



Horti-tourism; an approach for strengthening farmers' economy in the post-covid situation

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ABSTRACT

Horti-tourism is one of the newest forms of agro-tourism in Nepal which precisely relates horticultural development with tourism. Different works of literature were thoroughly studied and SWOC analysis was done to reveal the strengths, weaknesses, opportunities, and challenges of horti-tourism in Nepal. Due to the Covid-19 pandemic, horticulture and tourism sectors were severely affected. Commercial horticultural farmers have to bear a great loss due to the imposition of lockdown in the country. Furthermore, there was a reduction of 80% international tourists in 2020, shrinking the country's economic growth rate to 0.2%. In this regard, there is a need for a promising approach that can revive these two sectors rapidly after the Covid-19 pandemic. Horti-tourism can be the sustainable approach to strengthen farmers' economy after the Covid-19 pandemic at an exponential rate. It avoids the problem of complete crop failure, solves market problems, and promotes rural development. Poverty, political instability, lack of infrastructures, and undulated land topography are some major challenges, and high initial investment, the requirement of huge human power, and land area are some of the weaknesses of this concept. For this, different models of horti-tourism should be developed and recommended according to the different geographical regions with the provision of subsidies for its wide adoption.

1. Introduction

Horti-tourism is a promising approach that combines horticulture and tourism in a commercial enterprise. This approach is entirely new in Nepal and also gaining momentum in other countries. It refers to visiting horticulture farms, i.e., fruit orchards, vegetable gardens, or flower gardens, for recreation, research, enjoyment, and/or involvement in cultivation practices like harvesting, planting, and so on [1]. Horti-tourism aims to develop orchards, nurseries, pocket areas, and farms to a new touristic destination with a dual aim of increasing economic benefits from horticulture and tourism from the same work field. Horti-tourism can also be referred to as "Entertainment Farming" which requires strong public relations and skills [1]. This approach arises due to the perception of urban people who get bored with their busy life, city pollution, and stress, and seek peace and enjoyment in a natural greenery environment. Furthermore, horticulture can be an important asset for luring domestic and international tourists subsequently leading to community development and economic upliftment of rural people [2].

The Novel Coronavirus (Covid-19) had been outbreaked in Wuhan, China in late December 2019 and then transmitted all over the world. The first wave of the coronavirus started in Nepal when a 31 years old student traveling from Wuhan to Kathmandu on 9th January tested positive on January 23, 2020 [3]. Lockdown was emphasized to check the spread of the pandemic on March 24, 2020, which came to end on July 21, 2020 [4]. Although, after a few months, the lockdown was over, the second wave hit the nation following the second lockdown on April 26, 2020 [5]. The global hit of the coronavirus not only had health impacts but also a serious economic crisis due to the lockdown that was emphasized to control the spread of the pandemic. Due to this lockdown, the agriculture and tourism sectors were severely affected. The tourism sector is one of the promising sectors contributing to about 7.9% of GDP and employing about 1.05 million economically active population of Nepal [6]. Tourism plays a significant role in the Nepalese economy. According to the Nepal tourism board, NRs. 81, 125, 746 thousand (724, 337 thousand USD) revenue was collected in 2019 [7]. With the onset of 2020, Nepal had planned to import the maximum number of tourists through the tourism campaign "Visit Nepal Year 2020". Nepal had an

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aim to welcome about two million international tourists by the end of 2020 [7]. But, with the sudden global hit of the Covid-19 virus, the campaign was postponed and almost every tourism sector was shut down. The number of international tourists visiting Nepal decreased by more than 80% in 2020, the lowest in 34 years [7]. Lockdown caused by the Covid-19 outbreak resulted large economic loss to the nation. The economic process of Nepal shrank to 0.2% in 2020 and is assumed to shrink by 0.6% in 2021 [8]. The pandemic has hit Nepal's economy deeply and growth figures are revised downward to 2.3% in 2019–20 and a projection of 1.5–2.5% is created for the fiscal year 2020–21 [9].

In this regard, there arises a necessity to bring out a new concept that can both promote the tourism, horticulture sectors and ultimately improve the economic condition of farmers at the same time after the Covid-19 pandemic. The main objective of the study is to develop the concept of horti-tourism, analyze its relevance after the Covid-19 pandemic and identify its prospects and challenges in Nepal. Furthermore, strategies to cope with those challenges will be suggested to flourish this new concept of horti-tourism in Nepal which will ultimately help to strengthen farmers' economy rapidly through its dual advantage in the post-covid situation.

2. Methodology

2.1. Data collection

Data were collected from both primary and secondary sources. For primary sources of data, phone calls and the personal visit were made with farmers practicing horti-tourism from Tikapur Municipality of Kailali district and Ruruksheeta Rural Municipality of Gulmi district of Nepal. Secondary sources of data were collected from different pieces of literature including journal articles, books, websites, and annual reports of governmental and non-governmental organizations to understand the concept of horti-tourism, its significance, and relevance in Nepal in the post-covid situation.

2.2. Data analysis

SWOC analysis was done to analyze the strength, weaknesses, opportunities, and challenges of horti-tourism in the context of Nepal. Furthermore, suitable solutions to overcome the challenges of horti-tourism were recommended through a critical analysis of the situation.

