Technical Assistance component of the Vegetables in Hilly Areas Project (a part of NAFHA Project)

Submitted to:
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Submitted by:
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1. Rational and approach:

1.1 Rational

1. Nepal is experiencing a rapid change in its farming systems, particularly in hilly areas that range between 500 to 3,000 meters (m) above sea level.[1] In these areas, agriculture still provides livelihoods to 66 percent of the population, but the share of agriculture in rural income was merely 11.4 percent in 2014–2015. Remittance has become the most important source of household income.[2] As outmigration from these areas continuously rises, about 30 percent of cultivated land has now been abandoned from farming. Furthermore, climate change is shifting crop cultivation regimes varied by altitude, and increasing diseases, insect pests and wet days.[3] Climate vulnerability index is highest in the West, Northwest, and Northeast with mountain regions in the Northwest having the lowest adaptation capacity.[4] A combination of land abandonment, outmigration, and climate vulnerability result in less livelihood options, further accelerating youth outmigration to urban areas and abroad.

2. The rural hills area of Nepal, include about one third of the country's population, has an average poverty head count rate ratio of 21 .5percent, above the national average of 25.2 percent. The Mid and Far-Western hills have Nepal's highest poverty count ratio of 36.8 percent.[5] Around 40 percent of Nepal's cultivated land is located in the hilly zones, predominantly arranged in terrace farming[14]. The associated integrated farming systems aim for farming household self-sufficiency, however, the majority of them do not achieve adequate production to feed their families during the whole year resulting in substantial seasonal labor movements to national urban areas and regional countries. Recently, emerging niches for specialized horticulture, milk and meat production are improving household income of households in hilly areas and reducing labor migration. Due to rapid urbanization of cities and towns in hilly regions in recent decades, there is growing demand for fresh vegetables, milk, meat, and fruits in the region. The importance of these farming systems in maintaining and improving rural livelihoods has grown exponentially since the occurrence of COVID-19.[6]

3. Nepalese agriculture sector productivity remains low though there is high potentiality of diverse ecology with niche micro-climates for different species of fruit and vegetables. There are more than 200 species of fruit and vegetable edible species with commercial potentiality. So far, there are only 39 varieties of 32 vegetable crops released for commercial farming. The horticulture sector research is very weak but there is tremendous scope for research and development. The main reasons for low productivity and commercialization are due to (i) land fragmentation in small parcels and limited access to land (ii) weak research and extension services (III) lack of quality inputs and timely unavailability (iv) difficulty in financial access (v) lack of irrigation facilities and (vi) scattered small scale of production and (vii) lack of market facilities.

4. There is strong gap in knowledge and practices related to consumption of nutritious foods. Households do not grow enough vegetable in some seasons – like summer, early monsoon, and winter seasons – making underconsumption of vegetables in these seasons.

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[1] Nepal has five physiographic regions such as the Terai (below 500 m), Lower Hills (500–1,000 m), Middle Mountains (1,000–3,000 m), High Mountains (3,000–5,000,m) and High Himalaya (above 5,000,m); ADB. 2015. *Country Environment Note: Nepal*. Manila. The project generally targets the Lower Hills and Middle Mountains areas, i.e. between 1,000-3,000 m.

[2] Government of Nepal. 2019. Ministry of Finance. *Economic Survey 2018–2019*. Kathmandu.

[3] Government of Nepal. Ministry of Forests and Environment. 2019. *Climate Change Scenarios for Nepal*. National Adaptation Plan. Kathmandu.

[4] Climate change assessment (accessible from the list of linked documents in Appendix 2).

[5] Horticulture in the Food and Nutrition System of Nepalese Economy. Indra Raj Pandey, CEAPRED

[6] Commercial Agriculture for Smallholders and Business (CASA) Nepal Country Team. April 202

Various constraints contribute to underconsumption of vegetables during out-of-season. Lack of knowledge about the vegetables/varieties and their cultivation practice is one of the main reasons in rural areas. Farmers lack knowledge as well as seeds/planting materials for alternative vegetables that can be produced and consumed in these seasons. Likewise, the price of fresh vegetables in these seasons are often very high limiting the affordability of poor consumers.

5. Nepal is very rich in local agro-biodiversity which used to be an essential part of the country's food system. However, due to opening of the market and exposure to outside world combined with increased purchasing power of people (especially from increased remittance income) the role of local nutritious food items has diminished. There are challenges at both demand and supply side. Consumers seem to be more attracted to few grains (rice, wheat) and/or processed food, mainly due to the impact of modernization and globalization. At the same time, farmers have reduced growing those nutritious grains like millets, barley, buckwheat, and local vegetables (like Amaranthus) because of limited competitiveness of these crops. The local people and subsistence farmers – who are both grower and consumer – are also selling their nutritious grains and buying easy-to-prepare readymade foods. This is an emerging challenge for ensuring nutritional security in rural areas.

6. Absentee population reflects the migration situation of the particular area. The average absentee population of Nepal is about 6.8 percent. Western hill has the highest absentee population of 14.1 percent followed by Far western hill 9.2 percent and western terai 8.1 percent. District wise, Gulmi, Arghakhachi and Syangja districts have the highest absentee population of 17.3 percent, 16.8 percent, and 14.9 percent respectively.[7] Different studies reported that the underutilization and abandonment of farmland was found higher in-migrant households than nonimmigrant households which subsequently decreased availability of agricultural labor. On the other hand, the increasing trend of land holding numbers (Table 1) and decreasing trend of average land holding size from 0.96 ha to 0.68 ha in three decades discouraged the active farming system in Nepal. Land fragmentation and labor unavailability both have negative impact on active farming system of economic scale of production and it ultimately promoted the fallow land. Promotion of market-oriented vegetable production could be one enterprise which can reduce the land fallowing and labor migration in rural area.

Table 1: Trend of land holdings and parcel size[8]

Holding Size/Numbers	Year		
	1991	2001/02	2011/12
Number of Land Holding (million)	2.7	3.3	3.7
Average Holding Size (hectare)	0.96	0.8	0.68
Number of Parcels (million)	10.8	10.98	12.09
Average Parcels per holding	4	3.3	3.2
Average parcel size (hectare)	0.24	0.24	0.21

7. Horticulture development is recognized as a profitable and women-friendly business and has the potential for retaining younger people in rural areas. The Ministry of Agriculture and Livestock Development (MoALD) announced a ten-year vision of horticulture production and productivity increment in 2017. As a mountainous country, hill areas occupy about 68percent and suitable for different fruits and vegetable production all year-round due to

[7] CBS, 2011
[8] CBS, 2014; MoALD, 2021

diverse climate and niche pockets. The Terai area is suitable for cereal and pulses with irrigation facilities, so the vision focuses on hills for fruit and vegetables production.

8. The effective exploration of Nepal's horticulture potential has been constrained by a wide range of factors including: (i) lack of business and marketing channel; (ii) high post-harvest losses—up to 40 percent of production—due to poor quality planting materials, poor post-harvest management techniques and inadequate equipment and infrastructure for grading, packaging, and climate-controlled storage; (iii) limited access to loans, particularly the medium term loans required for horticulture production, due to complex loan acquisition and collateral valuation processes; (iv) shortage and high cost of seasonal labor; and (v) steadily declining farm productivity by 20 percent over the last 15 years.[9]

9. The declining fruit and nut crop productivity has led to Nepal's orchard productivity failing below the world average in 2017 (footnote 5). This is a result of: (i) poor quality planting materials in the absence of nursery regulations such as Nursery Act; (ii) old and senile orchards with limited use of machinery; (iii) small landholding farms, characterized by land fragmentation, with an average size of 0.6 ha; (iv) limited water storage in hilly areas preventing year-round farming; and (v) lack of resilient varieties to climate change induced diseases. Also, female farmers in hilly areas are more likely to face a lack of equitable access to, and control over, productive resources such as land, credit, and technology.[10]

10. Yet, there are new opportunities emerging for farmers in hilly areas. Nepal's diverse agro-climatic conditions and geophysical locations provide a wide range of opportunities for tropical, sub-tropical and temperate fruit and nut production. Between 2008–2018, both the total area and the volume of fruit production has increased by more than 70 percent.[4] Still, domestic fruit and nut supply is not meeting the fast-growing demand. Fruit and nut demand in Nepal is increasing because of urbanization, rising national wealth, improved knowledge of nutrition and increased tourist flow. Between 2013–2017, nut importation rose by 43 percent and apple importation rose by 260 percent. This resulted in a 136 percent increase in the cost of fruit, nut, and potato importation during the same period.[5]

11. Higher profits from commercial fruit and nut farming could help retain the younger population. It also offers income generation opportunities for women who are heading households after male outmigration and are disadvantaged in finding off-farm employment. Engagement of women and excluded and vulnerable groups in less labor-intensive horticulture production, marketing, and processing could help them be economically empowered and socially recognized in the household decision-making process. Through supporting fruit and nut farmers, the project will help the country to meet the horticulture demand, and increase hilly area farmers' income, employment opportunities and climate resilience.

12. Coronavirus disease 2019 (COVID-19) has taken a heavy toll on Nepal's economy through a decline in tourism, domestic activity, and volatile remittances.[11] The gross domestic product contracted by 2.1 percent in Fiscal Year (FY) 2019/20 and severe food insecurity has almost doubled from 19 percent to 35percent of households during the second wave of infections, from April and July 2021.[12] Households are experiencing an ongoing shock to income and social assistance programs, causing a likely setback to poverty alleviation gains in recent years. This is further challenged by recent economic shocks and global food crisis mainly manifested through increased food price. Supporting farmers to switch from

[9] Government of Nepal. Nepal Fruit Development Center. 2017. *Nepal: Fruit Development Project 2017*. Kathmandu. Productivity is measured as crop weight per unit area.

[10] Food and Agriculture Organization of the United Nations. 2019. *Country Gender Assessment of Agriculture and Rural Sector in Nepal*. Kathmandu.

[11] International Monetary Fund. *IMF Press Release No. 22/6*. 13 January 2022.

[12] World Vision. 2021. Multi-sectoral impact of the COVID-19 second wave in Nepal 2021: Key findings from a rapid assessment/household survey, Lalitpur.

subsistence farming to commercial farming and diversifying hilly area residents' income sources will enhance resilience of these vulnerable people's livelihoods.

13. In this context, the Government of Nepal, and Asian Development Bank (ADB) designed the Nuts and Fruits in Hilly Areas (NAFHA) Project which was approved by the ADB Board on 12 September 2022.[13] The project will increase agricultural income of approximately 40,000 farm households in 100 municipalities in hilly areas of five provinces: Province 1, Bagmati, Gandaki, Karnali and Sudurpashchim located along the Mid-hill highway and its north-south feeder roads. This will be mainly achieved through the development of approximately 10,000 hectares (ha) of climate resilient fruit and nut orchards providing value-addition to the nuts and fruits produced by at least 30,000 farm households. The project will also improve the institutional capacity for managing the nursery and horticulture sector. The project – Vegetables in Hilly Areas has been aligned with the ADB-financed[14] NAFHA project. While the NAFHA targets farmers owning more than 4 ropani (0.2 ha)[15] of agriculture land to enhance commercial farming in the hilly areas, the GAFSP investment will support a significant number of poor households in the same target municipalities who have land holdings of less than 4 ropani and lack financial resources for fruit and nut orchard development. The GAFSP investment's main approach is to increase income of smallholders with less than 4 ropani so that they become capable to invest in fruit and nut orchard development, and to offer job opportunities for poorer and marginalized communities strengthening the COVID-19-disrupted local economy.

14. Technically fruit farming /orchard require larger land areas compared to growing vegetable. Mid and high hills are suitable for different vegetables like beans, cucurbits, tomato, cauliflower, cabbage, capsicum, brinjal, okra and leafy vegetables grown in open field during spring-summer season, which can be utilized as an off-season produce in terai and foot hill's densely populated areas. Moreover, the climate in hilly region is never extreme hence it allows growing many of these vegetables out-of-season as well with some changes in varieties or production technologies. There are also preliminary protected horticulture commercial practices in summer and winter vegetables using local materials like bamboo and plastic tunnels and houses around semi urban markets of district headquarters and densely populated areas. The earning from commercial vegetable is reported around NPR 15,000-20,000 per ropani (US$ 2300-3000/ha).

