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Report No: ICR00006566

IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF NUMBER A-8013

ON A

GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAM (GAFSP) GRANT

IN THE AMOUNT OF US$22.7 MILLION

TO

FEDERAL DEMOCRATIC REPUBLIC OF NEPAL

FOR THE

FOOD AND NUTRITION SECURITY ENHANCEMENT PROJECT

April 30, 2025

Agriculture And Food Global Practice
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 18, 2024)

Currency Unit =	Nepalese Rupees (NPR)
NPR 135.20 =	US$1

FISCAL YEAR
July 16 – July 15

Regional Vice President:	Martin Raiser
Country Director:	David N. Sislen
Regional Director:	Dina Umali-Deininger
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Task Team Leader (s):	Asuka Okumura
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ABBREVIATIONS AND ACRONYMS

ADS	Agriculture Development Strategy
AFSP	Agriculture and Food Security Program
BCC	Behavior Change Communication
BP	Business Plan
CPF	Country Partnership Framework
CRP	Cattle Research Program, Rampur, Chitwan
CSA	Climate Smart Agriculture
DHS	Demographic and Health Survey
DIME	Development Impact Evaluation
DLS	Department of Livestock Services
DoH	Department of Health
EIRR	Economic Internal Rate of Return
EoP	End of Project
FAO	Food and Agriculture Organization
FBS	Farmer Business School
FFS	Farmer Field School
FIES	Food Insecurity Experience Scale
FM	Financial Management
FMIS	Financial Management Information System
FY	Fiscal Year
GAFSP	Global Agriculture and Food Security Program
GHG	Greenhouse Gas
GoN	Government of Nepal
GRM	Grievance Redress Mechanism
HDI	Human Development Index
HNG	Home Nutrition Garden
IFR	Interim Financial Report
IUFR	Interim Unaudited Financial Report
M&E	Monitoring and Evaluation
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MFI	Microfinance Institution
MG	Matching Grant
MIS	Management Information System
MoALD	Ministry of Agriculture and Livestock Development
MoU	Memorandum of Understanding
MSNP	Multi-Sector Nutrition Plan
MUAC	Mid Upper Arm Circumference
NARC	Nepal Agricultural Research Council
NFS	Nutrition Field School
NFS Portal	Nepal Nutrition and Food Security Portal
NGO	Nongovernmental Organization
NPV	Net Present Value
NSB	National Seed Board

O&M	Operation and Maintenance
OAG	Office of the Auditor General
OFD	On-farm Demonstration
PA	Productive Alliance
PCE	Private Capital Enabled
PCU	Project Cluster Unit
PD	Project Director
PDO	Project Development Objective
PG	Producer Group
PMU	Project Management Unit
PO	Producer Organization
PPSD	Project Procurement Strategy for Development
SDG	Sustainable Development Goal
TA	Technical Assistance
ToC	Theory of Change
UN	United Nations
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WoP	Without Project

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DATA SHEET

BASIC DATA

Product Information

Operation ID	Operation Name
P164319	Food and Nutrition Security Enhancement Project
Product	**Operation Short Name**
Investment Project Financing (IPF)	Food and Nutrition Security Project
Operation Status	**Approval Fiscal Year**
Closed	2019
Original EA Category	**Current EA Category**
Partial Assessment (B) (Approval package - 25 Sep 2018)	Partial Assessment (B) (Restructuring Data Sheet - 02 May 2023)

CLIENTS

Borrower/Recipient	Implementing Agency
Nepal	Ministry of Agriculture and Livestock Development (MoALD)

DEVELOPMENT OBJECTIVE

Original Development Objective (Approved as part of Approval Package on 25-Sep-2018)

The Project Development Objective (PDO) is to enhance climate resilience, improve agricultural productivity and nutrition practices of targeted smallholder farming communities in selected areas of Nepal.