3. Results and discussion

3.1. History of fruit orchard development in Nepal

During the pre-Rana regime in around 1845 AD, the first fruit orchard was laid out by that time his Majesty King Rana Bahadur Shah [10, 11]. Mango, papaya, Banana, Guava, and Mandarin were planted at Seraphat of Nuwakot district and an orchard was established and named Sera Bagaincha [11]. Then, in the sixth five-year plan (1980–1985) the efforts were made to fruit development around road-accessible areas. The seventh five-year plan (1985–1990) focused on the plantation of fruit crops along with the road site and densely populated areas (Fruit development project, 2017). The data on major events for Fruit Orchard development from 2004 to the present are analyzed, tremendous progress has been made as shown in table no 1. Although a lot of progress was made, none of the policies focused on the development of orchards' as touristic destinations. The progress was solely based on the establishment of orchards focusing on crops production. Koshi Hill Rural Development Project (KHARDEP) 1981, Horticulture Development Project 1985, Hill Fruit Development Project 1987, and Karnali Bheri Integration Rural Development Project were some of the promising projects that played a significant role in fruit orchard establishment in Nepal [12].

3.2. Potential fruits orchards to develop into a tourist destination

Significance progress has been made and plenty of community-based (Table 2), public-based (Table 3), and private orchards (Table 4) have been established in several parts of the country within the past few

Table 1
Major events for Orchards establishment in Nepal.

S. N	Years		Activities
	IN	IN AD BS	
1	2004	1947	Initiation of horticulture development from the government sector with the establishment of Fruits nursery cum trial orchard at Chhawani, Godawari, and Balaju.
2	2005	1948	Horticulture farm established in Kakani
3	2008	1951	Horticulture Farm was established at Kakani and Godawari and subtropical fruits were planted in Kakani farm which was imported and planted with support from the USA.
4	2017	1960	Horticulture Development Program (2017–2030) was initiated with financial support from the Indian Government
5	2019	1962	Establishment of Horticulture Centre at Kirtipur, Trishuli, Baitadi, Daman.
6	2020	1963	Inauguration of Horticulture Centre of Pokhara.
7	2029	1972	Merged 5 Departments into single DoA; arrangement of 2 National Sections (Fruits and Vegetable development) and 2 National Programs- Citrus and Potato Development.
8	2038	1981	Started Special Sweet Orange Production Program in Sindhuli and Ramechhap, and started Fresh Vegetable and Vegetable Seed Production Project with the support of FAO.
9	2040	1983	Initiated Prioritized Citrus Development Program.
10	2042	1985	Declared Sindhuli and Ramechhap districts as Sweet orange area and declared 5 districts of the eastern region including Jhapa as Tea area. Initiated 1st phase of Horticulture Development Project (HDP) by JICA and establishment of Kalimati Fruits and Vegetables Wholesale Market.
11	2044	1987	Fruits Development Project was initiated in 11 districts in support of ADB.
12	2047	1990	Horticulture Development Section was established in 26 districts and promoted the development of 20 years' horticulture master plan for horticulture development.
13	2064	2007	Initiated Lime and Onion Mission Program.
14	2068	2011	Apple self-reliance program was initiated in 7 districts of the Hilly and Himalayan region; Manang, Mustang, Humla, Jumla, Dolpa, Mugu, and Kalikot.
15	2070	2013	Citrus orchard rejuvenation programs were initiated in 8 hilly districts; Dhading, Gorkha, Lamjung, Tanahu, Kaski, Syangja, Parbat and Myagdi
16	2073	2016	Initiation of Prime Minister Agriculture Modernization Project including horticultural crops such as potato, vegetable, citrus, etc (2016–2026 AD). Super Zones and Zones for different horticultural crops were identified- <ul style="list-style-type: none"> • Apple Super Zone (1): Jumla • Mandarin Zone (3): Syangja, Udaypur, Solukhumbu • Junar Zone (1): Sindhuli • Mango Zone (1): Saptari • Olive Zone (1): Bajura • Apple Block (8): Mustang, Manang, Humla, Mugu, Kalikot, Dolpa, Rukum, Bajura • Mandarin Block (8): Kaski, Dailekh, Baglung, Gulmi, Arghakhanchi, Parbat, Tanahun, Gorkha • Junar Block (1): Ramechhap • Kiwi fruit Block (1): Dolakha • Banana Block (1): Bardia
17	2076	2019 to present	Establishment of more than 500 commodity-specific cooperatives (Junar – 44, Tea – 109, Coffee – 146 Vegetable and Fruit – 202) and their Federations.

Source – [13,14].

Table 2

–Community-based orchards in Nepal. (NA – Not available).