15. Government of Nepal has been investing large amount of budget on National School Meals Programme (NSMP), which provides cash support to public schools for providing mid-day meal to children from basic levels. Government has encouraged home grown school feeding modality (HGSF) which includes providing cooked mid-day meal to children by purchasing local agricultural products. This programme has created a small but durable local demand for agricultural products (food grain, vegetable, milk, meat, fruit etc.) in schools, which is suitable for the small surplus of smallholder farmers in rural areas. However, due to lack of strong linkage between the agricultural extension system and NSMP, such a huge investment from government (as accounting to NPR 8.73 billion in FY 2078/79 allocated to school meal programme) are spent on in unhealthy and packaged instant foods (like biscuits, noodles). The cash transferred schools found in rural areas could be utilizing for generating an additional income to the community through creating market from supplying their products to schools. There is an opportunity to link the smallholder women farmers / farmer groups to schools running cash-based school meal programme so that schools purchase the surplus from nearby farmer groups, which can also promote consumption of healthy and safe foods for children. At the same time, smallholder farmers have access to a durable market/localized value chain. WFP has

[13] https://www.adb.org/projects/48218-006/main
[14] Including a $60 million of ADB concessionary finance and an ADB ADF-13 grant of $10 million
[15] 1 hectare land = 19.66 ropani (local unit for measurement of land)

successfully piloted this model of HGSF in different parts of Nepal with promising results giving mutual benefits for both schools/children (in terms of nutrition and human capital development) and farmers (in terms of income and market linkage).

16. In this context, the smallholder farmers with less than 4 ropani (0.2 ha) who are unable to invest in commercial fruit and nut orchard development under the ADB financed component of NAFHA project will be supported for irrigated seasonal and off-season vegetables and wet season nutritious food crop production with the grant support of GAFSP.

17. Policy framework and institutional capacity: the Government of Nepal's Fifteenth Plan 2019–2024 aims to increase the production and productivity of the agriculture sector, and to enhance the sector's commercialization and competitiveness.[16] The Agriculture Development Strategy 2015–2025 highlights governance, productivity, commercialization, and competitiveness as four pillars of agricultural development.[17] Also, the government declared the years 2016 to 2026 as the Fruit Decade to revive hill agriculture and fill the gap between domestic fruit and nut demand and supply.[18] Under this initiative, the National Center for Fruit Development (NCFD) established a target to increase fruit production in Nepal by 300 percent over a 20-year timeframe. After Nepal restructured into a federal republic in 2015, the division of roles across central, provincial, and local levels for the horticulture sector development is yet to be defined. Staff shortages and insufficient capacity are common challenges, and there is room to improve the coordination among the federal, provincial, and local governments.

18. Alignment with Agriculture Development Strategy (ADS) and Sustainable Development Goal: the project is aligned with Strategy 2030 through its focus on: (i) addressing remaining poverty and reducing inequalities; (ii) accelerating progress in gender equality; (iii) tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; (iv) promoting rural development and food security; and (v) strengthening governance and institutional capacity. The project directly supports *Sustainable Development Goal (SDG) 1. No Poverty* through increasing investment in agricultural research, extension services and technology development; *Goal 2. Zero hunger* through increasing agricultural productivity and income of small-scale food producers, ensuing sustainable and resilient agriculture practices, and maintaining genetic diversity of seedlings; *Goal 5. Gender equality* through training of women leadership and supporting to establish women farmers' network*; Goal 8. Decent work and economic growth* through investments in energy-saving and climate resilient post-harvest infrastructure*; Goal 10. Reduced inequalities* through supporting marginal smallholders, who are unable to invest in commercial fruit and nut farming, to generate income from vegetable production*;* and *Goal 13. Climate action* through climate research, farmer training on adaptation and enhanced value chain facilities against increased climate risks of higher temperature and more wet days.

19. The Project Design Document of the WFP-led Technical Assistance (TA) component of the GAFSP-approved project – Vegetables in Hilly Areas has been prepared by piggybacking the sectoral assessments carried out by ADB for the purpose of designing overall NAFHA project including the GAFSP funded components. The key assessments include - Economic and Financial Analyses[19], Climate Change Assessment[20], Initial Environmental

[16] Government of Nepal. National Planning Commission. 2020. *The Fifteenth Plan: Fiscal Year 2019/20–2023/24*. Kathmandu.
[17] Government of Nepal. Ministry of Agricultural Development. 2016. *Agricultural Development Strategy 2015 to 2035*. Kathmandu.
[18] Government of Nepal. Ministry of Agricultural Development. 2017. *Nepal: Fruit Development Project. Volume 1: Final Main Report*. Kathmandu.
[19] https://www.adb.org/sites/default/files/linked-documents/48218-006-efa.pdf
[20] https://www.adb.org/sites/default/files/linked-documents/48218-006-cca.pdf

Examination[21], Climate Risk and Adaptation Assessment[22], and Detailed Poverty and Social Assessment[23]. In addition, since the TA component is complementary to the GAFSP component inbuilt in the NAFHA project, the TA project design document is prepared based on the NAFHA Project Document (Report and Recommendation of the President to the Board of Directors)[24], NAFHA Project Administration Manual[25] and GAFSP-approved project proposal of the Vegetables in Hilly Areas of Nepal[26].

1.2 Project Implementation Approach/Modality

20. The project aims to bring about following impacts: (i) livelihoods of rural households improved, and (ii) resilience of farmers to climate change improved. The project will have the following outcome: beneficiary farmers' agricultural income from climate resilient horticulture farming increased.[27]This will be achieved through improved nursery management, enhanced production and productivity in orchards, enhanced value addition and commercialization of fruits and nuts, and supporting marginal or micro smallholders in the same project areas, who would not have been able to invest in commercial fruit and nut farming, to generate income and food security through vegetable and nutritious crop farming.

21. The GAFSP grant is divided into two components:
    a. GAFSP will provide grant co-financing of US$9 million for the Government of Nepal to be administered by ADB. The fund will be invested to finance facilities and grants to approximately 10,000 farming households in the following activities supporting promotion of vegetable growing in households who have less than 0.2 ha of land: (i) vegetable grower identification and their capacity building through farmer group formation; (ii) extension of drip irrigation and rural financing support for vegetable and other crop production in 1,000 ha; and (iii) partial grants for the establishment of vegetable value-addition equipment and infrastructure at three different levels—cooperative, local and agribusiness levels.
    b. GAFSP will provide parallel collaborative co-financing of US$3 million for the Government of Nepal on a grant basis, to be administered by World Food Programme (WFP), for providing technical assistance support to the GAFSP funded component of the NAFHA.

22. The WFP's component will complement the project by providing technical assistance in increasing production and productivity of vegetables and improving the food production and consumption habits of people through the establishment of group-level Farmer Nutrition Schools (FNS) that will enable villages to increase productivity and year-round production of nutritious and diverse food (vegetables and nutritious grains) from farmers' fields focusing on filling the gaps in off-season vegetable consumption; promoting consumption of diverse and nutritional food intake through establishment of home gardens; linking to community schools implementing cash-based school meal programme to farmer groups supplying nutritious grains and vegetables through home grown school feeding approach. The TA component will also improve knowledge and practices of household food consumption including food processing and preservation, water, sanitation, and hygiene (WASH), infant and young children feeding, prevention of in-door air pollution, and maternal care and nutrition and removing food-consumption related traditional malpractice and discriminations. Finally, the WFP's TA component will also support for the effective

[21] https://www.adb.org/sites/default/files/linked-documents/48218-006-ieeab.pdf
[22] https://www.adb.org/sites/default/files/linked-documents/48218-006-sd-08.pdf
[23] https://www.adb.org/sites/default/files/linked-documents/48218-006-sd-10.pdf
[24] https://www.adb.org/sites/default/files/project-documents/48218/48218-006-rrp-en.pdf
[25] https://www.adb.org/projects/documents/nep-48218-006-pam
[26] https://www.gafspfund.org/projects/vegetables-hilly-areas-project
[27] The design and monitoring framework is in Appendix 3.

planning, technical backstopping and monitoring and evaluation of the GAFSP grant being provided by ADB, as requested by NAFHA team.

2. Project Description

2.1 Project area and target group

23. The overall NAFHA project will increase agricultural income of approximately 40,000 beneficiary farm households in 100 municipalities in hilly areas of Province 1, Bagmati, Gandaki, Karnali, and Surdurpaschim (the list of project target 100 municipalities is provided in annex 1). This will be achieved through: (i) the development of approximately 10,000 hectares (ha) of fruit and nut orchard development, value-addition to nuts and fruits produced by 30,000 households, and institutional capacity building for nursery and horticulture sector management; and (ii) vegetable and other nutritious crop production in 1,000 ha and its marketing by 10,000 smallholder households who are not capable of investing in fruit and nut orchard development in the project provinces supported by GAFSP grant. NAFHA selected these areas of Nepal to address: (i) an increasing gap between horticulture demand and supply, resulting in growing dependence on imports and subsequent rise in prices; (ii) smallholder farmers in hilly areas who are growingly dependent on remittances; and (iii) growing opportunities to develop horticulture sector in the country.

24. WFP's technical assistance will cover all the 100 target municipalities selected from 5 provinces. Altogether, WFP's technical assistance will benefit to 10,000 smallholder households having less than 0.2 ha of land. The NAFHA project has investment plans for smallholder farming households to increase vegetable and other nutritious crops production through the GAFSP grant. WFP is responsible for providing technical assistance to these beneficiaries. The estimated areas of vegetables and nutritious crops by province where WFP will provide technical support is presented in Table 2.

25. For selection of project sites, NAFHA project analyzed the suitability of agroclimatic zones for high value fruits and nuts such as apple, citrus, kiwi, walnut, and emerging commodities such as avocado, almond, macadamia, and pecan, which are seeing increasing demand from domestic markets. Vegetable crops are an integral part of the hill farming system; many farmers are diversifying the cropping pattern with different vegetable crops. Therefore, the agroclimatic condition and geophysical locations are also suitable for different indigenous and exotic vegetables. It is estimated that over 3.2 million households are cultivating vegetables, of which 17 percent are headed by women.[28] Due to diverse agro climatic condition across the sites, there is also potential for growing seasonal vegetable in one region which will be out-of-season in other areas and nearby cities which will create favorable market opportunities to the farmers growing the vegetables.

Table 2: Target number of districts, municipalities, and target area in the target provinces

Province	No. of Districts	No. of Municipalities	Fruit Orchard Area (ha)	Vegetable and nutritious crop farm area (ha)
Province-1	7	22	2200	220
Bagmati	3	8	1150	80
Gandaki	10	34	2500	340
Karnali	9	20	2600	200

[28] Vegetable Sector Strategy-Nepal, CASA Nepal, 2020

Sudurpaschim	5	16	1550	160
Total	34	100	10000	1000

Source: NAFHA estimates.

26. The GAFSP grant will be used to fund the smallholder farmers with less than 0.2 ha who are unable to invest in commercial fruit and nut orchard development. They will also be the target group this project to support and provide them with access to irrigated seasonal and out-of-season vegetables and lean season nutritious food crop production. At least 60percent of household representatives for project implementation will be women and 30percent will be ethnic people.

27. Vegetable and nutrition-dense/nutritious crop[29] will be promoted in 1,000 ha with the project support for vegetable grower identification and capacity building in production and nutrition, extension education, irrigation, rural financing and value addition equipment and infrastructures. The GAFSP component of the project will work with 400 farmers groups who will be involved in the small-scale vegetable production from the same 100 municipalities where the fruit development supports will be provided.

28. WFP will target the same 400 farmers groups where the GAFSP component of the NAFHA (vegetable and other nutritious crops production) supports will be provided. WFP will organize the Farmer Nutrition Schools (FNS) by targeting women farmers and farmers groups to provide technical knowledge and skills for production and consumption of out-of-season vegetable and nutritious crops. Likewise, WFP will also support households to increase availability of nutritious foods and train women/food preparators on good consumption behavior and provide social; and behavioral change communication (SBCC) to women and older people who influence cultural beliefs, particularly concerning food and other taboos related to pregnant women and infant children. For selected households, particularly land poor and socially marginalized groups (e.g., Dalits), the project will also provide support for increasing production and consumption of animal-based diets such as eggs and meat. WFP will work with Department of Food Technology and Quality Control (DFTQC) to analyze the nutritious values of vegetables, fruits, and local nutritious crops and uses them to develop technical inputs for ICT-based information-sharing platforms which will be developed by NAFHA. In addition to these, WFP's TA component will include activities for capacity development of NAFHA staffs, and government's staffs on FNS approach; and WFP will also support in organizing annual review, planning and evaluation meetings, technical discussions, and workshops on FNS modality and multi-stakeholder joint monitoring visits for the project.

