	Surplus/Deficient (Mt)	Surplus/Deficient (%)
	266705.5	71705.2	195000.30	271.95

Source: Krishi Diary 2024, Gandaki Province

Table 4: Potato Balance Sheet of Gandaki Province

With an annual requirement of around 71705.2 MT, the province witnessed a surplus of about 195000.30 MT³⁹ in 2022, most of which was wasted due to lack of sufficient storage facilities. For a lack of better use of the surplus, farmers are left with no option but to feed these potatoes to cattle.

Similarly, according to the Agriculture Market Management Committee, Kaski, 234785 Mt⁴⁰ of potatoes are imported in Gandaki from Kaski district only out of eleven districts between FY 2022 and 2023.

Challenges

- High cost of input for potato cultivation:** The major inputs in potato cultivation are potato seed, labour, bullock, FYM and intercultural operations, as such due to labour shortage in agriculture for performing all these inputs during cultivation, cost of production gets high. The consumable metric ton of potato is higher than the metric ton required by the province population. As a result, potato growers are suffering as they are stuck with surplus stocks and low exports.
- Epidemics:** Potato cultivation cause losses in production and deprive farmers from expected profits. Increasing incidence and severity of plant disease outbreaks poses significant and growing risks to primary productivity, directly impacting food security as well as provincial economies.
- Inadequate supply of quality improved seeds:** A significant cross-cutting component in which the private sector has shown interest is seed. Improved seed supply and demand are rising domestically. Potato seeds are currently primarily sold by agro-vets and traders. Potato production from **True Potato Seed (TPS)** for cold-tolerant and late blight resistant. Potato is a major food crop in the mid-hills and mountains in Nepal. Traditionally, in Gandaki most farmers use small tubers as seed, to grow potatoes with the minimum input. Currently, Gandaki province

³⁷ [Welcome | Agriculture Market Price Information System \(AMPIS\)](#)

³⁸ [कृषि विकास निर्देशनालय \(gandaki.gov.np\)](#)

³⁹ [कृषि विकास निर्देशनालय \(gandaki.gov.np\)](#)

⁴⁰ Ibid.(2023)

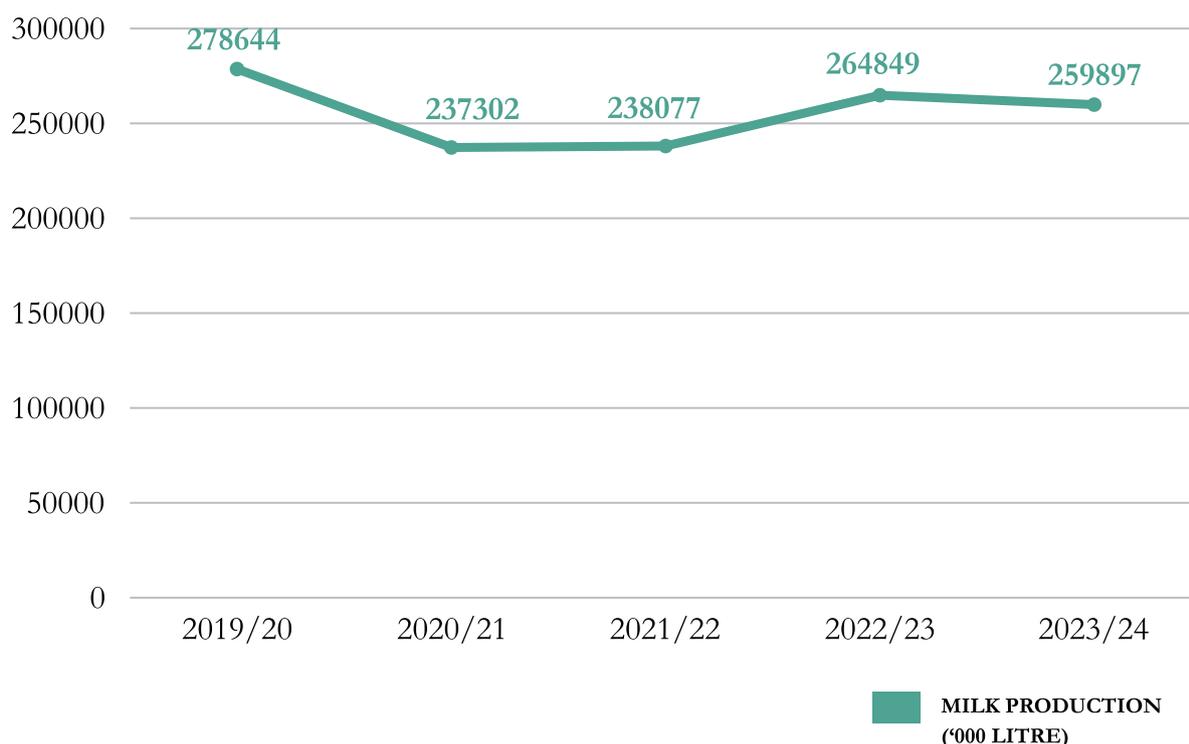
farmers are not receiving any improved seeds of vegetables and potatoes by SQCC for commercial production as they are also not covered under the Advanced Seed Subsidy Programme of SQCC. The quality of the seed in the market at present is low and there is no production of better quality seeds inside the country as such the farmers have to depend on imports for accessing better quality seeds. They are imported from Thailand, China, Korea, Japan, and India. The lack of good quality seed as such leads to increase in disease and pest infestation in plants.