S. N	Name of Orchard	Address	Area (Ropani)	Fruit species
1	Ichhakamana suntala utpadan keishak samuha	Jogimara-4, Dhading	175	Orange
2	Mankamana suntala utpadan krishak samuha	Nalang-5, Dhading		Orange
3	Mahalaxmi suntala utpadan krishak samuha	Mahaedvsthan-1, Dhading	100	Orange
4	Maidi falful utpadan krishak samuha	Maidi-1 and Maidi-2, Dhading	40	Litchi
5	Panchkanya krishak samuha	Kiranchowk-6, Dhading	40	Litchi
6	Pragatisil suntala bali krishak samuha	Be.Na.Pa-2, Lamjung	100	Orange
7	Lali Gurans Krishak samuha	Be.Na.Pa-2, Lamjung	100	Orange
8	Himali alaichi jadibudi krishi sahakari sanstha limited	Bajhaket-5, Lamjung	500	Cardamom
9	Kolhawatharu samudaya	Madhyabindu-1, Nawalparasi	6	Mango
10	Thotneri suntala jatutapadak bagaicha	Salija-9, Parbat	18	Orange
11	Sukhlahi	Madhupati-4,5,6, Saptari	NA	Mango
12	Baraha Okhar Garden	Baraha, Ghodabas, Dailekh	NA	Walnut
13	Danda Mango Bagaicha	Chupra, Dailekh	NA	Mango
14	Khadga bada Okhar Bagaicha	Khadgabada-2, Dailekh	NA	Walnut

Source – Upadhyaya et al., 2017

decades (see Table 1). More than 67 commercial fruits orchards in 37 districts of Nepal have the potential for developing into new touristic destinations aiding the economy of rural people and community development [11]. Orchards always have some extent of attraction for people aiding to better exposure about the existence of orchards. This has created the momentum of individuals in rural areas and has increased economic activities. The table no 2, 3 and 4 below are the list of fruit orchards having the potential to develop into a new touristic destination. Historical events for the establishment of orchard in Nepal is presented in the Table 1.

3.3. Impacts of covid-19 in horticulture and tourism sectors in Nepal

The productivity of fruits in Nepal was 9.7 metric tonnes per hectare in 2019 [15] with the production of 1,086,931 metric tons of fruit from 160,395 ha of land [15]. The production of horticultural crops has been assumed to have decreased in the year 2020–21 due to lack of fertilizers availability and nationwide lockdown. Closure of major vegetables and fruit markets during nationwide lockdown had resulted in deterioration of horticulture crops in the field subsequently leading to high economic losses (Personal survey, 2021). The vegetable demand inside and outside the valley decreased abruptly during the Covid-19 crisis [16]. As reported by the Kathmandu Post, farmers of Bajrabarahi village of Thaha municipality had to sell their vegetables at a minimum price as low as NRs. 5 rupees per kg [16]. Traders and wholesalers at the famous 'Kalimati Fruits and Vegetables Market' revealed that the price of vegetables had gone down by more than 50% due to the surge in supply [17]. Prasain [4] reported that vegetables such as cabbage, tomato, small brinjal, cauliflower local, bitter gourd, pointed gourd, bottle gourd, snake gourd, pumpkin, onion, okra, eggplant, and leafy greens have become cheaper and their price dropped to more than 50% during the crisis. This decline was seen as many hotels, bars that consume much of the production were shut down due to lockdown. Similarly, according to research conducted by CASA [18]; almost 70% of the vegetable markets/cooperatives that were surveyed reported sales decreased by over 50%. In the research, it was found that vegetable farmers were hit

Table 3

Public based Orchards in Nepal (NA – Not available).

S. N	Name of Orchard	Address	Area (Ropani)	Fruit species
1	Kalika Mandir Parisar	Baglung Municipality-1	5	Mango, Wood apple
2	Niray Ghat Falful Bagaicha	Baglung Municipality-1	3	Mango, Wood apple
3	Narayansthan	Narayansthan-2, Baglung	2	Mango
4	Devtal Pokhari Basbariya	Kachorwa-9, Bara	52.43	Mango (5 varieties) and Black plum (1 variety)
5	Ram Janaki Mandir Bagaicha	Mahendra Adarsha-4, Bara	NA	Mango and Litchi
6	Ranibas Mandir Bagaicha	Simraungaud-2, Bara	NA	Mango and Litchi
7	Siddeshwor Mandir	Kalaiya-6, Bara	NA	Mango and Litchi
8	Parbhas Bagaicha	Tansen Municipality-14, Palpa	10	Mango
9	Pantar Bagaicha	Hugi-4, Palpa	12	Mango
10	Satmule Suntala Bagaicha	Kughara-7, Parbat	7	Orange
11	Gunte Suntala Bagaicha	Salija-9, Parbat	20	Orange
12	Dhaulapara Suntala Bagaicha	Lekhfat, Parbat	12	Orange
13	Lapsi Bagaicha	Shankarpokhari, Parbat	10	Hog plum
14	Brabala Falful Bagaicha	Syafu-5, Brabal, Rasuwa	20	Apple, Peach, Plum, and walnut
15	Surnga	Kushala VDC, Saptari	NA	Mango
16	Gilling Apple Orchard	Ghiling village, Mustang	NA	Apple
17	Sepa Garden	Bhanu Municipality, Tanahun	NA	Mango
18	Uppalo Bhotewadar Garden	Bhotewadar, Sundarbazar Municipality, Lamjung	NA	Mango
19	Thati Mango Garden	Bichaur VDC, Lamjung	NA	Mango
20	Paudi Sundar Aap Bagaicha	Paudi, Sundar Bazar, Lamjung	NA	Mango
21	Katbhote Mango Garden	Malcha Kharka-3, Lamjung	NA	Mango
22	Bhuwane Mango Garden	Harmi-8, Gorkha	NA	Mango
23	Tinpiple Mango Garden	Rainaas Municipality-7, lamjung	NA	Mango
24	DhamiliKuwa Mango Orchard	Rainaas Municipality-3, Lamjung	NA	Mango
25	Garambesi Mango Orchard	Rainaas Municipality-4, Lamjung	NA	Mango
26	Bhimsen Mango Orchard	Gorkha	NA	Mango
27	Lahare Pipal Mango Orchard	Madhy Nepal Municipality9, Lamjung	NA	Mango
28	Kusunde Orchard	AlkataarRainaas Municipality-7, Lamjung	NA	Mango
29	Bhorletar Aap Bagaicha	Bhorletaar, Lamjung	NA	Mango
30	Malika Krishi Farm	Malika, Dailekh	NA	Mango and Mandarin
31	Bhimsen Thapa mango orchard	Namjung, Gorkha	NA	Mango