29. Gender Equality Social Inclusion (GESI) Action Plan: The WFP's technical assistance component will strictly implement the GESI Action Plan of the NAFHA project. The GAFSP/NAFHA project has comprehensive strategies with a focus to promote women's and disadvantaged groups' (DAG) including indigenous people's empowerment, participation, and inclusion through the project's GESI action plan. The project will adopt a GESI responsive strategy which are derived from the four pillars of GESI and cut across all the project's technical output areas. The four pillars are i) equitable and meaningful participation of women and DAGs in all agro-sector processes; ii) enhanced access and control over resources and decision-making processes; iii) empowerment and organization of DAGs to develop collective voice and agency to engage in dialogues for equitable access and benefit sharing; and iv) capacity building to address structural barriers and power

[29] The nutritious crops refer to locally produced nutrition-dense crops i.e. millet, buckwheat, Amaranthus, Fox-tail millet, beans etc.

relations in agriculture stemming from gender norms. The WFP's technical assistance support will also ensure that these four pillars are implemented over the programme cycle.

30. Empowerment of women and girls: the GAFSP/NAFHA GESI Action Plan will have multiple output indicators targeting women and disadvantaged group results including: (i) minimum women's participation in project supported nut and fruit (30percent), and vegetable (60percent) production; (ii) at least 30percent of project matching grant supported cooperatives, and commercial enterprises under female leadership; (iii) 33 percent of Farmer to Farmer (F2F) extension advisers are women; (iv) at least 300 female farmer sub-groups across the approximately 700 project supported farmer groups; and (v) five province-level women's sub-group networks formed and strengthened. WFP's technical assistance component will be aligned with all these output targets – including i) at least 60 percent of beneficiaries of FNS are women, ii) at least 250 female farmer sub-groups across 400 farmers groups where WFP's technical support will be extended. Specific gender targeted project activities include:

    - ✓ Gender Equality and Social Inclusion Action Plan integrated to the GESI plan of NAFHA with quarterly progress reports on its implementation
    - ✓ Gender specific training needs assessments regarding FNS
    - ✓ Gendered orientation of all training materials and training programs, including the timing of their delivery, and separate women's training programs where preferred
    - ✓ Women-headed households, persons with disabilities and socio-economically marginalized households prioritized for support.

31. Climate resilient approach: The NAFHA project is categorized as B for environment based on the due diligence and environmental assessment of ADB. The project has prepared an Initial Environmental Examination (IEE) for the project-financed components such as (i) orchard and vegetable areas development, (ii) drip irrigation development, iii) improvement of horticulture center facilities and (iv) private nursery upgrading and interventions under the matching grant. Environmental management plan (EMP) for each component is prepared in the IEE. These EMPs outline measures to mitigate all anticipated environment impacts during pre-construction, construction, and operation stages such as localized soil disturbance and moderate workers' health and safety risks.[30] During project implementation, beneficial environmental impacts are expected at the target orchard and vegetable farm areas such as improvement of land-cover, creation of carbon sinks and soil-water conservation.

32. WFP's technical assistance will promote and contribute to climate change adaptation in the agriculture sector. Since climate change impacts have increased the off-season period (because of increased dry days/drought causing water scarcity for irrigation) in hill regions, promoting out-of-season vegetable and nutritious crops is itself a key adaptation intervention for food and nutrition security. In addition, WFP will train smallholder farmers for adoption of climate-resilient agricultural technologies and practices in FNSs. A strong focus will be provided to identify the vegetables and nutritious crops which can fill the nutrition gap during off-season. Some of the local nutritious crops (millet, buckwheat, Amaranthus, Fox-tail millet, beans etc.) which will be included in FNS's are relatively more adaptative to the changed climate. The promotion of these crops will support to overall climate change adaptation/resilience building of smallholder farmers.

2.2 Development Objective and Impact Indicators

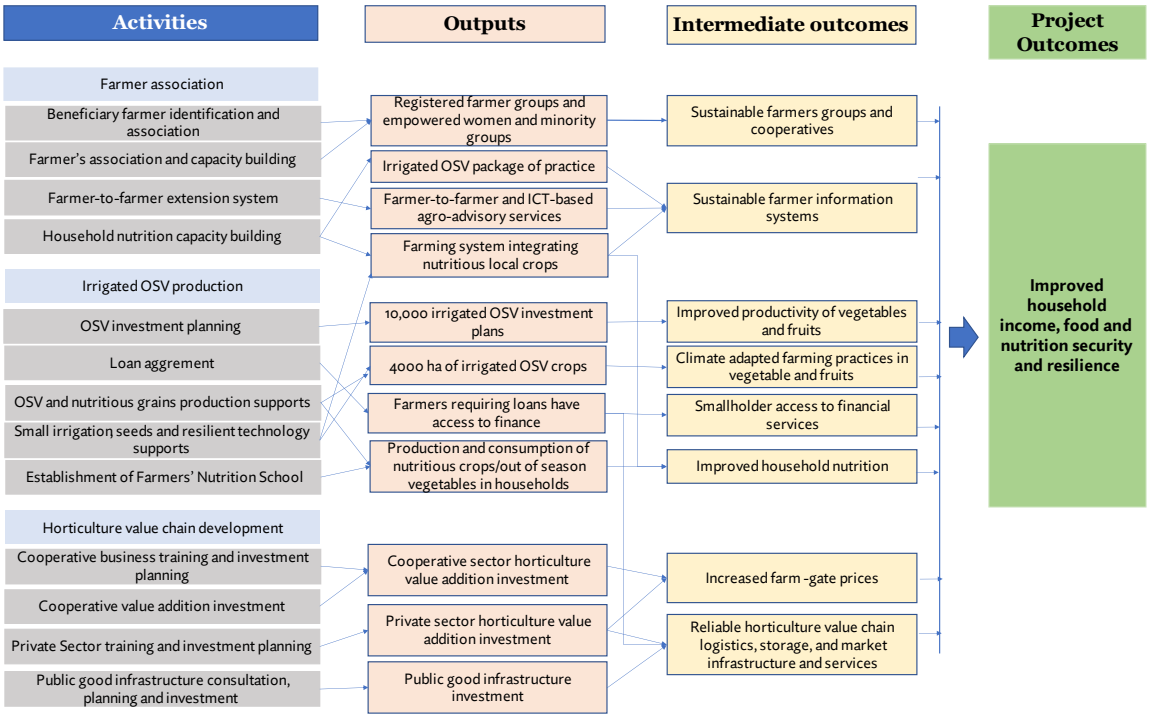
33. WFP's technical assistance component will support the achievement of the overall development objectives and impact indicators of NAFHA project. The Overall Goal of the

[30] The project-specific risks and mitigation measures and negative externalities are provided in annex 6 and 7.

NAFHA Project is: livelihood of rural households improved; and Resilience of farmers to climate change improved.

34. The Project Development Objective (PDO) of GAFSP support is to improve the income and food security (by promoting vegetable and local nutritious crops) of 10,000 poor households of targeted communities and strengthen their linkages to agriculture and financial markets. WFP's technical assistance will be directly responsible for achievement of this PDO of GAFSP with the assumption that a mix of public and private investment will be available to achieve this objective and the need for close alignment of such investments to deliver a successful, sustainable, and financially viable outcome

Figure 1: Project's Theory of Change



35. The "theory of change" of the NAFHA project targets to achieve improved household income, food security and climate resilience. The nutrition component is key to the food security and resilience building. The integration of nutrition-sensitive vegetable component in the NAFHA is based on the fundamental premise that once a) smallholder farmers have the knowledge about good-nutrition behaviour and nutrient rich food products; b) they know the skills and technologies to produce those food products – including production technologies to produce nutritious foods in lean season; and c) they get required supports for increasing nutrient rich vegetables and local crops (like seed/saplings, water management practices/equipment), they will change their food habit and nutrition behavior and improve household food and nutrition. This also encourages smallholder producers to sustainably increase their production, income and improve their livelihood. It is also underpinned by the proven capacity of annual and perennial horticulture crops, integrated into upland farming systems, to improve household income in Nepal's Mid-hills. Many of the smallholders, once they get knowledge and skills of out-of-season vegetable production, they will be gradually involved in commercially oriented production and marketing systems. Tailored technical, infrastructural, financial, and organisational support for those interested farmers will encourage them to increase production and being commercial in a sustainable and profitable way. The investment component of GAFSP can be mobilised for providing the tailor-made supports, supporting in irrigation management, and linking them to value chain through business relationships with other private actors

(traders, processors, exporters etc.) in order to meet market demands and, overall, contribute to national agricultural growth.

36. Key success impact indicators at PDO level include:

    a. At least 60 percent of the beneficiaries will be women and 30 percent will be socio-economically marginalized/Disadvantaged Group (DAG)[31] households.
    b. At least 1,000 ha of climate smart vegetable and other nutritious crop production area (4,000 ha cumulative cropped area) established, with at least 60 percent women and 20 percent Disadvantaged Group (DAG) household representation
    c. At least 10,000 farming households in accessing marketing opportunities of which at least 30 percent women and 20 percent DAG household representation [GAFSP indicator]
    d. 10,000 smallholders' producers receiving productivity enhancement support of which 60 percent are women and people from DAG
    e. Farmers reporting the adoption of 'package of practice', of which at least 60 percent are women or from DAG
    f. At least 8,000 households (HHs) increase HH dietary diversity by at least 3 new items
    g. 40 percent farmers cultivate commercial vegetable production and 60 percent grow nutritious vegetable gardening and local crops
    h. At least 8,000 households strengthen their linkages to agriculture, finance, and markets.

37. The key results from the project would include: (i) household income from horticulture production increased; (ii) linkages to markets and financial services improved; (iii) dietary diversity among women in participating households increased; and (iv) resilience of farmers to climate change improved.

2.3 WFP-led Technical Assistance Interventions:

38. The overall NAFHA project will increase agricultural income of approximately 40,000 beneficiary farm households in 100 municipalities in hilly areas of five provinces. This will be achieved through (i) the development of approximately 10,000 hectares (ha) of fruit and nut orchard development, value-addition to nuts and fruits produced by 30,000 households, and institutional capacity building for nursery and horticulture sector management; and (ii) vegetable and other nutritious crop production in 1,000 ha and its marketing by 10,000 smallholder households who are not capable of investing in fruit and nut orchard development in the project provinces.

39. The NAFHA project has two outcome and three outputs: Output 1) Institutional capacity for nursery and horticulture sector management improved; Output 2) Production and productivity of project farmers increased; and Output 3) Value addition to hilly area horticulture produce enhanced. In the overall NAFHA project, the GAFSP co-finance will be invested in output 2: production and productivity of project farmers increased. The goal of WFP's technical assistance is to contribute to achieving this output. The outcomes and activities where WFP's technical assistance supported will be provided are described below:

40. Activities under Output 2: Production and productivity of project farmers increased. The outcome of GAFSP is to increase the beneficiary's income from climate resilient vegetable

[31] DAG refers to socio-economically marginalized/excluded groups (castes and ethnicities) i.e. Dalit, Janajati, Madheshi, ethnic minority etc.

and nutritious crops by achieving this output of NAFHA project which will be supervised by WFP under the GAFSP Technical Assistant grant. These are the major activities under this output (included in the NAFHA project document for GAFSP grant component).

2.1 Engage farmer group facilitators and establish ward-level project implementation monitoring system in partnership with targeted farmers, promoting female leadership and GESI (project readiness and Q3 2023)
2.2 Provide quality planting materials to beneficiary farmers through partnership with private nurseries and supporting their nursery quality control (Q4 2023)
2.3 Prepare packages of practice and train farmers/cooperatives in packages of practice (Q4 2024)
2.4 Develop and operationalize an agricultural technology based advisory platform for nut and fruit farmers include female farmers and the vulnerable and/or excluded (Q4 2024)
2.5 Develop farmer-to-farmer extension programs including climate change adaptation measures and Good Agriculture Practice, and build capacities of lead farmers for running demonstration (Q4 2023)
2.6 Establish foundation for carbon sequestration measurement and financing for fruit and nut orchard management (Q4 2025)
2.7 Support the development of fruit and nut orchards and vegetable farming land (quality agriculture input purchase, land preparation, hail nets, labor partially financed) (Q4 2024)
2.8 Set up a credit guarantee fund for rural smallholders and agribusinesses, and its digital payment system for transactions and monitoring in partnership with participating banks and financial institutions (Q4 2027)
2.9 Develop and procure drip irrigation, particularly for women and disadvantaged groups (Q4 2024)

The workplan and details of the above-mentioned activities were developed by ADB for the GAFSP component of the NAFHA project. The implementation mechanism of the NAFHA project will lead the implementation of these activities. WFP's role will be providing technical assistance to the NAFHA team in effective implementation of these activities, as and when requested by the NAFHA team.