- d) **Lacking land unit wise insurance facility:** Insurance facility is implemented by the government to protect farmers. Just like the insurance amount equal to 100,000 rupees must be insured for vegetables on 5 acres of land, yet no insurance standards and amount of insurance is developed for farming on 1 acre of land by the Nepal insurance authority.
- e) **Lack of agro product storage:** Almost all stakeholders consulted during FGD cited a lack of proper warehousing facilities, especially with controlled temperatures, as one of the primary drawbacks in the vegetable and potato sub sector. Cold storage being an indispensable part of perishables farm-to-market chain to retain and add value to commodities, in the widespread absence of it, farmers are compelled to sell their produce at low prices at harvest. Storage of agro products would contribute to stabilizing market prices by evenly distributing goods on both a demand and time basis. Province farmers are facing market difficulty and loss of their agricultural produce (fruits, vegetables) due to the lack of sufficient cold storage and collection centers within the province.
- f) **Lacking sector wise up-to-date and accurate records:** Despite the technological advancements, data from the government relating to production, productivity, training programs held for farmers, provided subsidy related details and so on is not yet up-to-date, accurate and systematically shared in open formats and so it is not yet widely used by the range of people who could be supporting the government's efforts to grow the economy, reduce poverty and address inequality.
- g) **Inadequate credit support to farmers:** Majority of farmers are small and marginal, often constrained by finance and thus cannot afford high costs for management. Farmers face limited access to institutional credit because of collateral requirements. The credit amount again is quite inadequate and not advanced in time. They are also not eligible for micro-credit of NGOs that deal mainly with landless farmers. The situation compels these farmers to apply inputs, especially expensive P and K fertilizers far below the recommended doses that finally result in low yield.
- h) **Small land holding:** Due to small land holding of farmers, small scale farmers production marketing being low: Due to prominent constraints of marketing among the small-scale farmers such a lack of access to credit, lack of access to storage facilities, lack of market information, lack of finance for farming, poorly developed village markets, poor producer prices and high transportation costs.

Recommendations

- a) **Land consolidation:** Consolidation to reduce fragmentation of small holder plots; and cooperative farming, where farmers retain ownership of their land but farm it jointly. Usually must be applied to form larger and more rational land holdings through mechanization for large scale farming on single land resulting in increasing production.
- b) **Processing of domestic agro-products:** There are many processing companies for tea, coffee, ginger and fruit in Nepal as well as in Gandaki. As for potatoes, there is increasing interest among private companies in forward and backward linkages between agriculture and the industrial sector. This area is at an early growth stage and is a potential investment opportunity. The importance of agro-industry to agricultural and broader economic development is immediately apparent. Agro-industrialization contributes to employment and increase in incomes for those whose livelihood is linked to the agro-food economy. It also has impacts on the quality, availability and price of food and non-food products. So provincial production of commodities must get linked to industry. Dehydrated mashed and frozen french fried potatoes must be manufactured and consumed at local and provincial level. A 24hr electricity facility must be provided for the industry sector.
- c) **Monitoring of temperature during storage:** Monitoring temperature during storage is necessary for vegetable crops. Suboptimal storage temperatures can negatively impact product quality and contribute to food losses. Proper storage conditions, including temperature and humidity, help prevent rapid deterioration and bacterial proliferation.
- d) **Open Government Data:** The government's data on production, productivity, farmer training programs held, subsidy details, and other related topics should be up to date, accurate, and consistently shared in open formats, in the era of technological advancements. As a result, a wider range of people who could be supporting the government's efforts to grow the economy, combat poverty, and address inequality can make intensive use of this data.
- e) **Access to improved varieties:** Government should provide access to improved varieties of seed that have longer shelf life than local varieties: Public policy interventions (in the form of laws, regulations and public investments) should target the diversified and improved varieties of seed in order to enhance farmers' access to sufficient quantity of quality seed and other planting materials, to increase seed replacement rate through increased production and supply of quality seeds and to promote local seed security through conservation and sustainable use of agro biodiversity.
- f) **Minimum Support Price:** The agriculture sector in the Gandaki province comprises various activities pertaining to commercial farming, livestock, poultry, beekeeping, dairy, and other farming activities. In the province, the agriculture sector is unable to generate mass employment. Because the government has not prepared a policy to generate employment in the agricultural sector, it is confined to the household sectors. It is rare for the government to determine the minimum price for agricultural products. Brokers typically have a role in determining prices. With an objective of increasing the attraction of agribusiness to the general population, the minimum support price of paddy, wheat, and sugarcane has been fixed for the

According to the latest data available with the Directorate of Livestock and Fisheries Development (DLFD), more than 5,417⁴² cattle have died so far from lumpy skin disease in FY 2022/23 that has affected 82⁴³ local governments out of 11 districts of Gandaki province. Similarly, 84,835 cattle⁴⁴ have been infected by the highly contagious viral disease since its outbreak in April and likewise, 1,19,435⁴⁵ cattle were vaccinated. Crucially, the province wide prevalence of lumpy skin disease dramatically decreased milk production, loss of animals and adverse impact on farming and incurred heavy losses to farmers. Curing animals affected with the virus takes at least 20 to 30 days⁴⁶ depending on immunity of animals.



Source: Annual Economic Activity Report, Gandaki Province, 2023

Figure 12: Milk Production (Mt) in Gandaki

As per the annual progress report, 2023/24 of the PMAMP, Syangja district is declared as cow/buffalo zone along with Saptari, Illam, Bara, Sindhupalchowk, Kavre, Lalitpur.