Source – Upadhyaya et al., 2017

Table 4
–Private orchards in Nepal.

S. N	Name of Orchard	Address	Area (Ropani)	Fruit Species
1	Farhan Ekwalkha	Shivpur, Harhawa, Kapilvastu	157.28	Mango, Jackfruit, Wood apple
2	Bhandara Krishna Dhawj Mango Orchard	Bhandara Madhyabindu-6, Nawalparasi	5	Mango
3	Yagya Subedi Kiwi Bagaicha	Lekfat-1,3, Parbat	10	Kiwi
4	Ratinga Kiwi Bagaicha	Lekfat-4,5, Parbat	5	Kiwi
5	Som Bahadur Tilija Kiwi Bagaicha	Baskharka – 9, Parbat	5	Kiwi
6	Kirpa Nidhan Tiwari	Bagaha-3, Rupendehi	6.67	Mango
7	Dhirendra Kumar Chaudhary	Shadsari-6, Kewataliya, Rupendehi	4.5	Mango
8	Chaudhari Aap Bagaicha	Shadsari-6, Kewataliya, Rupendehi	4.5	Mango
9	Sukhala Aap Bagaicha	Karauta-4, Chauri, Rupendehi	26.67	Mango
10	Kumri Aap Bagaicha	Aasuraina-3, Rupendehi	20	Mango
11	Sulka Aap Bagaicha	Farena-8, Juguna, Rupendehi	25	Mango
12	Showwarasi Mango Orchard	Raipur-2, Showwarasi, upendehi	13.3	Mango
13	Dr. Rajendra Regmi's orchard	Pashim Amuwa-8, Gorhaba, Rupendehi	16.67	Mango
14	Ram Janaki Mandir	Harniya-09, Visakhadar, Rupendehi	26.67	Mango
15	Ram Dhani Lodh	Manmateriya-8, Belhiwa, Rupendehi	2.5	Mango
16	Radheshyam Chaudhary's Orchard	Cho Ramnagar-6, Rupendehi	40	Mango
17	Bhadari Mango Orchard	Patkholi-5	26.67	Mango
18	Chaudhary Mango Orchard	Patkholi-5, Rupendehi	20	Mango
19	Ramachal Chaudhary	Patkholi-5, Rupendehi	20	Mango
20	Shrestha Aap Bagaicha	Siktahan-7, Rupendehi	4.5	Mango
21	Chaudhari Aap Bagaicha	Siktahan-7, Rupendehi	4.5	Mango
22	Pandey Aap Bagaicha	Mayardpur-5, Rupendehi	19	Mango
23	Banana Agro Farms	Tikapur, Kailali	133.31	Banana
24	Kailali Mango Garden	Tikapur, Kailali	50	Mango

Source – Upadhyaya et al., 2017

the hardest as more than two-thirds of the collection centres reported a decrease in collection volumes of over 50% [18]. According to Floriculture Association Nepal, 97% of total produced flowers were destroyed in farms and only 3% of produced flowers reached the market [19]. Further, a 65% decline in seasonal flower production was seen due to a lack of market and required inputs [19]. Further, drastic change in the production of fruits was seen due to a lack of inputs like fertilizers, pesticides, and the market. Table 5 revealed that the majority of the horticultural farms were closed or partially opened during the first and second lockdown.

In the case of the tourism sector, a total of 230,085 international tourists visited Nepal in the year 2020 which is the lowest in 34 years [7]. The number of tourists visiting Nepal decreased by 80.33% in 2018, and by 84.86% in 2020 compared to 2019 [7]. Massive cancellation of

Table 5
Status of horticultural farms (Fruit and Flower orchards) during first and second lockdown.

Date	Operational (%)	Partially operational (%)	Closed (%)
2077, Aashad (June 2020)	31.58	52.63	15.79
2077, Mangsir (November 2020)	63.64	33.33	3.04
2078 (2021)	89.3	3.6	7.1

Source –Nepal Rastra Bank, 2077, 2078. Source-[41]

tourist booking at stars and non-star hotels resulted in widespread unemployment and loss of income (Sha et al., 2020). Revenue generated from the tourism sector shrunk by 20.26% in 2018, and by 21.6% in 2020 than in 2019 [20]. Further, a loss of 85.2 billion USD per month has been estimated from the tourism sector due to the nationwide lockdown emphasized to control the pandemic [21].