41. Apart from providing technical assistance in effective delivery of activities of output 2 to be funded by ADB investment and GAFSP grant, the GAFSP's technical assistance grant of US$ 3 million will be used for the following investment activities directly implemented by WFP related to GAFSP project component 2 – activity 2: Farmer Nutrition Schools:

1. **Preparation for Farmers' Nutrition School (FNS)** - FNS will be the complete package for dissemination of knowledge about the home level nutrition which provides production and consumption skills of vegetable, nutritious crops, and other local sources of nutrition (e.g., poultry, beekeeping). The FNS will be established by WFP by targeting the farmers groups targeted and identified by the NAFHA project. Since FNS is a relatively new concept in Nepal, the first step for the TA support will be to develop detailed guidelines for implementing FNS along with its content, method of delivery, support modalities and essentials of FNS. The FNS approach of WFP implemented in its other projects/programmes globally and the Nutrition Field School Operation Guidelines, 2077 (2020), and Crop Production Farmer Field School Operation Guidelines, 2077 (2020) and other relevant guidelines approved by the Ministry of Agriculture and Livestock Development (MoALD) for the purpose of GAFSP-funded another project – Food and Nutrition Security Enhancement Project (FANSEP) will be the main guiding documents for preparing the FNS for this project.

2. **Assessment of nutritious values of local nutritious crops, fruits and developing technical inputs for ICT-based communication and dissemination tools:** Despite

being rich in local food diversity, the dietary / nutritious values of several local foods are not known to consumers. For addressing this, the project will collaborate with the Department of Food Technology and Quality Control (DFTQC) of the Government of Nepal to assess the nutritious values of the major local food items – both grains and vegetable, fruits, and nuts. The results of the analysis will be used to develop technical inputs for ICT-based communication and dissemination platform developed by NAFHA project (mobile app and web-based system) for utilization/promotion of nutritious local crops.

3. **Developing local capacity for establishment of Farmers' Nutrition School by providing Training of Trainers (ToT) to agriculture technicians:** The project will provide ToT to the technical assistants (Junior Technicians/Junior technical assistants) of the NAFHA project to facilitate the FNS. About 15 day-long ToT will be organized in each province to the technical assistants who will be stationed in the municipalities/local governments.

4. **FNS trainings to resource farmers:** For ensuing the sustainability of the FNS, the project will provide FNS and nutrition sensitive agriculture trainings to the farmers from each FNS who can continue to serve as resource persons to the farmers after the project end.

5. **Conducting Farmers' Nutrition School**: The season long (about 10 month) FNS will be organized in each farmers groups which will cover the technical issues related to seasonal and out-of-season vegetable production and utilization, production and utilization of local nutritious crops, utilization of meat and eggs/poultry products and other sources of nutrition. FNS will be conducted in project area by mobilizing NAFHA technical staffs (Junior Technicians/Junior technical assistants, the staffs who receive ToT of FNS). The FNS is season long engagement of the smallholder farmers to train them to understand the nutrition gaps (identify the seasons where there is low availability of nutritious foods), knowing the crops/varieties/or production technology to grow vegetables/food items to fill the gap and practice those new crops/varieties/technologies in the field. The groups will prepare seasonal nutrition calendar to identify the gaps and the technical personnel will discuss different potential options (including local crops/varieties as well as improved crops/varieties/technologies) to find technologies to produce nutritious vegetable / grains during out-of-season. Based on the participatory decision, the farmers groups will grow the selected vegetables, targeting out-of-season supply for consumption. WFP will conduct the FNS in each of the 400 farmers groups covering 10,000 smallholder farmers. Technologies about poultry rearing will be also covered in FNS as poultry is the crucial local source of nutrition (protein) in rural areas.

   The FNS will be the entry point for beneficiary selection for NAFHA project output 2. Among those 10,000 farmers, households who will be interested to initiate market-oriented and commercial production will be linked to NAFHA's scheme 2 where they can get supports for commercial vegetable farming and supports for establishing irrigation facilities.

6. **Support household availability and utilization of nutritious food:** NFS is intended to increase the knowledge and skills of smallholders to grow nutritious vegetable and nutritious crops thorough out the year so that they will be secured in food and nutrition. Additional household level support, and mobilization is needed to encourage farmers to adopt the knowledge from the FNS. Therefore, the project will provide input support (vegetable and other crops seed and poultry chicks) as per the household needs to adopt the technology, what they learnt from the FNS at household level. Smallholder farmers will be supported to establish the home garden or household nutrition garden

through these supports. Every beneficiary household will be provided with seasonal 'diversity kits' which are seeds/samplings to fill the gap in household's availability of vegetable for all season. The engagement of the households will also enable them to improve dietary diversity and allows opportunity to disseminate knowledge on food processing and preservation, WASH, infant and young child feeding (IYCF), in-door air pollution and maternal care and nutrition and change harmful habits and food-related taboos/discrimination often associated with feeding of pregnant and lactating women and infant. To provide this support to the farmer households, the women-headed households including single women, households from socio-economically marginalized communities/DAG i.e., Dalit, Janajati etc, households headed by persons with disabilities, and the households having vulnerable family members i.e. elderly, persons with disabilities, pregnant and lactating women, malnourished children etc, will be prioritized among the 10,000 farmer households engaged in the FNS/vegetable farming.

7. **FNS follow up:** After the completion of the FNS, there will be follow up activities to facilitate the continuity of the behavioral change from the lessons learned in FNS. The facilitators will visit the FNS groups and organize discussion sessions to encourage farmers to continue adopting improved food and nutritional practices.

8. **Linking smallholder vegetable farmers to localized markets through home - grown school feeding approach:** Nepal has national cash-based school meal programme through which community schools receive a fixed amount (NPR 15/student in Terai and hills and NPR 20/student in mountains in 2022) of cash for providing mid-day meal to school children until grade six in public schools across the country. This is one of the key social protection mechanisms for protecting nutritional condition of school age children which also supports in educational performance of students. However, not all schools provide nutritious cooked mid-day meal rather provide packeted processed foods (e.g., noodles, biscuits) to students. To address the problem, the government/Ministry of Education, Science and Technology (MoEST) with technical support from WFP and DFTQC has promoted a concept/approach of Home-Grown School Feeding (HGSF) in Nepal. This innovative approach links school feeding programmes with local smallholder farmers to provide thousands of school children with food that is safe, diverse, nutritious, and above all local. The schools provide local farmers with a predictable outlet for their products, leading to a stable income, more investments and higher productivity. The children enjoy healthy, diversified food; this makes it more likely that they will stay in school, perform better, and improve their adult job prospects. At the community level, Home Grown School Feeding initiatives promote nutrition education and better eating habits and encourage the diversification of production with a special emphasis on local crops. The MoEST has developed and issues a national mid-day meal menu, 2020[32] to implement the HGSF approach. In addition, the MoEST issues programme implementation guidelines every fiscal year for the management of national school meal programme including other programme in education sector. The HGSF approach emphases on purchase of food items locally and providing cooked meal to students. In this context, the project will facilitate the promotion of HGSF in the community schools in the project areas, where feasible, and link smallholder farmers groups (supported by the GAFSP/NAFHA project) to schools for providing the local food items to schools based on the demands generated by the school menu. This linkage between the community schools and farmers groups for HGSF ensures healthy, local, and fresh food for students and provides an opportunity for marketing small amount of surplus that smallholders possess to a secured market (i.e., schools). The farmer groups and schools will have

[32] https://cehrd.gov.np/file_data/mediacenter_files/media_file-1-1156224534.pdf

supply chain/forward linkage contract to regulate the price, quality, quantity, and regular supply of local food commodities as per the school meal's demand.

The project will carry out below activities to facilitate the promotion of HGSF, under the guiding framework of the MoEST - national mid-day meal menu, 2020 and programme implementation guidelines:

- ✓ Provide training/orientation to the local government, local producers/suppliers, and schools on the concept and modality of HGSF.
- ✓ Production-pocket mapping, commodity-price assessment, as well as identification of farmer's groups and commodities by season to examine the various aspects of the supply chain critical to the food basket, according to the volume and consistency of supply for HGSF.
- ✓ Support for adaptation of the Meal Planning Tool (MPT) to create a daily school meal menu according to local crop availability and acceptability that can meet the Recommended Daily Allowance (RDA); which is already developed by the MoEST and organize orientation for school management team on its use.
- ✓ Supply chain management support through capacity-building training to the local government, farmers, and schools to adapt and replicate the effective modality and procedures of food delivery, as well as school meals cooking arrangements, etc.
- ✓ Build the capacity and skills of cooks/food preparers and members of the School Management Committee on safe and proper food preparation including WASH, Handy Measures, and commodity management.
- ✓ Provide nutrition sensitization orientations, to key school feeding stakeholders on the importance of adequate, diversified, locally available, and affordable safe food intake amongst children, their parents, and communities, as well as on the implication of various existing food taboos, including consumption habits at the household level, storage, cooking, and WASH.
- ✓ Facilitate linkage of local farmers to HGSF supply chain through a supply chain/forward linkage contract.

9. **Review, planning and evaluation workshops:** The TA support component will organize different technical review meetings, planning and evaluation workshops and consultation workshops to understand the capacity-gaps among stakeholders, project staffs and government staffs and facilitate the technical discussions to refine the FNS approach in regular basis. The producer organizations (POs), the farmer cooperatives/groups (existing and project-formed groups), community-based organizations and civil society groups including organizations of marginalized groups and Persons with Disabilities will be integral part of the community consultation, project planning, review, and evaluation activities. The concerns, views and feedback of the POs will be considered while planning and reviewing the project activities and results. The beneficiary farmer groups/POs will regularly participate in the project's planning, implementation, monitoring, and review activities.

10. **Capacity development of government technicians and NAFHA staffs:** The FNS approach is relatively new in Nepal, there is need for capacity development for government technicians on this approach. Therefore, WFP's TA will help in capacity development of the government technicians and staff in FNS approach through national and international trainings and workshops. This will support in scaling out of the approach in national extension system.

11. **Joint project monitoring:** The joint project monitoring of the GAFSP supported component of the project will be facilitated by the WFP's TA component. This event will be organized on annual basis where different stakeholders will be taken to the field and feedbacks will be gathered for the improvement of the project.

42. WFP supported FNS implementation and other field level activities will be coordinated by a project employed Junior Technician (JT) with medical or nutrition training with the support of the Agriculture Knowledge Centres (AKC) and district health offices. The municipal level JT will provide crop husbandry technology to the NFS participants with technical supports from WFP's technicians. Information, education, and communication (IEC) materials and strategies used in this activity will, where possible, build on existing materials of project.

43. WFP will manage season-long 400 Farmers Nutrition Schools (covers vegetable, nutritious crop, and other source of nutrition) across the 100 municipalities targeting 10,000 smallholder households to meet the GAFSP target beneficiaries in four years of period. Beneficiaries will be selected by the Local Level Coordination Committee (LLCC) based on project implementation guidelines[33] on vegetable (seasonal and off-season) farming. At least one ToT will be conducted in every province by WFP with the support of PIU to JTs, AKC staffs and health technicians.

44. Commercial vegetable (seasonal and off-season) production: The NAFHA project (managed by ADB) will support about 10,000 farm households (HHs), targeting those HHs who cannot participate in the orchard establishment programme in commercial production of vegetables and other crops. NAFHA will provide partial subsidies for the vegetable and other nutritious crops production to the interested FNS groups, which ultimately helps to increase their income. The FNS will be the entry point for identification of the farmers for supporting on commercial vegetable production. Once farmers are organized in the FNS, those farmers who will be interested to pursue commercial vegetable farming will be provided with tailor made trainings and input supports to increase seasonal and off-seasonal vegetable production.

45. The major vegetable crops include, *inter alia,* pea, bean, soyabean, potato, cucurbit, brassica, leafy and fruit vegetable. It is assumed that the vegetable crops will not cover more than 50percent of the family's total cropped area. In the remaining area, participating households will be trained and encouraged to plant nutritious traditional crops in addition to their staple grain.

46. The smallholders will also be linked to government programmes to access supports for bee- keeping and small livestock which are major sources of the nutritious foods in rural areas. The project will also support poultry chicks for very poor and vulnerable households to meet their egg and meet demands.

47. Those nutritious crops include buckwheat, various millets, amaranth, pulses, and naked barley. The project will prepare the packages of practice (PoP) incorporating climate analysis, soil management, variety recommendation and crop husbandry, drip irrigation and management, and overall orchard and vegetable management including Good Agricultural Practices (GAP), with integrated pest management, harvest techniques and storage, and beekeeping. The information management system of the project will make available these packages through the mobile apps and other means of training and field visits. Inputs for the vegetable and nutritious crop establishment will be available from Government farms, cooperatives, seed producer farmer groups and NAFHA-trained local agrovet dealers.