42 पशुपन्छी तथा मत्स्यकास निर्देशनालय (gandaki.gov.np)

43 Ibid.(gandaki.gov.np)

44 Ibid.(gandaki.gov.np)

45 Ibid.(gandaki.gov.np)

46 पशुपन्छी तथा मत्स्यकास निर्देशनालय (gandaki.gov.np)

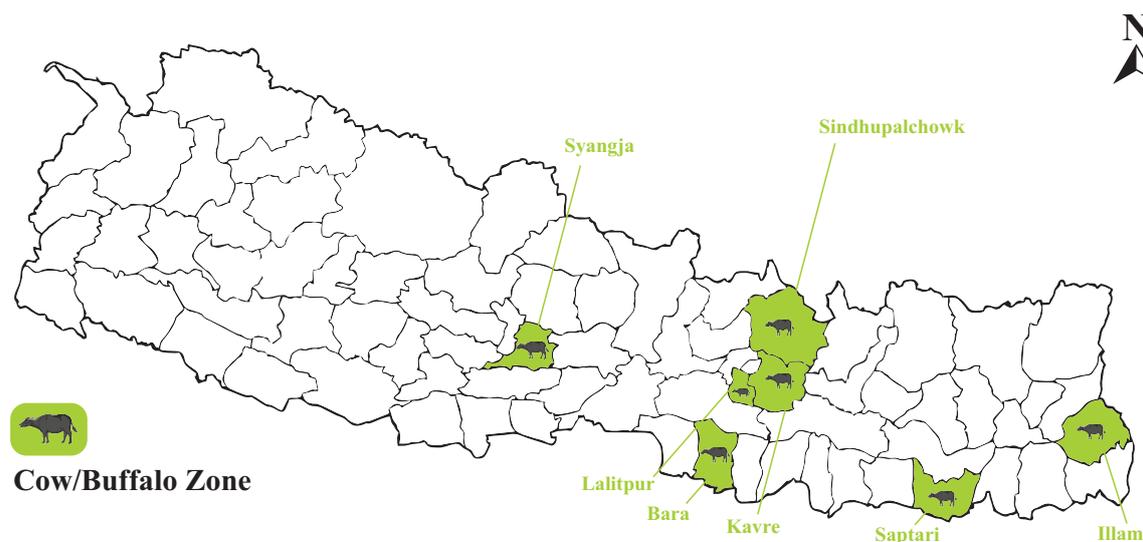


Figure 13: Cow/Buffer Zone in Nepal

PMAMP added another district of Gandaki province i.e Kaski district as cow/buffalo zone recently in 2024/25. Likewise, due to geographic challenges and location, livestock production in Manang and Mustang districts is negligible. As per Economic activity study (2023), Nawalparasi (East) district has the highest share of milk production (20.25 percent)⁴⁷ among Gandaki province but is not declared as cow/milk zone by PMAMP because of the zone determination criteria as per Project implementation Manual of PMAMP based on designated infrastructures including irrigation, roads and service providers, based on national priorities, based on export potential and so on.

Challenges

- a) **High consumption and low production:** In Gandaki Province, dairy consumption is high but production is low. Huge population density in urban areas has created a significant demand for milk and dairy products which is impacting the milk market to grow and flourish. To meet the market demand, middlemen add high quantities of water to fulfil the market consumption rate. For example, 100 liters of milk purchased from farmers becomes 200 liters when it reaches the market.
- b) **Loan assessment:** Accessing a loan from a subsidy program presents various challenges for the small-scale farming sector. Farmers find it difficult to obtain subsidized loans due to a lack of information about the program, long and tiresome legal procedures, multiple paperwork and frequent visits to banks and financial institutions.
- c) **Small scale farmers:** Small scale farmers didn't get any loans from banks or financial institutions because banks prioritize bigger businesses to fulfil monthly installments and hassles in compliance process when it comes to government banks. High interest rates and banks not believing business persons in filling daily installments are the major reasons small scale farmers suffer.
- d) **Reduced insurance uptake rates and adding complexity to the insurance process:**

⁴⁷ [Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf \(nrb.org.np\)](#)

Insurance facility is implemented by the government in order to protect farmers. Insurance programs present various challenges for the farmers and farmers find it difficult because of long and tiresome legal procedures, multiple paperwork and frequent visits to insurance offices.

- e) **Lacking sector wise up-to-date and accurate records:** Despite the technological advancements, data from the government relating to production, productivity, training programs held for farmers, provided subsidy related details and so on is not yet up-to-date, accurate and systematically shared in open formats and so it is not yet widely used by the range of people who could be supporting the government's efforts to grow the economy, reduce poverty and address inequality.
- f) **Prone to Disease Outbreak:** Province's livestock sector has been affected by a variety of endemic, emerging and re-emerging diseases. Emerging and re-emerging diseases (zoonotic and non-zoonotic) such as Lumpy Skin Disease (LSD)- 2020, African Swine Fever (ASF)- 2022, Highly Pathogenic Avian Influenza (HPAI)- 2009, PRRS-2021 as well as endemic animal diseases including Foot-and-mouth Disease (FMD), Peste-des-petits Ruminants (PPR) and Classical Swine Fever (CSF).