3.4. Prospects of horti-tourism in Nepal

3.4.1. Labour availability after the post-covid situation

Most of the Nepalese working in India and Gulf countries have lost their jobs [22]. Some of them have returned to Nepal but are not able to go back abroad for work. The number of unemployed youths increased in the countryside creating a surplus supply of labor. This condition is not only of people engaged in foreign employment but also of those working in their home country as many industries, hotels, and shops were closed. During the first wave of the Covid-19 crisis, only 26% of workers were getting full payment and other workers were either partially paid or not paid at all [23]. During this time, only 4.05% of the economy was operating at its peak [23]. Moreover, by late April 2020, 41% of women and 28% of men had already lost their jobs, 38% of families were left without having any income earners [24]. A survey from Nepal Rastra Bank revealed that only 63.3% of firms were paying full salary to their workers while 25.5% of firms paid their workers partially or no payment at all during the crisis. In this regard, laborers are readily available at a low cost ensuring the scope of horti-tourism in Nepal.

3.4.2. Diverse agroclimatic conditions

With variability in agro-climatic conditions and geographical landscape, Nepal has comparative advantages over other countries for the better production of different horticultural crops. The climate of Nepal is divided into tropical and subtropical zones below 1200 m above sea level, the cool temperate zone between 1200 and 2400 m above sea level, the cold zone between 2400 and 3600 m above sea level, the subarctic climate zone between 3600 and 4000 m above sea level, and the arctic area above 4400 m above sea level [25]. This makes a perfect land for the production of varieties of horticultural crops. Nepal has been ranked 10th richest country on flowering plant diversity in Asia and 31st on the world scale [26]. Presence of 970 food value species, 577 cultivated species (484 indigenous and 93 introduced), 244 wild species of plant, and 30,000 species of crop landraces indicate the diversity of plant species in Nepal [27].

3.4.3. Potential pocket area for fruit crops

Thirty-seven districts of Nepal have the potentiality of developing commercial orchards of Citrus fruit, 12 districts Apple, 19 districts Mango, 19 districts litchi, 12 districts banana, 5 districts jackfruit, 8 districts papaya, 13 districts pear, and 10 districts coffee (Table 6) [15]. In this condition, horticulture farms of these districts can be developed into a new touristic destination to attract domestic and international tourists.

Table 6
Potential pocket area for different fruits in Nepal.

S. N	Fruit	District
1	Mandarin	Panchathar, Terhathum, Khotang, Dhankuta, Bhojpur, Kavre, Gorkha, Tanahun, Kaski, Syangja, Gulmi, Salyan, Dailekh, Ramechhap, Sindhuli.
2	Sweet orange	
3	Lime	Taplejung, Khotang.
4	Lemon	Khotang, Syanja.
5	Apple	Mustang, Dolpa, Mugu, Humla, Jumla, Kalikot.
6	Pear	Taplejung, Dhankuta, Khotang, Lalitpur, Kathmandu, Dhading, Syangja, Palpa.
7	Walnut	Jumla, Kalikot, Dolpa, Dailekh, Doti, Baitadi, Dadeldhura.
8	Peach	Taplejung, Ilam, Dhankuta, Sindhupalchowk, Ramechhap, Palpa, Syangja, Salyan, Arghkhanchi, Bajhang, Doti, Dadeldhura, Biatadi.
9	Plum	Lalitpur, Kathmandu, Rolpa, Dadeldhura.
10	Apricot	Ramechhap, Mustang, Jumla, Dadeldhunga.
11	Mango	Saptari, Siraha, Rautahat, Dhanusha, Mohattari, Sarlahi, Bara, Kapilbastu, Dang, Surkhet.
12	Banana	Jhapa, Morang, Saptari, Chitwan, Bardiya, Kailali, Rautahat, Rpandehi, Gorkha, Sunsari.
13	Guava	Jhapa, Khotang, Sindhuli, Rautahat, Kaski, Dhading, Kailali.
14	Papaya	Udayapur, Jhapa, Morang, Tanahun, Dang, Kanchanpur.
15	Pineapple	Jhapa, Makawanpur, Chitwan, Tanahun, Kaski.
16	Jackfruit	Khotang, Dhanusha, Tanahun, West Nawalparasi, Dang, Kailali, Rupandehi.
17	Litchi	Rautahat, Bara, Dhanusha, Sindhuli, Dhading, Sunsari, Rupandehi.
18	Acrocanut	Ilam, Jhapa, Morang, Sunsari.
19	Tea	Jhapa, Ilam, Panchathar, Dhankuta.
20	Coffee	Argakhanchi, Syangja, Palpa, Sindhupalchowk, Lamjung, Gulmi, Nuwakot, Kaski, Kavre, Parbat, Lalitpur.

Source– [28].

3.4.4. Slopy land in the majority

Nepal covers about 77% of its land with hills and mountains [29]. The majority of the land in hills is slopy which is unfit for agronomic crops. Such areas are rich in scenic beauty which can be utilized by establishing fruit orchards and developed as touristic destinations.