48. The project, through its field level farmer group facilitators, social mobilizers, local level technicians and Farmer to Farmer (F2F) Extension advisors, backstopped by AKC staffs, will support participating farmers for development of vegetable farms up to 4,000 ha (cumulative cropped area of 1,000 ha land area) for the project period based on local

[33] NAFHA Implementation guidelines prepared by CPMU.

agroecological conditions and farmers preferences. Farmers with less than 4 ropani will be encouraged for irrigated vegetable production during dry season and nutritious food crop production such as buckwheat, various millets, naked barley, amaranth and various pulses during wet season and the present productivity of 1.2 mt/ will be increased to 2 mt/ha.

49. Activities implementation plan:

Table 2: Implementation Plan of WFP's TA Component (aligned with NAFHA's implementation plan)

Indicative Activities	**2023 (Y1)**				**2024 (Y2)**				**2025 (Y3)**				**2026 (Y4)**				**2027 (Y5)**			
Quarter →	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Project activities																				
Activity: Farmer nutrition school, vegetable production, and household nutrition and nutritious food production related activities implementation and technical input																				
1.1 Preparation for and establishment of Farmers' Nutrition Field School (NFS)				•	•															
1.2 Assessment of nutritious values of local nutritious crops in collaboration with NARC and use of the assessment results into FNS and nutrition education campaign						•	•	•	•											
1.3 FNS ToT for Agriculture technicians of local level and project staffs					•															
1.4 FNS trainings to resource farmers						•				•				•						
1.5 FNS refresher ToT for technicians												•								
1.6 Establish and operationalize FNS						•	•	•	•	•	•	•	•	•	•	•	•			
1.7 Support household availability and utilization of nutritious food (seeds, diversity kits, chickens)							•	•	•	•	•	•	•	•	•	•	•	•		
1.8 FNS follow up										•	•	•	•	•	•	•	•	•	•	
1.9 Facilitating market linkage for smallholder farmers to localized market leveraging the home-grown school feeding approach in community schools								•	•	•	•	•	•	•	•	•	•	•		
1.10 Review, planning, stakeholder consultation	•				•				•				•							

Indicative Activities	2023 (Y1)				2024 (Y2)				2025 (Y3)				2026 (Y4)				2027 (Y5)			
Quarter →	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
and coordination workshops/meetings																				
1.11 Project knowledge management/documentation													•	•	•	•	•	•	•	
1.12 Capacity building activities for government technicians on FNS, and household nutrition and nutritious food production activities								•	•	•	•	•	•	•	•	•	•			
1.13 Project monitoring, field follow up and technical backstopping				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
1.14 Joint project monitoring (Government, ADB, WFP)					•				•				•				•			
1.15 Technical assistance expert's services for vegetable production, and household nutrition and nutritious food production activities				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Activity 2. project management supports																				
Staff hiring, deployment and establishing project implementation arrangements			•	•																
M&E system development				•	•															
Contribute to baseline assessment (to be done by NAFHA)				•	•															
Contribute to semi-annual and midterm reviews (to be done by NAFHA)				•		•		•		•		•		•		•		•		
Final evaluation of the GAFSP component																			•	•
Project completion report preparation																			•	•
Final Financial Report - Within 3 months after Agreement Completion Date																				

2.4 Lessons learned from development partners

50. The Commercial Agriculture for Smallholder and Agribusiness (CASA) Nepal Vegetable Sector Strategy,[34] identifies off-season vegetable cultivation as a rapidly expanding and proven agribusiness strategy for smallholder farmers in the hill area to increase earning of rural household, while noting constraints in the sector due to the COVID-19 impact on the national economy. The CASA report notes the "large number of studies have linked women's income and greater bargaining power within the family to improved nutritional status" and emphasises that "the nutritional impact of vegetable production should focus on strengthening the entitlement of women and children to nutritious food not just on maximising income from vegetable sales". The Farmer Nutrition Schools are designed to achieve this latter outcome.

51. Under the International Fund for Agricultural Development (IFAD) financed High Value Agriculture Project (HVAP), participating farm households benefited substantially from the project, including from OSV production in terms of increased income and assets and improved nutrition. Matching grant financing of farmers/farmer groups and linked agribusinesses has been a feature of their value chain development strategy, and minority groups also benefited significantly. Other Development Partners supporting agriculture value chain development in Nepal include the World Bank finances Value chains for Inclusive Transformation of Agriculture project and Rural Economic and Enterprise Development Project, will both use a mix rural finance and matching grant support to drive agriculture value chain development and the USAID-financed Knowledge-Based Integrated Sustainable Agriculture and Nutrition (Kisan) II Project, uses a guarantee fund and matching grants to develop agriculture value chains.

52. WFP implemented FNS approach for improving nutritional status of smallholder farmers in Lao PDR during 2016-2022 with focus on social behaviour change and communication in women and communities through practical learning sessions about household nutrition, diet diversity, basic hygiene, food preservation and processing techniques, raising fish, keeping small livestock and menu planning with nutritious foods including food grown in household gardens. The results showed 90percent of participants increased their nutritional status and 95percent participants stated that the nutritional status of their children increased, 96percent of the participants stated that their nutritional knowledge increased, and it also increased income for smallholders. The WFP's technical assistance in NAFHA project will be informed from these successful results[35].

53. Different agencies have piloted the home garden approach for increasing dietary diversity and income for smallholder farmers. Due to the success of the approach, Government of Nepal started to scale up the approach. The results of home garden projects shows that households increased their vegetable/fruit yields nearly threefold from 300 kg per year to as much as 900 kg per year and households started to sell their surplus after 3-4 years of project interventions. The diversity in home garden increased from 44 species to 66 species on average. The increased diversity was because households started to grow greater number of plant groups – vegetables, fruits, spices, medicinal herbs – and a larger variety of new vegetables. The results showed almost double increment in the household's consumption of green leafy vegetables, and nutrition rich foods[36].

[34] CASA 2020 Op. Cit.

[35] Farmers Nutrition School – Household Survey Impacts https://docs.wfp.org/api/documents/WFP-0000113995/download/?_ga=2.71243728.1590677713.1666079348-646616275.1603179456

[36] Big results from small plots: Home gardens in Nepal, Bioversity International, https://www.bioversityinternational.org/news/detail/big-results-from-small-plots-home-gardens-in-nepal/

54. The role of small livestock to family nutrition is well documented in Nepal. A study conducted by USAID Feed the Future (FtF) funded Policy and Science of Health, Agriculture and Nutrition (PoSHAN) project showed a clear association between the number of cattle, poultry, and meat animals (small livestock) owned and children's weekly dairy, egg, and meat intake. Children's consumption of egg increased by 2.8 times per week in households who own 1-2 chicken. Likewise, children's meat intake was higher in households owning more than seven meat animals[37].

55. WFP has implemented home grown school feeding programme in different areas of Nepal with successful results. It has proven that by linking the smallholder farmers in nearby schools where the cash-based school feeding programme is implemented, it not only increases the quality of school meal to children, but it also creates the demands for small and scattered products of smallholder farmers in rural areas. As a part of the UN joint programme- Rural Women Economic Empowerment (RWEE) programme, WFP connected 950 smallholder farmers to in 56 community schools in the Sarlahi and Rautahat districts who started to sell their surplus to schools. Likewise, in the Women in Value Chain project in Kailali, WFP linked about 2,500 rural women farmers to 168 community schools through forward contract. Similarly, WFP provided technical assistance to the MoEST and local governments in implementation of HGSF in more than 15 districts. This way, the schools are being considered as local demand/market for smallholders. The GAFSP project has considered this approach for improving the nutritional status of children as well as providing income opportunity for scattered smallholder farmers.

3. Project Implementation

56. WFP's technical assistance will contribute to achieve output 2 of the NAFHA project and will directly contribute to achieve the target of GAFSP-funded component of the NAFHA project. There are several activities in NAFHA output 2 which will be directly implemented through ADB NAFHA project with ADB's management of GAFSP grant, where WFP will provide technical backstopping support during planning, implementation, and monitoring in effective implementation of the activities. In addition, WFP will be responsible for other technical assistance activities such as conducting FNS, establishment of HGSF, supporting household access and utilization of nutritious food, social and behavioral change communication, and promotion of locally nutritious foods.

57. WFP's activities will promote climate-smart agricultural practices such as promotion of locally adapted resilient crops and varieties. The FNS will employ other climate resilient technologies like efficient water management, nutrient management, and crop cycle management practices. WFP will support the NAFHA to make investments for long-term capital building (e.g., water harvesting, irrigation) and supporting climate change adaptation.

58. WFP will hire the TA and capacity building support staff for providing project management support, coordination, monitoring, and reporting of the project, and implementing the OSV production and household nutrition and nutritious food production activities. WFP Nepal Country Office technical experts will provide technical backstopping, guidance, and oversight to the TA staff. WFP will further procure the services of technical service providers or technical experts/resource persons for execution of some of the planned activities i.e. preparation for FNS, capacity building/training activities, input supply, promotion of home-grown school feeding linking smallholder farmers with schools for commodities supply, development of technical contents for the ICT-based communication and dissemination platform developed by NAFHA project (mobile app and web-based system) etc.

[37] Broaddus-Shea et al, 2019. https://nutritioninnovationlab.org/publication/small-scale-livestock-production-nepal-directly-associated-childrens-increased-intakes

3.1 Organizational Framework

59. WFP's technical assistance will be aligned with the overall organizational framework of the NAFHA project for effective collaboration and coordinated technical assistance. In NAFHA, Ministry of Agriculture and Livestock Development (MoALD) is the Executing Agency (EA) and National Center for Fruit Development (NCFD): the Central Project Management Unit (CPMU), Nepal Agriculture Research Council (NARC) and five Provincial Directorate of Agriculture Development (DoAD) as Project Implementation Units (PIUs) are the Implementing Agencies (IAs) of the project. ADB will be responsible for supporting implementation including compliance by MOALD, NCFD, NARC and DoADs in Province 1, Bagmati, Gandaki, Karnali and Sudurpashchim of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures. The GAFSP component will be implemented through the same implementation structure of NAFHA project. The WFP will be responsible for technical assistance support and capacity building related to the GAFSP vegetable production, and household nutrition and nutritious food production activities.

60. A Central Project Management Unit (CPMU) is established within the NCFD to support:
    a. the EA as its secretariat and as the overall project's focal to the ADB and WFP; and
    b. the IA for implementing central-level activities.

    WFP will recruit and deploy a Project Coordinator and technical specialists in the CPMU for effective coordination. The WFP-recruited Project Coordinator will be responsible for the overall GAFSP supported component of the NAFHA project for overall programmatic coordination, information management, and reporting to the GAFSP.

    The CPMU will be led by Chief, NCFD as Project Director who will serve as the focal contact with ADB and be staffed by government and CPMU will be supported by contracted team leader/horticulturist and other consultants for financial and procurement management, and gender, social and environment safeguards, monitoring, and evaluation activities. General project administration to manage overall day-to-day project implementation and coordination; technical oversight and support to PIUs for annual work plan and budgeting and safeguard compliances to take overall responsibility by monitoring are the major responsibilities of the CPMU.

61. WFP will deploy five Provincial Coordinators (technical officers) for GAFSP activities and FNS implementation in the provincial level Project Implementation Unit (PIU). PIU which will be established within DOAD of each province under MoLMACs.[38] The PIU will be led by Chief of DOAD as Provincial Project Director who will serve as the provincial-level focal supported by contracted consultants of provincial team leader, gender, and social and environment specialist. PIU will manage overall day-to-day project implementation at the province level, lead annual province level project planning and budgeting, manage project management support consultant, coordinate, and support to CPMU in progress report preparation and other responsibilities.

62. Agriculture Knowledge Centers (AKCs) are the district level agriculture extension offices under DOAD; will be supporting to Local Level Coordination Committee (LLCC) of the project farmers selection, capacity building of farmers, monitoring and evaluation of project activities and other technical support as per request of PIUs. Local Level Municipalities on

[20] Respective provincial agriculture ministries refer to the following: Ministry of Agriculture in Province 1, Ministry of Agriculture and Livestock Development in Bagmati, Ministry of Land Management, Agriculture, Cooperatives and Poverty Alleviation in Gadaki, Ministry of Land Management, Agriculture and Cooperatives in Karnali, and Ministry of Land Management, Agriculture and Cooperatives in Sudurpashchim.

of the layer of government will play major role in the project implementation by selection of beneficiaries from LLCC, coordinated by Deputy Mayor, regular monitoring and evaluation of project interventions, capacity building of farmers and providing needed logistics to the project staffs.