Recommendations

- a) **Record Keeping:** The Department of customs office must well-maintain accurate records and establish a sound record-keeping system of feed types, milk powder imported in Nepal and in each province. Keeping accurate records has its benefits, like helping farmers plan and complete realistic forecasting for the next year.
- b) Governments should provide clear marketing guidelines on animal husbandry to protect livestock farmers against undue exploitation or loss of dairy animals by incorporating crop insurance as they do in developed countries where farmers are guaranteed minimum returns.
- c) **Access to Insurance:** Insurance facilities are implemented by the government in order to protect farmers. An online agriculture insurance system must be introduced, offering a user-friendly platform, eliminating the need for frequent visits to government offices and minimizing administrative obstacles.
- d) **Access to subsidized loan:** Banking process should be streamlined, facilitating access to subsidized loans. The program should prioritize grants to impoverished and niche groups of farmers, with restrictions to exclude those who already have established agribusiness.
- e) **Subsidy policies:** The Government must carry out various subsidy policies on livestock feed and production. The subsidy programme is targeted mainly at small and marginal livestock farmers and subsidies are provided to increase livestock farm productivity and profitability to stimulate economic growth. Most of the farmers are poor who heavily rely on loans. In this context, subsidies can help farmers in various ways if they reach the target group. The livestock subsidy programme must include breeds, feed, livestock housing construction among others.

f) Open Government data: The government's data on livestock production, productivity, livestock farmer training programs held, subsidy details, and other related topics should be up to date, accurate, and consistently shared in open formats, in the era of technological advancements. As a result, a wider range of people who could be supporting the government's efforts to grow the economy, combat poverty, and address inequality can make intensive use of this data.

g) Policy response to disease outbreaks: Coordination and collaboration among three tiers of government and One Health partners for disease control with clear roles and responsibilities must be formed. Implementation of existing legal and policy documents and formulation of new legal documents to tackle endemic, emerging and reemerging animal diseases, zoonosis and other OH problems such as AMR and Food Safety.

Meat

Livestock plays a crucial role in Gandaki province food security, a nutritious diet, and unemployment issues since it empowers women, increases the fertility of agricultural land, and creates self-employment opportunities. Analyzing the availability and production of animals in FY 2022/23, a person in Gandaki Province was able to obtain 23 kg⁴⁸ of meat, a source of protein annually according to the Second Five Year Plan Concept Paper and well above the benchmark set by the UN body. The number of livestock reared for meat in the province rose up in the FY 2021/22; however, it appears that the number of all livestock except ducks has declined in the fiscal year 2022/2023. However, there seems a preliminary estimate of some improvement in the FY 2023/24.

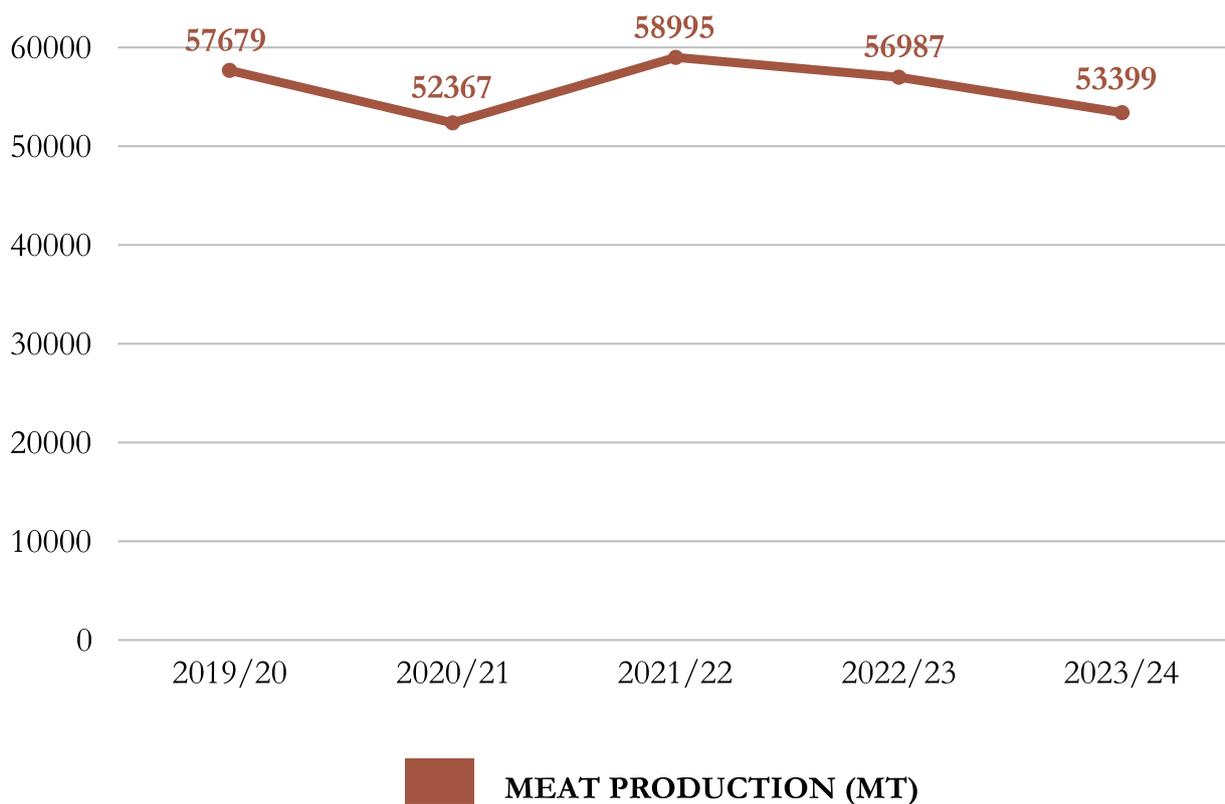
Particulars	2019/20	2020/21	2021/22	2022/23	2023/24
Buffalo	677490	521498	522014	462133	580446
Goat	1533629	1748325	1789432	1617868	1646159
Sheep	107820	99869	94261	90616	95759
Hen	6785607	8158523	7441562	6381890	6951457
Duck	42712	98163	81265	110720	96864
Swine	162153	185855	187245	155970	176941