3.4.5. Diverse culture and ways of horticultural farming

Nepal is rich in diversified cultures and traditions. This is the key reason why many international tourists come to visit this country every year. Horti-tourism can be the viable approach to reflect the cultures and farming methods of the rural farmers. Thus, this cultural enrichment and indigenous methods of farming have widened the scope of horti-tourism in Nepal.

3.4.6. Increasing rate of urbanization

In this era of rapid urbanization and industrialization, people are bored of their hectic life. They want refreshment and to be in touch with nature. They love to visit agricultural fields and enjoy the greenery. They prefer self-harvest of horticultural commodities by visiting farmers' fields. In this regard, horti-tourism can be the only approach to fulfill this need.

3.5. Relevance of horti-tourism after the post-covid situation in Nepal

After the first and second waves of Covid-19, many farmers are trying to strengthen their economy again by the same old practice. During this lockdown, their horticultural commodities were destroyed in their field due to a lack of market facilities. Most of the farmers do not have access to storage facilities. If their products were not sold immediately after harvest, there would be a high chance of agricultural commodities getting damaged. Meanwhile, horticulture commodities were scarce in the urban area due to blockage in transportation. A gap was felt between producers and consumers. While talking about the tourism sector, it was also severely affected during the lockdown. In 2019, approximately 1.2

million international tourists visited Nepal. This represented a 2% increase in the numbers in 2018 when 1,173,072 tourists visited Nepal and spend about 44 US dollars per day [7]. Total revenue of 724 million US dollars was generated [7]. The average length of stay of tourists has increased in 2020, even though the number of arrivals has decreased due to coronavirus. Thus, there is a necessity of a little modification in the ongoing farming practice by linking it with tourism to strengthen the farmers and national economy at an exponential rate which was ruined by two waves of Covid-19.

3.6. Significance of horti-tourism in Nepal

3.6.1. Aid to the economy of farmers

In the context of Nepal, income from the agriculture sector is one of the crucial factors. Generally, fruit orchards start giving economic yield only after 4–5 years of establishment (Kutchi et al., 2017). In the case of a Mango orchard, this may range from 5 to 8 years [30]. This period between orchard establishment and fruit-bearing determines the time to achieve a breakeven point. If farmers invest all of their funds in this period and are left with no more funds for the management of the orchard it may lead to subsequent failure of the farm. Horti-tourism as a problem-solving concept can convert this null economic yielding period to a new source for income generation. Farmers are reported making a substantial amount of income through tickets sold for a farm visit in Rurukshetra Rural Municipality, Nepal (Personal Survey) thus, aiding the economy of farms. Furthermore, a farmer from Tikapur municipality has claimed to create quite 35 lakhs turn over annually, before pandemic from his Banana farm planted in around 10 big has (6.67 hectares) has of land adopting the concept of horti-tourism (Personal survey). Although he was unknown about the practice he was performing. This amount is 3 times over the typical income earned by other farmers from the identical location (Personal survey).

3.6.2. As a risk-mitigating factor

Mostly, the agriculture practiced in Nepal is subsistence type. About 75.9% of the total farmers engaged in farming, practice subsistence type of agriculture, and only a minority group 25.1% practice commercial farming [31]. Further, those who practice commercial farming depend only upon their final product or outcome for income generation. In this condition, a sudden pest or disease outbreak, in a farm can lead to huge loss and farm failure. As an alternative or a risk-mitigating factor, tourism can simultaneously be operated on the same farm. Due to this, economic loss due to the failure of the main crop can be reduced by income earned from the tourism sector on the same work field to some extent.

3.6.3. Rural development

Tourism in Nepal is the largest industry that generates large foreign currency [32]. Our tourists come in close contact with rural villages, their culture and enjoy indigenous practices [32]. Further, the population living in urban areas has increased by 3.81% in the last 10 years [33]. That means the rural areas are in the trend of being sparsely populated year after year. In this regard, rural development has been a matter of concern. Adoption of horti-tourism can serve as a means for attraction of both domestic and international tourists in the countryside. Thus, it will aid to uplift the living standard of rural people and ultimately, rural development by increasing the number of tourists visiting the countryside.

3.6.4. Upgrades farmers knowledge

Proper management and skills are the prerequisite for a farm to be converted into a new touristic destination. During this process, a farmer needs to understand the basic concept of horti-tourism, and the requisites for better farm establishment. From the orchards to horti-tourism, the farm must be constructed away from farm animals and crops (Kutchi et al., 2017). Construction of buildings/huts must be done with straw,

wood, and stones to create a rural environment (Kutchi et al., 2017). Furthermore, the orchard or farm must possess diversified varieties of crops and, flowers and turfing must have been done to add aesthetic value to farm or orchards (Kutchi et al., 2017). The need for all these requirements makes farmers more curious and develop new ideas.