63. NAFHA Project has following project related committees with different roles. WFP will provide support to some of these committees as relevant to the TA component and required/asked by the NAFHA project.

    a. **MoALD working group committee** to coordinate the EA's work supported by CPMU.

    b. **Competitive Grants Management Committee** (CGMC) to review and approve matching grant proposals on a competitive basis.

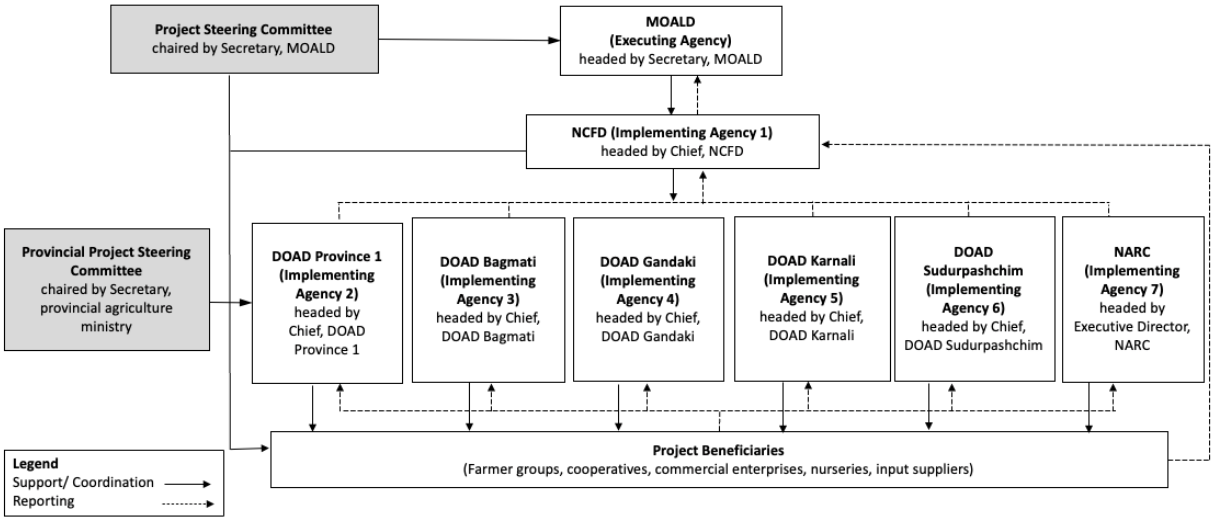
    c. **Local Level Coordination Committees (LLCC)** to advertise a call for expressions (EOI) of interest for partial subsidies for farmers and cooperatives for orchard, vegetable, and other farming land development, conduct preliminary screening of EOIs and make a selection recommendation to the PIU-led or CPMU-led Subsidy Management Committee (SMC), depending on the size of orchard investment.

    d. **Subsidy Management Committees (SMC)** to review and approve orchard development applications after LLCC's recommendation. SMCs will be formed at both CPMU and PIU levels (investment beyond NRs. 5 million goes to the CPMU-led SMC).

    e. **Credit Guarantee Fund Management Committee (CGFMC**) to review and approve time deposits to partnering financial institutions (PFIs) and to ensure the compliance of the credit guarantee fund related covenants.

64. The Project Organization Chart of NAFHA is detailed in Figure 1. WFP will participate in all five provincial steering committees, and project steering committee.

Figure 1: Project organization chart



CPMU = Central Project Management Unit; DOAD = (provincial) Directorate of Agriculture Development; MOALD = Ministry of Agriculture and Livestock Development; MOF = Ministry of Finance; NARC = Nepal Agricultural Research Council; NCFD = National Center for Fruit Development; PIU = Project Implementation Unit

Source: Asian Development Bank.
Note: Project Implementation Organizations: Roles and Responsibilities are detailed in NAFHA Project Administration Manual (PAM).

65. A high-level Project Steering Committee (PSC) chaired by Secretary, MoALD including joint secretaries of National Planning Commission (NPC), Ministry of Finance (MoF) and Office of Prime Minister and Council of Ministers; will be responsible for:
    a. ensuring collaboration among federal, provincial, and local levels for the effective implementation of the project and address any implementation issues, including the GAFSP's technical assistance component implemented by WFP
    b. promoting policy, administrative and legislative reforms to achieve project's goals.
    c. reviewing and approving the annual project work program and budget; and
    d. reviewing and approving semiannual project implementation progress reports.

66. The PSC meeting will be convened biannually, but additional meetings will be convened as needed. Project Director, Chief of the NCFD, shall be the Member Secretary of the PSC. Independent professionals, representatives from academia, and the ADB/NRM and WFP representatives will be invited as observers as needed.

67. Provincial level project steering committee (PPSC), chaired by Secretary of the respective provincial agriculture ministry and Provincial Project Manager (Chief of DOAD) shall be the Member Secretary accompanied by representatives from Provincial office of Chief Minister and Council of Ministers, Policy and Planning Commission, Ministry of Economic Affairs and Planning and other will be responsible for:
    (i) Review and approve the annual provincial-level work program and budget, coordinating with existing or new provincial programs and activities to maximize development impact of the project.
    (ii) Ensure timely and effective implementation of project activities and achievement of project outcome, rectifying any problems that arise during implementation.
    (iii) Coordinate among different participating local governments, AKCs and other relevant stakeholders to ensure effective project implementation

The PPSC meeting will be convened biannually, but additional meetings will be convened as needed.

68. WFP's technical assistance will comprise of thematic experts stationed in PIU and DoADs. The TA team will include 1 GAFSP Project Coordinator, 1 Nutrition Specialist, 1 GAFSP project operational information management, coordination, and reporting Officer and 1 Programme Assistant at PIU; and 5-6 GAFSP Regional Coordinators (with agriculture/horticulture expertise) to be stationed with NAFHA team in DoAD. The TA team will also leverage the technical expertise in-built in ADB funded NAFHA project i.e. Gender Expert and Enterprise Development Expert. The technical experts will also build the capacity and mobilize the NAFHA team in municipalities for conducting the FNS and other interventions. The dedicated TA team of the project will get technical inputs and backstopping from the thematic experts and functional units of WFP Country Office to ensure the quality of TA service and integration of WFP's organizational strength and capacity.

3.2 Financial management and procurement:

69. Financial Management: ADB is the GAFSP investment supervising entity and WFP is the TA supervising entity. According to the Transfer Agreement (2016) signed between the International Bank for Reconstruction and Development (IBRD), as trustee of the trust fund for the Global Agriculture and Food Security Programme (GAFSP) and WFP, the fund will be transferred to WFP based on the Funds Transfer Request submitted by WFP as

Supervising Entity based on the projected cash requirements for the next 12-month period. As per the agreement, WFP as Supervising Entity shall use the Transferred Funds in accordance with: (i) its own policies and procedures including those related to procurement of goods and services, reporting arrangements, eligible expenditures, employment, and supervision of consultants; and (ii) the applicable decisions of the GAFSP Steering Committee, including the purpose for which the specific Allocations have been approved by the Steering Committee as specified in the approved Project. For this, WFP (Supervising Entity), in accordance with its policies and procedures, shall: (i) maintain books, records, documents, and other evidence in accordance with its usual accounting procedures to sufficiently substantiate the use of the Transferred Funds; (ii) provide periodic financial reports including annual unaudited or audited financial reports, as agreed with the Steering Committee; and (iii) provide any other relevant financial information in United States dollars to the Trustee for distribution to the Steering Committee, as agreed with the Steering Committee. Hence, WFP shall ensure that the use of the proceeds of the Amount disbursed to WFP is subjected to WFP's internal and external auditing procedure.

70. Upon approval of the Project Design Document by the GAFSP Steering Committee, WFP will sign a Memorandum of Understanding (MoU) with Government of Nepal represented by MoALD with concurrence of Ministry of Finance (MoF) for providing the technical assistance to the GAFSP supported component of the NAFHA project.

71. WFP will be accountable to the GAFSP for the proper use of grant provided for technical assistance. WFP's corporate accounting systems and financial control mechanism will be used for management of the TA grant which are consistent with international accounting standards. WFP will provide the progress and financial report to the GAFSP and the MoALD as per the MoU.

72. Procurement**:** As per the transfer agreement signed with the GAFSP, the fund shall be managed/used in accordance with WFP's policies and procedures including those related to procurement of goods and services, reporting arrangements, eligible expenditures, employment, and supervision of consultants; hence, the procurement of the goods and services required for the implementation of the TA component of the project, to be financed out of the proceeds of the Amount disbursed to WFP, will be effected in accordance with the WFP's Rules and Regulations, including those on procurement. The TA staffing needs for the TA component has been defined in this project design document in coordination and consultation with government and NAFHA project management structures. The TA staff required by the project will be recruited in accordance with WFP Regulations and Rules. WFP can delegate its duties, and/or sub-contract its responsibilities, in whole or in part, in accordance with WFP Regulations and Rules. Hence, for the purpose of the TA component of the project, WFP will be responsible for the procurement of goods and/ or services, in accordance with WFP Regulations and Rules.

3.3 Monitoring and Evaluation:

73. Project performance monitoring. WFP’s Programme Unit, TA team and Monitoring, Review and Evaluation (MRE) team will take responsibility of conducting monitoring activities and knowledge management of TA component following WFP’s Corporate Results Framework (CRF 2022-2025) which defines accountability for programme and management, guiding planning, monitoring, and reporting of the operation to ensure programme activities are implemented timely applying the corporate standards and contextual need of the project. WFP TA team will collaborate with NAFHA CPMU for inclusion of TA related performance data/information into the project performance management system (PPMS). The performance measurement framework of the TA component is provided in annex 2 and the TA component related design and monitoring framework (DMF) is provided in annex 3. Key performance indicators in the DMF, disaggregated by province, municipality, sex, disability,

caste, and ethnicity, will be maintained. Progress towards performance target indicators will be monitored during the project life. WFP's dedicated community feedback mechanisms (CFM) will be used to get community feedback and grievance. WFP has a dedicated toll-free phone number called Namaste WFP which will ensure that the affected concerns and grievances on the project's environmental and social performance are received, addressed, and resolved.

74. Gender and social dimensions monitoring: the TA team is responsible for GESI monitoring in collaboration with the CPMU and PIUs. Within the CPMU, a nutrition education and gender mainstreaming specialist will be hired by WFP who will closely work with a GESI specialist hired by NAFHA to monitor and manage the GESI/AP who will be supported by a gender focal person designated in each PIU. The TA team will prepare quarterly gender monitoring reports which will be part of the project quarterly progress report (QPR) providing updates on the progress of GESI implementation during project execution and the report will be shared with the CPMU. In addition to quantitative targets, qualitative assessments will also be conducted to generate learning, and adjustments will be made to achieve the GESI integration targets. The WFP Gender and Inclusion Officer will provide technical supervision and guidance to the TA staff and contribute to the NAFHA project team for inclusive beneficiaries targeting and incorporation of gender equality and women empowerment relevant contents in the capacity building activities and training design.

75. Joint Monitoring. WFP, ADB and MoALD and other stakeholders will undertake the Joint Monitoring of the project activities and will provide the required reports in a timely manner.

76. Evaluation: the TA component and its indicators will be included in the baseline survey, midterm review and final review/evaluation of the overall NAFHA project to be undertaken by ADB and the government. For this, WFP country office and TA team will collaborate and closely work with NAFHA project team to include the technical assistance component related indicators, targets and questionnaire into the design and implementation of baseline survey, mid-term review and final evaluation and monitoring missions. Since the final evaluation of NAFHA project takes place in 2029-2030, but the GAFSP component will be completed in 2027, hence, as part of TA component, WFP will carry out the final project evaluation of the GAFSP component through independent evaluator (compiling data/findings from secondary sources, and Key Informant Interviews etc) for substantiating the project completion reporting to GAFSP.

77. Reporting: WFP will provide GAFSP and the government with: (i) mid-year progress narrative reports, and (ii) annual reports on implementation results based on the common reporting format approved by the Steering Committee no later than one hundred fifty (150) days after the end of each Fiscal Year including: (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, and (c) updated implementation plan for the next 12 months. Similarly, WFP will prepare and submit a comprehensive final report, containing operations and financial sections, within six (6) months of the operational and financial closure of the project.