FINANCING

Financing Source	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)

World Bank Administered Financing	22,700,000.00	22,109,829.69	22,109,829.69
TF-A8013	22,700,000.00	22,109,829.69	22,109,829.69
Non-World Bank Financing	6,000,000.00	6,000,000.00	4,970,000.00
Borrowing Agency	6,000,000.00	6,000,000.00	4,970,000.00
Total	**28,700,000.00**	**28,109,829.69**	**27,079,829.69**

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Type	Amount Disbursed (US$M)	Key Revisions
11-May-2022	Manual	10.52	• Results
20-Mar-2023	Portal	16.50	• Results
02-May-2023	Portal	16.50	• Results • Loan Closing Date Extension

KEY DATES

Key Events	Planned Date	Actual Date
Concept Review	28-Sep-2017	28-Sep-2017
Decision Review	15-May-2018	15-May-2018
Authorize Negotiations	18-Jul-2018	12-Jul-2018
Approval	27-Sep-2018	25-Sep-2018
Signing		14-Nov-2018
Effectiveness	31-Oct-2018	14-Nov-2018
Restructuring Sequence.01	Not Applicable	20-Mar-2023
Restructuring Sequence.02	Not Applicable	02-May-2023
Mid-Term Review No. 01	21-Nov-2021	21-Nov-2021
Operation Closing/Cancellation	30-Jun-2024	30-Jun-2024
ICR/NCO	30-Apr-2025	--

RATINGS SUMMARY

Outcome	Bank Performance	M&E Quality
Moderately Satisfactory	Moderately Satisfactory	Modest

ISR RATINGS

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	04-Feb-2019	Satisfactory	Satisfactory	0.00
02	20-Aug-2019	Moderately Satisfactory	Moderately Satisfactory	2.00
03	31-Mar-2020	Moderately Unsatisfactory	Moderately Unsatisfactory	3.66
04	11-Aug-2020	Moderately Satisfactory	Moderately Satisfactory	3.66
05	04-Feb-2021	Moderately Satisfactory	Moderately Satisfactory	4.44
06	11-Mar-2021	Moderately Satisfactory	Moderately Satisfactory	6.00
07	27-Sep-2021	Moderately Satisfactory	Moderately Satisfactory	7.95
08	10-Dec-2021	Moderately Satisfactory	Moderately Satisfactory	9.56
09	08-Jun-2022	Moderately Satisfactory	Moderately Satisfactory	11.18
10	30-Sep-2022	Moderately Satisfactory	Moderately Satisfactory	15.64
11	20-Mar-2023	Moderately Satisfactory	Moderately Satisfactory	16.50
12	18-Sep-2023	Moderately Satisfactory	Moderately Satisfactory	19.45
13	30-Oct-2023	Satisfactory	Satisfactory	19.45
14	15-Mar-2024	Moderately Satisfactory	Satisfactory	20.69

SECTORS AND THEMES

Sectors

Major Sector	Sector	%	Adaptation Co-benefits (%)	Mitigation Co-benefits (%)
FY17 - Agriculture, Fishing and Forestry	FY17 - Agricultural Extension, Research, and Other Support Activities	31	25	25

	FY17 - Public Administration - Agriculture, Fishing & Forestry	16	9	9
FY17 - Health	FY17 - Health	22	0	0
FY17 - Industry, Trade and Services	FY17 - Agricultural markets, commercialization and agri-business	31	0	0

Themes

Major Theme	Theme (Level 2)	Theme (Level 3)	%
FY17 - Environment and Natural Resource Management	FY17 - Climate change	FY17 - Adaptation	9
		FY17 - Mitigation	9
FY17 - Human Development and Gender	FY17 - Nutrition and Food Security	FY17 - Food Security	38
		FY17 - Nutrition	38
FY17 - Urban and Rural Development	FY17 - Rural Development	FY17 - Rural Infrastructure and service delivery	78
		FY17 - Rural Markets	47
		FY17 - Rural Non-farm Income Generation	47

ADM STAFF

Role	At Approval	At ICR
Practice Manager	Loraine Ronchi	Tomas Ricardo Rosada Villamar
Regional Director		Dina Umali-Deininger
Global Director	Juergen Voegele	Shobha Shetty
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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