3.6.5. Ensures market security

With almost 76.9% of the total land covered with mountains and hills, transportation has always been a hindrance to conveying the agricultural product from zone of production to zone of consumption/market with minimum delay and low cost. It requires a widespread transport network to take the product from farm to market [34]. Road transport is the only possible means of transportation of fruits in Nepal from the high hill and Himalayan region through the mid-hills to Terai. Even if the product reaches the market, wilting and other physical damage during transport causes them to generate low revenue. Horti-tourism can solve this problem to some extent as customers directly visit the farm for pleasure and refreshment. During their visit, they certainly would like to enjoy fresh fruits and vegetable juice. Stalls can be opened within the orchards and fresh fruits and vegetables are served to the customers/tourists.

3.6.6. Provides area for research and recreation

Requirement for better farm establishment and orchard management triggers research and recreational activities. This concept demands new crop varieties with better production capacity, improved flower cultivars with better flower color, shape, and superior size than the local one for attracting the eyes of visitors and creating a pleasant environment. In this regard, the development of new varieties of fruits, flowers, and vegetables is necessary. The requirement of all these necessities provides a platform for conducting research and recreational activities.

3.6.7. Address unemployment problem

If we analyze the data, the unemployment rate in Nepal is 4.4% in 2020 [35] and 25.2% of people live under the national poverty line [8]. Thirty-one percent of Nepalese people are at risk of falling into extreme poverty because of job losses, the collapse of the tourism industry, and decrease revenue due to the Covid-19 crisis [36]. Each year, due to poverty and loan, the suicidal rate of the people, especially farmers, is increasing in South-Asia including Nepal [32]. In this regard, horti-tourism can provide more employment opportunities as compared to the traditional horticulture system. The transformation of ordinary orchards into horti-tourism based farms requires more human power. In this regard, this approach can solve the unemployment problem to some extent.

3.6.8. Conservation of barren lands and promotion of the local destination

The transformation of barren terraces to commercial high-value fruit crops production orchards can avoid environmental degradation and improve the economic condition of rural people [37]. It was found that 49% of all khet land and 37% of all bari land are abandoned in the Sikles area, Gandaki Basin in Himalayan Nepal [38]. Further, 30% of the total land in Nepal is abandoned due to the rapid trend of migration of rural people from the village to town for settlement purposes [38]. This is quite a significant portion of land and if this process continues, Nepal will have to face severe food insecurity in nearby future. This barren land can be used for the establishment of horticultural orchards thus can solve the problem of abandoned land and at the same time can develop new touristic destinations. Furthermore, plantation on barren slopy land of a certain degree can prevent soil erosion and landslide.

3.7. Current status of horti-tourism in Nepal

Farmers in Nepal have been practicing horti-tourism knowingly or unknowingly. Many farmers have a misconception about horti-tourism as an agro-tourism which is very different in its concept and scope.

Majority of the established orchards in Nepal are production oriented and they have not incorporated any measures of recreational activities within them. Only a very few farmers in Nepal have developed themselves as a place for recreational activities and entertainment. Strawberry farm of Golyan group, Kathmandu is continuously practicing horti-tourism [39]. They charge NRs 100 as a farm visit and allow visitors to pick fresh strawberries by themselves (Phone call). Banana farmer in Tikapur-5, Kailali is also practicing horti-tourism, attracting domestic touristic (Personal visit). They have constructed huts with straw and woods which creates a pleasant rural environment feeling, serve banana dishes to their visitors and allow entrance free of cost.

4. SWOC analysis of horti-tourism

SWOC analysis presents the strengths, weaknesses, opportunities, and challenges of horti-tourism in the context of Nepal. Being a new approach, horti-tourism can face a lot of challenges in the beginning but at the same time provides several opportunities. Strength and weakness analyze internal factors whereas opportunity and challenges analyze external factors [40]. The SWOC analysis of horti tourism is presented in the Fig. 1.

5. Recommendation

For developing countries with limited resources, horti-tourism based industries can be a sustainable choice for exponentially increasing the farmers' income, protecting the environment, improving livelihood, and developing the rural areas. Based on the study, the following recommendations have been made to flourish horti-tourism based industries in Nepal.

- Government, as a matter of necessity, should adopt plans, policies, and strategies to make rural areas accessible to roadways and encourage commercialization in agriculture.
- Potential areas for the establishment of horti-tourism farms should be recommended by the government.
- Suitable models of horti-tourism should be developed in consideration of different geographical regions of the country.
- Strict legislation should be made and effectively implemented against fragmentation or plotting of cultivable land.
- Extension activities must be made wider and increased. Farmers must be facilitated with surplus information about the released varieties of fruits and vegetables that can produce better quality fruits, flowers and have better texture, shape, and foliage.
- Government must bring out new policies encouraging farmers to adopt horti-tourism based industries by providing subsidies, technical help before, during, and after the farm establishment.
- Government should implement specific acts and policies for fruit development (Fruit Nursery Policy, Orchard Establishment and Management Policy, Subsidy policy, Fruit development acts, Fruit Processing, Fruit Export, and Import Policies and so on)
- The government through its organizations must seek to encourage youths to invest in the horti-tourism sector by providing loans through microfinance, development, and commercial banks at low interest.