4. Project costs, benefits, and sustainability

4.1 Project Costs

78. TA budget: beyond the GAFSP technical assistance grant administered by WFP US$ 3 million, the NAFHA project has estimated cost of US$ 93.45 million including ADB's loan and grant, government's co-financing and GAFSP investment grant of US$ 9 million administered by ADB. Out of total GAFSP grant US$ 12 million, the investment fund of US$ 9 million administered by ADB will be used for investment activities for all three components

of the project - (1) farmer identification, capacity building and organization; (2) smallholder farmers' out of season vegetable production increased; and (3) market access enhanced; and the TA fund of US$ 3 million administered by WFP will be used for TA support for the overall GAFSP funded activities (project management, coordination, monitoring, reporting, knowledge management etc) including some investment in farmer nutrition schools for the OSV production and household nutrition and nutritious food production activities. The WFP TA will be complementary to the output 2 of the NAFHA project management (US$ 93.5 million), as the GAFSP-funded TA team will be an integral part of the overall NAFHA project management mechanism. Hence, the TA budget of US$ 3 million as summarized below in table 3 and detailed in annex 4 shall be understood as the part of total GAFSP fund US$ 12 million and in complementarity to the overall NAFHA project's fund (US$ 84.45 million excluding GAFSP grant US$ 9 million).

79. Detailed budget of WFP Technical Assistance Component including the investment activities related to farmer nutrition school and the technical assistance costs is provided in annex 4 and the budget summary is presented below:

Table 3: budget summary

Project output/activities and heading	Total Budget (US$)	2023	2024	2025	2026	2027
NAFHA project Output 2. Production and productivity of project farmers increased						
Activity: Farmer nutrition school, vegetable production, and household nutrition and nutritious food production related project activities investment/implementation and technical input	3,000,000	300,000	675,000	675,000	675,000	675,000

4.2 Summary benefits and economic analysis

80. The WFP TA support of US$ 3 Million will be utilized to implement and operate the vegetable production related outcome of the GAFSP grant focusing on Farmers Nutrition Schools, other capacity building and nutrition related activities within the economic benefit of NAFHA project. Hence, the cost benefit analysis indicates that the NAFHA project is economically viable, with an Estimated Internal Rate of Return of 28.2 compared to the economic discount rate of 9percent. The project's economic net present value is US$ 234 Million. The sensitivity tests suggest that the projects economic viability is sound with switching values of minus 74 percent for benefits and 292percent for costs (NAFHA project document). WFP's TA component will be crucial for achieving the overall economic viability of the NAFHA.

81. In addition to the benefits described based on fruit and nut production, GAFSP financing allows the inclusion of investments in smallholder vegetable production, proposed in the 1000 ha area targeting 10,000 households. In the economic analysis a conservative adaptation rate of 75percent of these households has been assumed and the incremental benefit is based on the conversion from conventional maize, wheat, and/or paddy production in the targeted area to a vegetable crop.

4.3 Sustainability

82. WFP has considered sustainability targets while designing the activities of TA component. WFP will train the local resource farmers for continuation of the local supports to other farmers regarding uptake of the knowledge and skills from FNS and provision/supply of the

seeds and planting materials required for nutrition sensitive vegetable farming. The HGSF modality that will be promoted by WFP will be another localized value-chain which will sustain continuing the linkage between schools and groups/cooperatives of the smallholders. The social and behavioral change communication and home-gardens will be fully customized to the local needs and local resource availability to make it realistic and sustainable in the long term. Engagement of the local governments in selection of beneficiaries and implementation of activities will ensure that the groups/communities will continue getting supports form the local governments.

83. The target communities will have active participation and ownership in the mid and high hills of Nepal expected due to their expression of interest, where east- west highway is in progress and feeder roads are already in access for horticulture commercialization. Due to comparative advantage horticultural crops give high return of investment than traditional crops, nutritive awareness of horticultural crops among the people, development of rural and semi urban areas along with metro cities dense population and the touristic flow has attracted youth especially migrant returnees in horticulture business for income generation and employment.

84. The project supported production-related activities are designed to be climate change adapted and environmentally sustainable. Production models indicate the proposed technical innovations are profitable at current prices with full accounting of operating and capital costs. Demand for most of these products is based on local consumption markets, with potential of export sales. Overall, strengthening of the capacity of grassroots institutions and their support services is the most effective means of ensuring sustainability after the project implementation as the activities have been designed considering the development of management and technical skills of stakeholders.

85. The NAFHA-GAFSP project design includes the following key activities to improve sustainability:
    - farmer groups and cooperatives will be trained, mentored, and empowered not only to function effectively without external props and financial support but also to grow over time to attain larger goals for their members.
    - all horticulture crops will be irrigated, through efficient gravity systems wherever possible and apply climate smart technology, supported by project-financed NARC research.
    - all co-financed crop and business investments will be required to achieve more than a 6percent financial internal rate of return.
    - all built infrastructure will be made climate resilient.
    - the private sector (farmers, cooperatives, and enterprises) will be the main development drivers and co-financiers; and
    - government contribution will be at least equivalent to post-project operation and maintenance costs.

Annex 1: List of project target municipalities/local governments

1) Province 1

District	Municipality Code	Municipality/ Rural Municipality
	82	Laligurans
	84	Myanglung
	85	Phedap
Dhankuta	74	Chhathar Jorpati
	75	Dhankuta
	77	Mahalaxmi
	78	Pakhribas
Bhojpur	97	Arun
	98	Bhojpur
	100	Pauwadungma
Khotang	124	Halesi Tuwachung
	128	Rawa Besi
	129	Diktel Rupakot Majhuwagadhi
Okhaldhunga	113	Champadevi
	117	Manebhanjyang
	120	Sunoshi
Solukhumbu	111	Solududhkunda
	105	Thulung Dudhkoshi
	106	Mapye Dudhkoshi
Total Priority Districts		7
Total Priority Municipalities		22

2) Bagmati Province

District	Municipality Code	Municipality/ Rural Municipality
Sindhupalchok	258	Chautara Sangachok Gadhi
	260	Indrawati
	263	Melamchi
Nuwakot	306	Likhu
	311	Tadi
Dhading	327	Netrawati Dabjong
	332	Tripura Sundari
	322	Gajuri
Total Priority Districts		3
Total Priority Municipalities		8

3) Gandaki Province

District	Municipality Code	Municipality/ Rural Municipality
	437	Galyang
Parbat	465	Jaljala
	466	Kushma
	468	Modi
	470	Phalebas
Mustang	452	Barhagaun Muktikhetra
	453	Dalome
	454	Gharapjhong
	456	Thasang
Manang	450	Nashong
	451	Neshyang
	448	Chame
Myagdi	457	Annapurna
	458	Beni
Baglung	471	Badigad
	475	Galkot
	476	Jaimuni
	477	Kanthekhola
	478	Nisikhola
Total Districts		10
Total Priority Municipalities		34

4) Karnali Province

District	Municipality Code	Municipality/ Rural Municipality
Rukum West	564	Banfikot
	566	Musikot
	567	Sani Bheri
Salyan	573	Dhorchaur
	577	Sharada
Jajarkot	628	Chhedagad
	629	Junichande
Dailekh	615	Aathabis
	623	Narayan
	618	Chamunda Bindrasaini
Kalikot	649	Kalika
	652	Naraharinath
Jumla	643	Hima
	646	Sinja
	644	Kanakasundari
Mugu	659	Khatyad
	661	Soru
Humla	668	Tanjakot
	662	Adanchuli
Dolpa	637	Mudkechula
Total Priority Districts		9
Total Priority Municipalities		20

5) Sudurpashchim Province

District	Municipality Code	Municipality/ Rural Municipality
Achham	692	Bannigadhi Jayagadh
	695	Kamalbazar
	696	Mangalsen
	698	Panchadewal Binayak
	701	Turmakhad
Bajura	671	Budhinanda
	675	Pandav Gupha
	676	Swami Kartik
Baitadi	743	Dasharathchanda
	748	Patan
Bajhang	681	Chabispathivera
	687	Masta
	683	Jaya Prithivi
	680	Bungal
Darchula	761	Shailyashikhar
	756	Lekam
Total Priority Districts		5
Total Priority Municipalities		16

Annex 2: WFP-led TA component performance measurement framework

Expected result	Performance Indicator/Target	Reporting responsibility	Data Sources	Collection Method	Frequency
Beneficiary farmers' agricultural income increased	Agricultural income increased by at least 10 percent At least 50 percent of farmers households use agroclimatic information	All Implementors, CPMU, PIU, WFP	Mid-term and end-term Project Progress reports	Review and field supervision by the designated supervisor	Twice (mid-term and end-term)
Production and productivity of project farmers increased (NAFHA Project outcome)	At least 1,000 ha of climate smart vegetables and other nutritious crop production areas established	Implementers, WFP, PIU	Quarterly and annual progress reports	Supervision, Regular monitoring, progress reports	Twice (mid-term and end-term)
	At least 60 percent of the beneficiaries will be women and 20 percent socio-economically marginalized/DAG households				
	At least 40 percent farmers cultivate commercial vegetable production and 60 percent grow nutritious vegetable gardening and local crops				
TA implementation result areas:					
Result 1: Farmers Nutrition School ToT materials developed	At least 5 ToT for Farmers' Nutrition School will be conducted in five provinces	WFP, PIU	Community and community level collaborators, progress report	Quarterly and annual review and planning workshops	Biannually
	At least 100 trainers developed for Farmers Nutrition Schools				
Result 2: Farmers' Nutrition Field School established	At least 1,600 Farmers' Nutrition Schools will be conducted	WFP, PIU	Community and community level collaborators, progress reports	Semi-annual and annual review and planning workshops	Biannually
	At least 400 farmers groups participate in FNSs, of which 250 are women groups				
Result 3: Household availability and utilization of nutritious food system developed	At least 10,000 households supported to establish a nutritious food system ((home garden and small livestock)	WFP, PIU	Community and community level collaborators, progress reports	Semi-annual and annual review and planning workshops	Biannually
	Estimated 4,000 poor and vulnerable households supported on vegetable seeds, diversity kits and small-scale poultry targeting household nutrition				
	Nutritious value of at least 20 local nutritious crops assessed in collaboration with DFTQC and promoted through ICT based methods as developed by NAFHA project				
Result 4: Smallholder farmers linked to local value chain collaborating with national school meal programme	At least 200 farmers groups (5,000 farmers) linked to home grown school feeding supply chain	WFP, PIU			

Annex 3: Project design and monitoring framework – applicable to WFP-managed TA component (aligned with the Project design and monitoring framework of NAFHA project)

Impacts the Project is Aligned with Livelihoods of rural households improved (Agriculture Development Strategy 2015–2035)[a] Resilience of farmers to climate change improved (Agriculture Development Strategy 2015-2035)[a]			
Results Chain	**Performance Indicators**	**Data Sources and Reporting Mechanisms**	**Risks and Critical Assumptions**
Outcome: Beneficiary farmers' agricultural income from climate resilient horticulture farming increased	a. Agricultural income of beneficiary farmer households increased by at least 10percent (OP 1.3) (2021 Baseline: NA)[39] b. At least 50 percent of farmer HH beneficiaries use agro climatic information in horticulture management (OP 3.2) (2021 Baseline: NA)	a-b. Project baseline, midterm, and outcome survey report.	R) Climate change exceeds the current scenarios, and such change induces more diseases or weather extremes. (A) Demand for fruits, and nuts continues to grow.
Output 2. Production and productivity of project farmers increased	2b. At least 1,000 ha of climate smart vegetable and other nutritious crop production areas established, with at least 60 percent women and 20 percent DAG household representation. (OP 5.3) (GAFSP indicator 2) (2021 Baseline: 0) 2d. At least 10,000 households supported for vegetable production and marketing with at least 60percent women and 20percent DAG household representation. (OP 5.3.2) (GAFSP indicator 3) (Baseline in 2021: 0) 2f. At least 20,000 farmers reporting the adoption of "packages of practice", of which at least 40percent are women or from DAG. (OP 5.3.4) (GAFSP indicator 13) (2021 Baseline: 0)	Quarterly and annual project progress reports	A) Women have time available to undertake nursery development and management. (A) Cooperatives are interested in providing technical advisory services to member farmers

[39] The agriculture income only includes reported cash income and does not include in-kind income such as agri produces that are self-consumed. The income is calculated as the average of all farmer HH respondents and also includes outliers.