Source: Annual Economic Survey, Gandaki Province, 2023

Figure 14: Description of Livestock (in numbers)

As Figure illustrates, the province's total number of buffaloes and cows decreased during FY 2020/21–2022/23 compared to FY 2019/20 data. As can be observed, there has been a high volatility in meat production over time. This variation in 2023/24 is mostly due to disease outbreaks.

⁴⁸ दोस्रो-पञ्चवर्षीय-योजना-आधारपत्र-२०८०-१७१२१२०७८८.pdf (gandaki.gov.np)



Source: Annual Economic Survey, Gandaki Province, 2023

Figure 15: Meat Production (Mt) in Gandaki

As per the first semi annual period of the FY 2023/24, there has been a decline in the production of meat by 4.33⁴⁹ percent compared to FY 2022/23 (Annual Economic Activity Report, 2023). Likewise, the Kaski district has the highest share of meat production (19.32 percent⁵⁰) among Gandaki Province. Due to geographic challenges and location, livestock production in Manang and Mustang districts is negligible (NRB, Study of Economic activity, 2023). As per the annual progress report 2023/24 of the PMAMP, Myagdi district is declared one of Nepal's two swine zones. Likewise, Mustang and Baglung are declared as two of Nepal's eleven sheep/goat/chyangra zones. Similarly, in 2024/25, PMAMP added Dhading district as a goat zone in its report.

Analyzing the above data, Gandaki has reported 18,020⁵¹ death cases in FY 2022/23 because of African Swine Fever (ASF). Similarly, 136 swine have died from ASF in FY 2023/24 that has affected 18 local governments out of 7 districts of Gandaki province including (Syangja, Tannahu, Lamjung, Baglung, Parbat, Myagdi and Kaski⁵²). Of the affected districts, 15,322⁵³ swine have died in Kaski which is the highest among others. Thus, the province wide prevalence of ASF also decreased milk production, resulting in heavy losses to farmers.

⁴⁹ Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf (nrb.org.np)

⁵⁰ Ibid. (2023)

⁵¹ पशुपन्छी तथा मत्स्यकास निर्देनिर्देशनालय (gandaki.gov.np)

⁵² Ibid. (gandaki.gov.np)

⁵³ Ibid. (gandaki.gov.np)



Figure 16: ASF Outbreaks in Gandaki

Challenges

a) **Middle trader or broker:** Both goats as well as chicken are sold to the final consumer via middle trader or broker. High margins of profit are taken by middlemen which are becoming parasites for farmers. Farmers are constrained with lack of knowledge and information and this affects their agricultural produce. This is the reason that goat rearing farmers and poultry farmers are at the mercy of middlemen who made good profit while the farmers are less rewarded for their efforts and poultry rearing.

b) **Increasing cost of production:** The cost of feed ingredients and treatment are in the scenario of increasing day by day which has increased per unit cost of production of poultry. High costs and low earnings is driving poultry farmers out of business nowadays. Many entrepreneurs are forced to stop production after not getting a fair price for their products and feed prices soared continuously.

c) **Lack of legal quality standardization:** Lack of legal standards addressing the quality assurance of chicks, is a hot issue in this sector. A good meat quality is crucial to optimize performance. Poor development during incubation, daily slow growth and poor eggs or livability in the field are the results of low quality of chicks which decreases profit in hatcheries whereas slow growth, small body size and low meat content are the results of low quality of goat and sheep, resulting in low meat production and not fulfilling the meat demand shortage .

However, there is no standard certification or grading system for meat and meat products in Gandaki. Thus, there is not yet a fully standardized quality control system for poultry or other meat products. The marketing agro stores mainly determine the price of day-old chicks, the feed price, and even the retail price of chicken. As a result, small and medium-scale farmers are constantly suffering losses.

d) **Lack of quality feed ingredients:** Not having quality and balanced feed from reliable sources containing the standard for quality assurance results in poor development of chicks and goats in

terms of growth, incubation, livability, meat production potentiality and loss in hatcheries. Farmers are still lacking the feeding scheme and feeding package of practice. Most of the feed in the province is imported from India which is low in quality.

e) Loan assessment: Accessing a loan from a subsidy program presents various challenges for the small-scale farming sector. Farmers find it difficult to obtain subsidized loans due to a lack of information about the program, long and tiresome legal procedures, multiple paperwork and frequent visits to banks and financial institutions.

f) Small scale farmers: Small scale farmers didn't get any loans from banks or financial institutions because banks prioritize bigger businesses to fulfil monthly installments and hassles in compliance process when it comes to government banks. High interest rates and banks not believing business persons in filling daily installments are the major reasons small scale farmers suffer.