1. Nepal is a landlocked, low-income country with diverse agroecological areas, high poverty levels, and poor nutritional status. At appraisal in 2018, it had a per capita income of US$1,004, with 80 percent of the population residing in rural areas and 66 percent engaged in agriculture. Nepal ranked 197th in GDP per capita and 145th in the Human Development Index (HDI). From 2005 to 2015, Nepal's economy grew at an average of 4.3 percent annually. Agriculture, though declining as a share of the economy, contributed 30 percent of the value added and was a major driver of the economy and employment. Poverty rates declined from 42 percent in 1994/95 to 25 percent in 2015, mainly due to rising agricultural incomes, though this was largely due to increased commodity prices rather than productivity increases. Despite this, poor nutrition and food insecurity remained significant issues, with high rates of stunting, wasting, and underweight children, and maternal malnutrition.

2. The agriculture sector faced challenges such as low availability of quality seeds and animal breeds, inadequate research and extension support, low investment in productive assets, poor market linkages, lack of access to rural finance, vulnerability to shocks, and weak nutrition-sensitive interventions. Nepal's Agriculture Development Strategy (ADS) aimed to address these issues by targeting 4 percent growth in agriculture GDP by 2020 and 6 percent by 2025 through improving governance, increasing productivity, supporting commercialization, and enhancing competitiveness. The ADS was aligned with the Government's 14th Periodic Plan and the Multi-Sector Nutrition Plan II (MSNP II), which aimed to improve food security and nutrition.

3. Achieving food and nutrition security and reducing poverty were national goals aligned with the Sustainable Development Goals (SDGs) and the Zero Hunger Challenge. Nepal aimed to reduce stunting to 24.2 percent by 2025, in line with the World Health Assembly target. The proposed project was a successor to the Agriculture and Food Security Project (AFSP), which closed in March 2018. AFSP, funded by the Global Agriculture and Food Security Program (GAFSP), aimed to enhance food and nutritional security in 19 districts of Nepal. Despite improvements in primary education, gender parity, and under-5 child mortality, malnutrition and stunting remained high. The project outcome was rated as Moderately Satisfactory by the Bank's Independent Evaluation Group, laying a foundation for a follow-on project.

4. The new project, financed by GAFSP, aimed to further enhance food and nutritional security, aligned with the FY2019–2023 Nepal Country Partnership Framework (CPF, Report No. 121029-NP). The CPF was extended to FY24 by the Performance and Learning Review (PLR) dated January 17, 2022. The CPF focused on public institutions, private sector-led jobs and growth, and inclusion and resilience. The project aimed to improve government capacity to deliver agriculture extension services, enhance income opportunities for the rural poor, mitigate climate risk, improve nutritional outcomes, and empower women. It aimed to enhance climate resilience by mainstreaming climate-smart agriculture practices, in line with the World Bank's Climate Change Action Plan.

Theory of Change (Results Chain)