Key Activities under WFP TA: 1. Preparation for and establishment of Farmers' Nutrition Field School (NFNFS) 2. Assessment of nutritious values of local nutritious crops, fruits and developing technical inputs for ICT-based communication and dissemination platform developed by NAFHA project (mobile app and web-based system) for utilization/promotion of nutritious local crops 3. FNS ToT for Agriculture technicians of local level and project staffs 4. FNS trainings to resource farmers 5. FNS refresher ToT for technicians 6. Establish and operationalize FNS 7. Support household availability and utilization of nutritious food (seeds, diversity kits, chickens) 8. FNS follow up 9. Facilitating market linkage for smallholder farmers to localized market leveraging the home - grown school feeding approach in community schools 10. Review, planning, monitoring and evaluation and stakeholder consultation workshops 11. Capacity building activities for government technicians 12. Joint project monitoring (Government, ADB, WFP) 13. TA staffing and project management			
Inputs ✓ GAFSP: $ 3 Million (Technical Assistance administered by WFP)			
Assumptions for Partner Financing ✓ ADB: $60 Million loan (COL) and $10 Million grant (ADF-13) ✓ GAFSP: $9 Million (grant administered by ADB) ✓ Government: $13.67 Million			
Project Management ✓ Central level CPMU supported by WFP/GAFSP Project Coordinator ✓ Provincial Level five PIUs supported by five WFP/GAFSP Provincial Coordinators			

GAFSP Tier 2 Core Indicators to be included in progress tracking and reporting:
1. Number of beneficiaries reached, percentage who have been helped to cope with impact of climate change, gender disaggregated (number)
2. Number of people receiving extension support for nutrition-relevant techniques (e.g., homestead gardens, Farmer Field School support, etc.) (number)
3. Land area (ha) receiving improved production support, percentage of these that are climate smart (ha)
4. Number of smallholders receiving productivity enhancement support from GAFSP, gender disaggregated, climate smart agriculture support (number of people)
5. Number of producer-based organizations supported (number)
6. Person receiving capacity development, gender disaggregated, age disaggregated
7. Agricultural and non-agricultural rural training and capacity building support provided

Source: GAFSP Monitoring and Evaluation Plan

Annex 4: Detailed budget breakdown

S.N.	Activities	Unit	Quantity	Rate (NPR)	Total (NPR)	Total (USD), Exchange rate of Nov 2022: 1 USD = NPR 131.884
NAFHA project Output 2. Production and productivity of project farmers increased						
1	**Activity: Farmer nutrition school, vegetable production, and household nutrition and nutritious food production related activities implementation and technical input:**					
1.1	Preparation for and establishment of Farmers' Nutrition Field School (NFS)	Lumpsum	1	2,000,000	2,000,000	15,165
1.2	Assessment of nutritious values of local nutritious crops, fruits and developing technical inputs for ICT-based communication and dissemination platform developed by NAFHA project (mobile app and web-based system) for utilization/promotion of nutritious local crops	Lumpsum	1	2,500,000	2,500,000	18,956
1.3	FNS ToT for Agriculture technicians of local level and project staffs	No	8	1,200,000	9,600,000	72,791
1.4	FNS trainings to resource farmers	No	8	400,000	3,200,000	24,264
1.5	FNS refresher ToT for technicians	No	16	500,000	8,000,000	60,659
1.6	Establish and operationalize FNS	No	400	290,000	116,000,000	879,561
1.7	Support household availability and utilization of nutritious food (seeds, diversity kits, chickens)	Group	400	40,000	16,000,000	121,319
1.8	FNS follow up	No	400	50,000	20,000,000	151,648
1.9	Facilitating market linkage for smallholder farmers to localized market leveraging the home - grown school feeding approach in community schools	Farmer groups	200	74,000	14,800,000	112,220
1.10	Review, planning, stakeholder consultation and coordination workshops/meetings	No	8	373,000	2,984,000	22,626
1.11	Project knowledge management/documentation, capacity building of government technicians, project monitoring/joint monitoring activities, and project's final evaluation (GAFSP component only)	Lumpsum			46,760,000	354,555
2	Technical assistance experts' services for vegetable production, and household nutrition and nutritious food production activities				79,724,966	604,508
3	Project management support cost				74,083,063	561,729
	Grand Total				395,652,000	3,000,000

Annex 5: Indicative ToR of TA positions

S.N.	Position	Number	Grade/level (as per UN standard)	Minimum qualification/experience	Major role and responsibilities
1	GAFSP Project Coordinator	1	SC-9/SB 5	Advanced University degree in International Affairs, Economics, Nutrition/Health, Agriculture, Environmental Science, Social Sciences, or other relevant field; and at	Overall coordination of the GAFSP funded component of NAFHA project for project management, operational/implementation coordination, monitoring and reporting, lead the implementation of TA component (FNS and household nutrition related activities) to achieve quality deliverables in the timeframe, mobilization of resources, coordinate with WFP management for necessary supports, guidance, quality assurance and oversight, coordination

S.N.	Position	Number	Grade/level (as per UN standard)	Minimum qualification/experience	Major role and responsibilities
				least five years of relevant experience	with NAFHA/GAFSP investment component, resource/budget monitoring, quality assurance and donor reporting of the project.
2	Nutrition education specialist	1	SC-8/SB-4	Advanced University degree in Nutrition/Health, nutrition education, food technology, behavior change communications, or social sciences, such as psychology, sociology, or cultural anthropology or other relevant field and at least four years of relevant experience and expertise.	Provide leadership and technical expertise to design, develop, and monitor nutrition education/SBCC strategies, design and implement a comprehensive, community based SBCC campaign to raise awareness and relay messaging on the importance of nutrition diversification, through key modalities for SBCC messaging platforms including radio, mobile communication, peer support and local messaging, develop comprehensive communication tools and SBCC campaign materials and activities, using evidence-based theories and methodologies, provide technical backstopping and support for TA staffs, and GAFSP staffs on FNS, contribute in timely implementation of FNS activities, and coordinate HH nutrition supports, and facilitate the smallholder market linkage by connecting smallholders to community schools with home-grown school feeding approach.
3	GAFSP Provincial Coordinator/Agriculture Technical Officer	5	SC-8/SB-4	Advanced University degree in Agriculture, or other relevant field; and at least four years of relevant experience and expertise.	Coordinate the GAFSP funded component of NAFHA project at provincial level for proper project management, operational/implementation coordination, monitoring and reporting, coordinate TA activities (FNS related activities) within the province, technical backstopping to frontline technicians for FNS and household nutrition related activities, establish working relation with provincial stakeholders, align GAFSP funded activities including TA activities with overall NAFHA activities.
4	Project operational information management, coordination and reporting Officer	1	SC-8/SB-4	Advanced University degree in International Affairs, Economics, Nutrition/Health, Agriculture, Environmental Science, public administration, statistics, Social Sciences, or other relevant field and at least four years of relevant experience and expertise.	Coordinate the monitoring, evaluation and learning activities of TA component including leading yearly review and planning meetings, facilitate joint-monitoring visits, coordinate M&E missions, develop beneficiary data framework and reporting plans, coordinate project's biannual and annual reporting to GAFSP.
5	Programme Assistant	1	SC-5/SB-3	Completion of higher secondary school education and at least four years of relevant experience and expertise.	Provide support in TA activities budget management with proper documentation and provide required administrative, logistics and finance related services to project's TA staffs
6	Intermittent technical experts (FNS, HGSF, climate change/resilience, GESI) for technical backstopping,	64 person-months over 5 years	SC-9	Relevant expertise	The intermittent technical experts will bring WFP's agency-wide learnings and technical expertise to the project by participating in review and planning meetings, contributing to develop yearly plans, and participating in field monitoring visits for quality assurance; support in sound execution of FNS e.g. developing FNS guidelines, provide ToT to project staffs, and

S.N.	Position	Number	Grade/level (as per UN standard)	Minimum qualification/experience	Major role and responsibilities
	guidance and oversight to TA team and management support to TA team (HR, ICT, Logistics, safety/security)				quality assurance of FNS; provide technical backstopping/guidance for HGSF implementation, and identification of resilient technologies and approaches, and household nutrition diversification; mainstreaming GESI aspects in different stage of project cycle and provide technical and management support to TA staff in the areas of human resource process, administration, ICT, safety and security of the TA staff.

Annex 6: Risk identification and mitigation

The project's overall inherent and residual risks are moderate and low, respectively. The main risks are on institutional capacity, where inherent risks in Nepal are high. On institutional capacity, substantial mitigation measures are incorporated into the design, but these must be continuously monitored by GoN and ADB and WFP, especially in the early years.

The project's climate risk classification is moderate. Key risks include: (i) increased incidence of new and existing diseases and pests, especially in higher altitudes; and (ii) greater variability in rainfall patterns within the year leading to higher risks of temporary water shortages. Benefits from climate change include opportunities for new crop varieties in higher altitudes, increasing yields and extended production seasons for crops.

Major risks and mitigation measures

Risk	Likelihood (L, M, H)	Risk rating (L, M, H)	Risk description	Proposed mitigation measures
Technical design[40]: Risk that technical design could affect the project from reaching its objectives	L	L	Hilly area farmers who have not grown horticulture crops before need capacity building and market information.	The project will develop digital-based training materials so illiterate farmers could learn from video-based instructions. Farmer-to-farmer field schools and digital advisory platform to be developed by the ADB loan project will also apply for the GAFSP beneficiaries.
Limited availability of seed of nutritious local crops	L	L	Availability of seeds and planting materials of local nutrient rich crops may be limited	Project will collaborate with NARC to identify the potential varieties / seeds and collaborate with local cooperatives and seed banks and private seed companies by making advance procurement plans
Institutional capacity for implementation[41]: Risk that there is insufficient capacity to	M	M	The FNS is new concept in Nepal hence there is limited capacity among the government staffs and other technical staffs	WFP has planned different capacity development activities to develop the capacity of the government staffs and NAFHA staffs on FNS

[40] Indicative list of risks to assess: the technical complexity of the project; the extent to which project design is informed by analytical work; adequacy of number of components and subcomponents; past experience in designing and implementing similar operations; whether the design incorporates or relies on untested or unfamiliar technologies and processes; the extent to which project benefits dependent on external factors beyond the scope of the project.

[41] Indicative list of risks to assess: the complexity of the institutional arrangements (at central and local levels) such as number of implementing entities involved; geographical spread of project intervention areas and remoteness of these areas; experience of proposed implementing agency with similar scaled projects with international organizations

implement the project			on implementing this approach.	approach. They include ToT for the technical staffs, and resource farmers, trainings and workshop events for projects staffs and government staffs and technical discussion/workshops. These will mitigate the risk of limited capacity.
The technical assistance being isolated/disjoint from the investment	L	L	Since the investment component of the GAFSP ($9 m) is being tied to larger ADB investment, WFP's technical assistance component may find it difficult to find space / define boundary to coordinate with the investment component	GAFSP component has been well defined in the NAFHA to make clear for WFP's scope for TA. WFP has ensured that TA support staffs will be stationed at every CPMU and PIU for effective coordination.

For Likelihood: L (low probability), M (moderate probability), or H (high probability). For Risk rating: L (low risk or impact), M (moderate risk or impact), or H (high risk or impact

Annex 7: Evaluation of negative externalities

Potential Negative Externalities	**Likelihood (L, M, H)**	**Risk rating (L,M,H)**	**Description of potential negative externalities**	**Proposed mitigation measures**
Environmental[42]	L	L	Not relevant to the GAFSP investment, but the introduction of fruit and nut planting materials into target areas require an initial environmental examination (IEE).	NAFHA project has prepared IEE for the entire project target municipalities. WFP will ensure introduction of pesticide-safe production technologies through FNSs.
Social[43]	L	L	Minority indigenous people (IP) could have less access to project information and opportunities.	IP inclusion is mainstreamed through the indigenous peoples planning framework (IPPF) that will be finalized through the appraisal document. This framework will ensure that in assessing the

[42] This could include the potential effects on natural resources such as water sources, forests, and protected areas; potential effects on biodiversity; and where appropriate, potential impacts on the climate arising from unchecked anthropogenic emissions of greenhouse gases (GHGs) and short-lived climate pollution (SLCPs).

[43] This could include the potential effects on human health and safety; the nature, scale and duration of social effects such as the need for land acquisition and/or involuntary resettlement; potential impacts on, equity, and indigenous peoples; and potential impacts on physical cultural resources.

				subprojects, developing the training, capacity building activities, and advertising and provisioning the financing opportunities, and throughout project implementation, meaningful consultation with indigenous peoples' and associations and farmer groups with IP members will be carried out. There are some targeted interventions (e.g., poultry support) to address the specific nutrition needs of some groups of beneficiaries (e.g., Dalit)
Gender	L	L	Female households could be overburdened with additional agricultural labour in addition to household management	Female farmers' participation in farmer groups/cooperatives will be promoted for getting collective action/support through the community

For Likelihood: L (low probability), M (moderate probability), or H (high probability).
For Risk rating: L (low risk or impact), M (moderate risk or impact), or H (high risk or impact).