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Recommendations

a) Access to Insurance: Insurance facilities are implemented by the government in order to protect farmers. An online agriculture insurance system must be introduced, offering a user-friendly platform, eliminating the need for frequent visits to government offices and minimizing administrative obstacles.

b) Access to subsidized loan: Banking process should be streamlined, facilitating access to subsidized loans. The program should prioritize grants to impoverished and niche groups of farmers, with restrictions to exclude those who already have established agribusinesses.

c) **Record Keeping:** The Department of customs office must well-maintain accurate records and establish a sound record-keeping system of feed types, milk powder imported in Nepal and in each province. Keeping accurate records has its benefits, like helping farmers plan and complete realistic forecasting for the next year.

d) **Subsidy policies:** The Government must carry out various subsidy policies on livestock feed and production. The subsidy programme is targeted mainly at small and marginal livestock farmers and subsidies are provided to increase livestock farm productivity and profitability to stimulate economic growth. Most of the farmers are poor who heavily rely on loans. In this context, subsidies can help farmers in various ways if they reach the target group. The livestock subsidy programme must include breeds, feed, livestock housing construction among others.

e) **Open Government data:** The government's data on livestock production, productivity, livestock farmer training programs held, subsidy details, and other related topics should be up to date, accurate, and consistently shared in open formats, in the era of technological advancements. As a result, a wider range of people who could be supporting the government's efforts to grow the economy, combat poverty, and address inequality can make intensive use of this data.

f) Governments should provide clear marketing guidelines on animal husbandry to protect livestock farmers against undue exploitation or loss of dairy animals by incorporating crop insurance as they do in developed countries where farmers are guaranteed minimum returns.

g) **Policy response to disease outbreaks:** Coordination and collaboration among three tiers of government and One Health partners for disease control with clear roles and responsibilities must be formed. Implementation of existing legal and policy documents and formulation of new legal documents to tackle endemic, emerging and reemerging animal diseases, Zoonosis and other OH problems such as AMR and Food Safety.

Fisheries

Gandaki Province, being a renowned tourist destination and riverine province, boasts abundant water resources. In addition to numerous rivers, lakes, canals, reservoir and ponds throughout the province, these vast aquatic areas are home to numerous species of fish. Nepal encompasses approximately 8,08,500⁵⁴ hectares of natural water bodies including rivers, canals, lakes, reservoirs, and paddy fields ideal for fish production (Yearly Progress Report, Central Fisheries Promotion and Conservation Center CFPC, 2022/23). Annually, 21,000⁵⁵ tons of fish are collected from these resources. Additionally, for aquaculture there are 14,745⁵⁶ hectares of ponds. Total fish production from both natural and pond systems reached 113,736 Mt, with pond culture accounting for 81.5% of the total in FY 2022/23⁵⁷.

The private sector contributes 76% of the fingerlings produced annually, with 130 total fingerlings, 119 from the private sector and the remaining 11 comes from the government sector (federal and provincial) fish hatcheries, producing and distributing 560 million fish fries⁵⁸. Analyzing the availability and production of animals in FY 2022/23, a person in Gandaki Province was able to obtain 0.66⁵⁹ kg of fish annually according to the Second Five Year Plan Concept Paper and still lower the benchmark set by the UN body.

⁵⁴ [Central Fisheries Promotion and Conservation Center \(cfpc.gov.np\)](http://cfpc.gov.np)

⁵⁵ [Ibid.\(cfpc.gov.np\)](http://cfpc.gov.np)

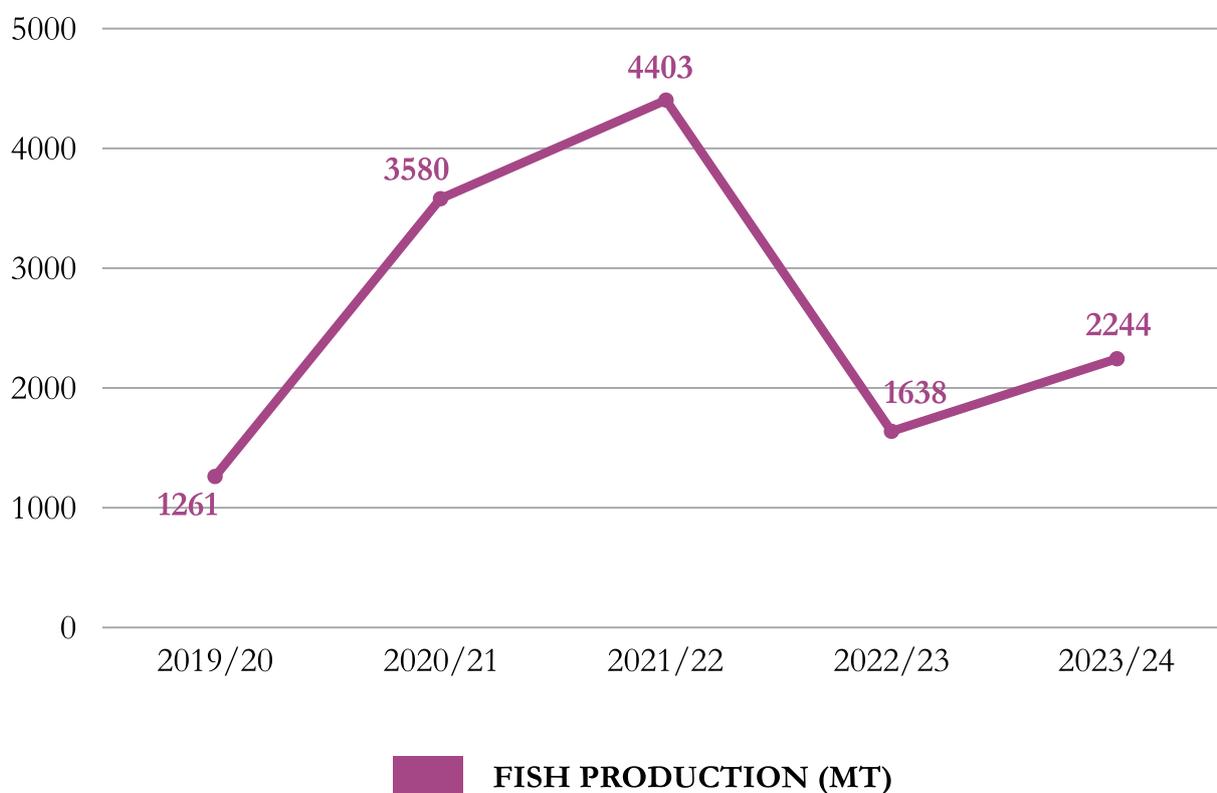
⁵⁶ [Ibid.\(cfpc.gov.np\)](http://cfpc.gov.np)