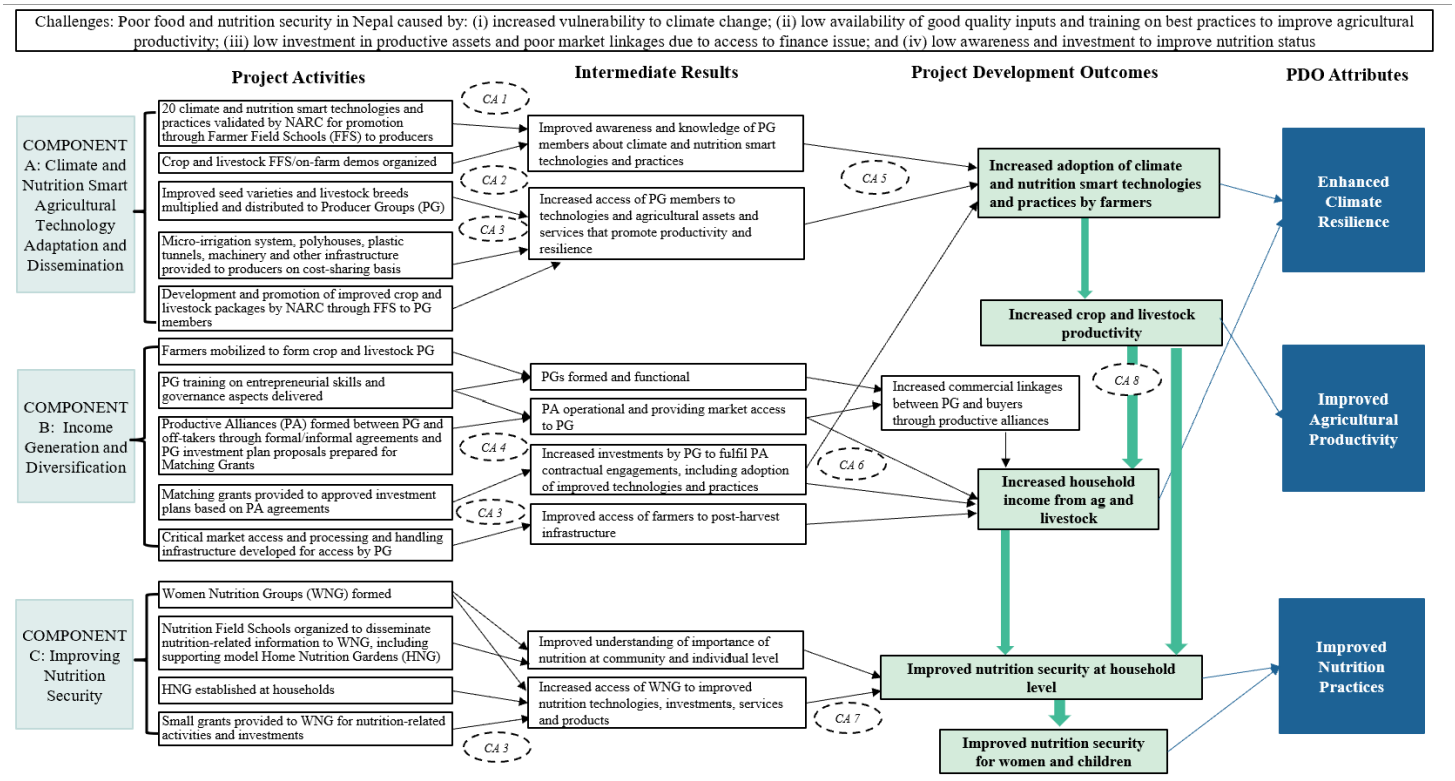
5. A key aspect of the project was its geographical coverage, which was completely different from the 19 districts targeted under AFSP. Eight vulnerable districts, and within these, sixteen rural municipalities (two in each selected district) in the Hills and Terai region were selected. The project selected the following districts in the Hills - Dhading, Gorkha, Dolakha, and Sindhupalchok; and for the Terai - Saptari, Siraha, Mahottari, and Dhanusha based on areas that are: (a) adversely affected by earthquake; (b) with high climate change vulnerability ranking; (c) with low human development index ranking; (d) with relatively high incidence of malnutrition; (e) with relatively low food security status; and (f) with relatively high poverty. The sixteen rural municipalities selected were the most vulnerable of the sixty rural municipalities within these eight districts.

6. The targeted cohort of about 65,000 beneficiaries consisted primarily of vulnerable, small, and marginal farming households within these sixteen rural municipalities, and constituted about 50 percent of the selected municipality population. A defining factor in these rural municipalities (and more generally in Nepal) has been the outmigration of men to other countries, leaving women to engage more deeply in agriculture. This has resulted in what is now referred to as "feminization" of agriculture. A key outcome of this out-migration has been the large source of inward

remittance flows which, combined with other sources of income, has considerably dwarfed the share of agriculture in rural household income. Women constituted a large proportion of the project beneficiaries.

7. The project prepared a broad Theory of Change (ToC), based on the United Nations Children's Fund's conceptual framework of malnutrition. Figure 1 provides a more comprehensive ToC graphic for the project.