6. Conclusion

Horti-tourism is a new concept for Nepal with tremendous opportunities, scope, and challenges. It combines two commercial enterprises, horticulture and tourism, in a single field or location. The most important benefit from it is that it provides a dual advantage of tourism and horticulture to the farmers. The tourism sector is trying to revive after a long lockdown triggered by the Covid-19 pandemic. It may take several years to restore these two sectors as before the Covid-19 pandemic with the existing system of horticulture and tourism. In this regard, horti-

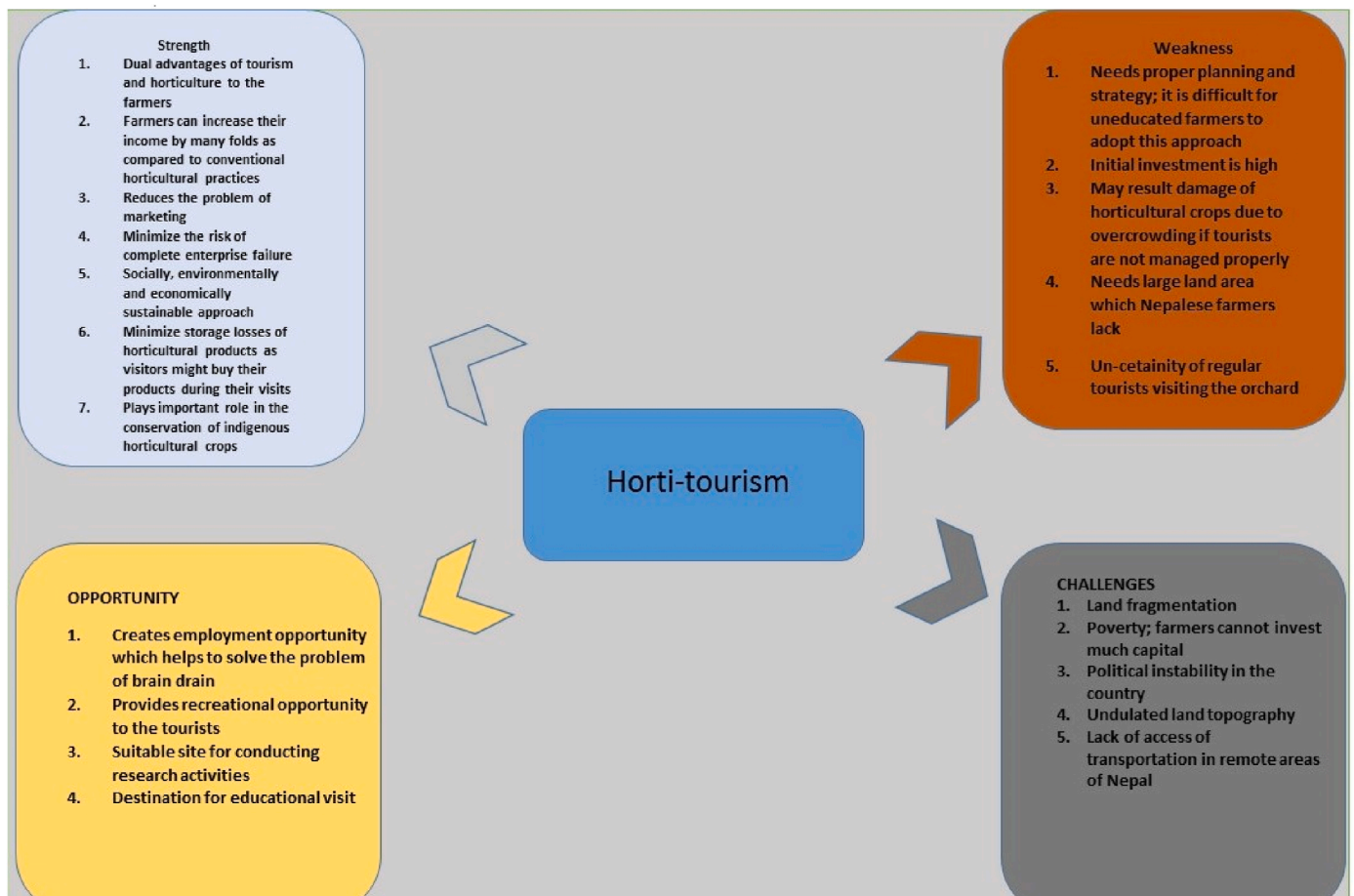


Fig. 1. SWOC analysis of Horti-tourism.

tourism can be the effective and sustainable approach to revive these two sectors after the Covid-19 pandemic, ultimately increasing farmers' income at an exponential rate. Sustainable economic growth can be achieved by the adoption of amalgamation between these two sectors. The non-productive null income yielding period of the first 4–5 years could be converted into a productive income-generating period of the orchard by the adoption of this concept. For this, Potential pocket areas identified by the Ministry of Agriculture and Livestock Development (MOALD), and other public, community and private-based orchards can be developed as new touristic destinations. Through this approach, we can utilize most of the barren and slopy land of the country. Major constraints for the adoption of horti-tourism include land fragmentation, research gap, poverty, political instability, undulated land topography, lack of policy development, lack of transportation, and other infrastructures in rural areas. These constraints need to be addressed for the establishment of horti-tourism related farms in a sustainable way in Nepal.

Declaration of competing interest

All the authors have made significant contribution to this paper and declared that there is no any conflict of interest.

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