⁵⁷ [Ibid.\(cfpc.gov.np\)](http://cfpc.gov.np)

⁵⁸ [Central Fisheries Promotion and Conservation Center \(cfpc.gov.np\)](http://cfpc.gov.np)

⁵⁹ [Ibid.\(gandaki.gov.np\)](http://gandaki.gov.np)

Moreover, the fisheries sector in Gandaki plays a vital role in the province's economy, not only providing a significant portion of the non-vegetarian food but also generating substantial income. As per the annual progress report 2023/24 of the PMAMP, Gandaki province is not included in any of the six fish zones in Nepal.



Source: Economic Survey, Gandaki Province, 2023

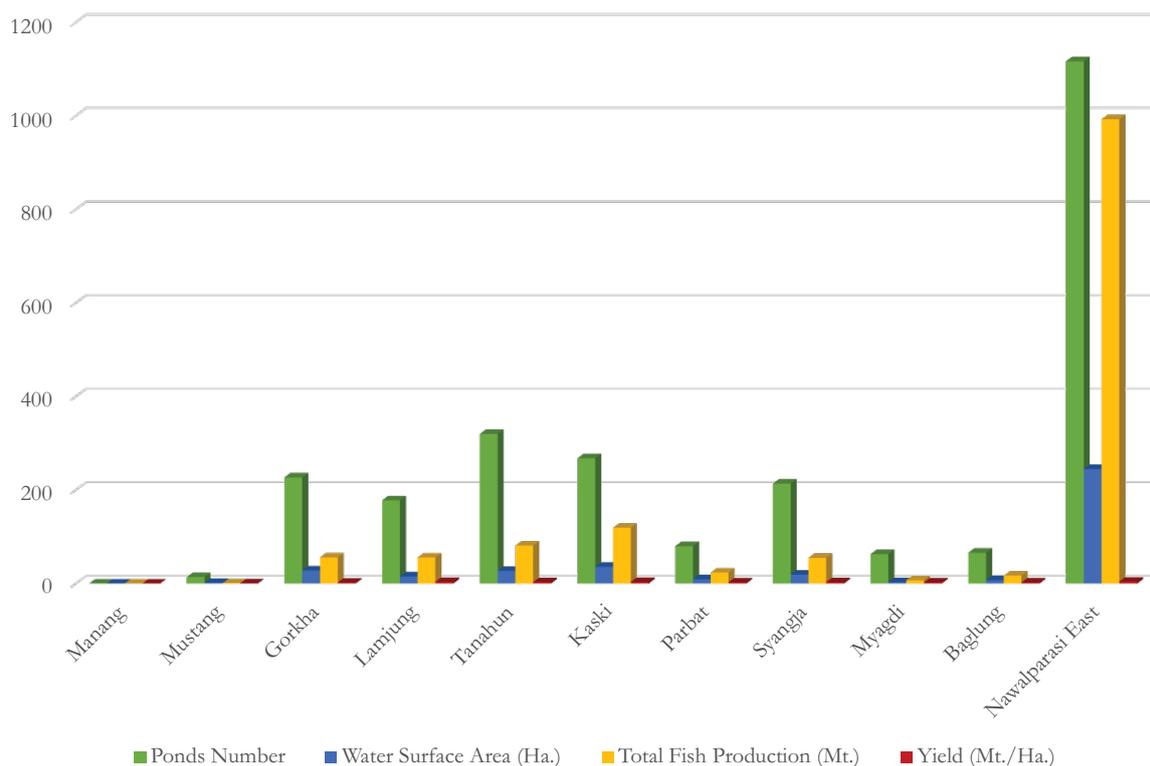
Figure 17: Annual Fish Production (Mt) in Gandaki over last five years

As Figure illustrates, fish production of Gandaki province is in an increasing trend compared to FY 2022/23 data. In the FY 2021/22, the province produced 4403 metric tons of fish, whereas, in the FY 2022/23, this figure dropped to 1638 metric tons⁶⁰. As can be observed, in FY 2023/24 the production of fish increased by 0.69%⁶¹. In the first semi-annual period of the FY 2023/24, district wise data reports the share of Kaski district in fish production is 82.90%⁶² percent. Due to the high demand for fish in Kaski district recently, it seems that businessmen are attracted towards it (NRB, Economic activity study, 2023).

⁶⁰ Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf (nrb.org.np)

⁶¹ Ibid.(2022/23)

⁶² Pokhara-Annual-Economic-Activity-Report-2080-FINAL_.pdf (nrb.org.np)



Source: Statistics of Fisheries and Aquaculture in Nepal, CFPCC, 2023

Figure 18: District wise Fish Production (2022/23)

As Figure illustrates, compared to other districts of Gandaki province, the most preferred district in terms of ponds' no., water surface area, total fish production and yield is Nawalparasi east. In the FY 2022/23, the district produced 993 metric tons of fish as well as 4.05⁶³ metric ton/ha of yield. But as per the annual progress report 2023/24 of the Prime Minister Agriculture Modernization Project (PMAMP), Gandaki province is not included in any of the six fish zones in Nepal. Though the aquatic resources are the base of fisheries development, at present the major aquatic resources of the province such as lakes, rivers, wetlands are under immense pressure from encroachment, pollution, water diversion, eutrophication, biodiversity loss, climate change, and over and over unwanted fishing etc. Due to these activities and lack of proper laws and regulations several native fish species have been lost from many aquatic ecosystems. Climate change has impacted and would further deteriorate the livelihood of poor ethnic fish dependent communities.

Challenges

- a) **Lack of sustainable fingerlings supply system:** Normally, fingerlings are produced by government fish farms and sold to private fish farms. The current fingerling farming doesn't produce an adequate amount of fingerlings and the quality of the produced fingerlings are not up to par with the industry standard.
- b) **Lack of infrastructures:** Cold storage facilities and marketing infrastructure, that play a significant role in the fish industry, are not abundantly present in Nepal. Nepal also has no fish-

⁶³ [Central Fisheries Promotion and Conservation Center \(cfpcc.gov.np\)](http://cfpcc.gov.np)

processing factory to produce meat from all the fish and lacks essential machinery and infrastructure.

- c) **Demand-supply gap:** The total production of fish today can only meet about 40% of the demand from the consumers and the majority of the fish sold in the local market comes from India. Due to lack of security check near the borders, it has given a passageway for importing harvested fish from India which has fulfilled most of the demand for fish in Nepal.
- d) **Lack of training and knowledge:** People involved in fisheries in Nepal don't have proper training and knowledge regarding this sector. Many workers have poor scientific knowledge of indigenous fish species and their awareness of the industry is limited.
- e) **Lacking sector wise up-to-date and accurate records:** Despite the technological advancements, data from the government relating to production, productivity, training programs held for farmers, provided subsidy related details and so on is not yet up-to-date, accurate and systematically shared in open formats and so it is not yet widely used by the range of people who could be supporting the government's efforts to grow the economy, reduce poverty and address inequality.
- f) **No fish-processing factory available:** Province also has no fish-processing factory to produce meat from all the fish and lacks essential machinery and infrastructure. So the fish market is low to be transported to other places for the fish and fish products to be sold.
- g) **Zero focus of provincial government in fish farming and upon needy fish farmers:** Farmers are in need of various forms of support but people outside the target group are profiting due to the irregularities in distribution of grants and subsidies.

Recommendations:

- a) **Commodities must get linked to agro-industry:** The importance of agro-industry to agricultural and broader economic development is immediately apparent. Agro-industrialization contributes to employment and increase in incomes for those whose livelihood is linked to the agro-food economy. It also has impacts on the quality, availability and price of food and non-food products. So provincial production of poultry must get linked to industry. Fish processed products such as dried fish, frozen fishes, canned and pickle must be manufactured and marketed at local and provincial level to make provinces self-sufficient in poultry meat.
- b) **Advertisement:** In order to make the province independent in poultry, meat, government television, radio must advertise in mass to intake fish meat which is cheaper than other meat in Nepal in order to meet the demand of protein uptake in the human body. Then only the provincial government focus will be on the poultry sector.
- c) **Geographical planning and zoning:** can assure that fishery production can be eco-friendly within the ecosystem's carrying capacity and can also help in sustainable conservation of the available resources.

About Pokhara Research Centre (PRC)

Pokhara Research Centre (PRC) is a research-based non-partisan organization based in Pokhara. Established in 2019, PRC focuses on socioeconomic dimensions of domestic public policy research.

Guided by the motto of "*Economic Freedom with Good Governance*", PRC is following the international principle of individual choice and liberty translated into the equal opportunity of enterprise, rule of law, and the democratic principle of free expression as a tool to design its programs and initiatives; creating positive impact at the province level, through policy reform; PRC works under three broad functional domains; Research, Training, and Advocacy.

PRC's one of flagship program Youth in Policy and Governance Fellowship Programme (YPG Fellowship) aims to train the youth of Gandaki Province in law-making and public policy. The primary role of a PPSF Fellow is to deliver extensive research support to their assigned MP for their parliamentary work. The organization is also focusing on other youth training programs on the free market, entrepreneurship, and economic freedom in the region supported by Atlas.

The organization's core values are; Creating public values, Evidence-based policy-making, and the investment approach to public service delivery. PRC intervenes in areas viz. Enterprise Development, Economic Policy Reform, Governance & Advocacy, and Public Policy Delivery.

The organization has launched programs such as Gandaki Discourse, Political Economic Discussion Series (PEDS), and Formation of Gandaki Leader Circle (GLC) dedicating it to establishing itself as a state-level policy think tank.

Further, PRC is the partner of Atlas Network, Centre for International Private Enterprise, National Endowment for Democracy, United States Embassy in Kathmandu, Samriddhi Foundation, Hriti Foundation, and Bikalpa an Alternative.



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