Figure 1: Theory of Change



8. The ToC relies on several critical assumptions (CAs): **CA1**: The Nepal Agricultural Research Council (NARC) validates and delivers technologies with recommended practices on schedule. **CA2**: Community-based multiplication of improved seeds and breeds is successful. **CA3**: Producers, Producer Groups (PG), and Women Nutrition Groups (WNG) contribute 15 percent, 40 percent, and 40 percent, respectively, to access grants for technology adoption, Productive Partnerships, and nutrition-focused Small Grants. **CA4**: There is sufficient trust and demand for Productive Partnerships between producers and off-takers. **CA5**: Producer knowledge of improved technologies and practices increases, leading to adoption. **CA6**: Productive Partnerships are sustained, generating additional income. **CA7**: WNGs effectively use inputs to produce more nutrient-dense foods and vegetables. **CA8**: The scale-out of improved technology adoption is substantial enough to enhance productivity, income, and nutritional outcomes.

Project Development Objective (PDO)

9. The objective of the Project is to enhance climate resilience, improve agricultural productivity and nutrition practices of targeted smallholder farming communities in selected areas of Nepal.

Key Expected Outcomes and Outcome Indicators

Enhanced Climate Resilience

(a) Farmers adopting improved agricultural technologies (including Climate Smart Agriculture (CSA)) of which female: 31,800 farmers, with 65 percent female farmers (20,670).
(b) Increased household income (measured as aggregate of revenue net of cost of production and imputed value of production that is self-consumed) (gender disaggregated): Baseline + 25 percent.

Improved Agricultural Productivity

(c) Increased crop and animal productivity by direct beneficiaries (disaggregated by crop and animal species): crops (foodgrains): 25 percent; crops (vegetables): 30 percent; livestock (meat): 40 percent; and livestock (milk): 35 percent.

Improved Nutrition Practices

(d) Improved score on the Food Insecurity Experience Scale (FIES) by direct beneficiaries (gender disaggregated): 40 percent improvement over baseline.

(e) Improved dietary intake for:
- Pregnant and nursing mothers: measured as proportion of women 15-49 years of age consuming at least 5 of 10 defined food groups: Baseline + 20 percent
- Children between 6 and 24 months: measured as percentage of children with Minimum Acceptable Diet (both frequency and dietary diversity): Baseline + 20 percent.

Project Components

10. The project consisted of four components:

Component 1: Climate and Nutrition Smart Agriculture Technologies (US$7.17M actual cost, GAFSP: US$6.89M)
- **1A:** Adapted and tested 20 climate- and nutrition-smart technologies through NARC, improving crop and livestock practices, seed and breed replacement rates, and training extension agents.
- **1B:** Promoted climate-smart agriculture through farmer field schools, on-farm demonstrations, and improved seed and livestock distribution, targeting 40,000 producers, with 32,000 adopting better practices.

Component 2: Income Generation and Market Linkages (US$8.46M actual cost, GAFSP: US$6.83M)
- **2A:** Strengthened 1,600 producer groups via technical assistance, business training, and governance support.
- **2B:** Improved market linkages through value chain studies, stakeholder platforms, and matching grants for 450 producer groups, along with rehabilitating 185 market infrastructures.

Component 3: Nutrition Security (US$6.03M actual cost, GAFSP: US$4.94M)
- **3A:** Conducted malnutrition diagnostics, developed nutrition training modules, and assessed nutrient-rich foods for localized dietary recommendations.
- **3B:** Formed women's nutrition groups, established Nutrition Field Schools (NFSs), and supported home gardens with small grants for food production and preservation.

Component 4: Project Management & M&E (US$5.5M actual cost, GAFSP: US$3.45M). Ensured effective planning, implementation, monitoring, and coordination across components and implementing partners.

11. Total Project Cost: The estimated cost at appraisal was US$28.7 million, with a counterpart contribution of US$6.0 million. At the end of the project, the actual cost was US$27.08 million, with counterpart contribution of US$4.97 million (see Annex 3 for details).

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

12. The PDO remained unchanged during project implementation.

Revised PDO Indicators

13. Although the PDO remained unchanged, the ambition of some PDO level indicators (and some intermediate results indicators) was changed with the two project restructurings (Annex 1C).

Revised Components

14. The project components and nature of activities remained unchanged during implementation, although the targets for some monitored output/outcomes were revised because of the two restructurings (Annex 1C).

Other Changes

15. Apart from the two restructurings of May 2022 and April 2023 for which details are provided above, there were no other significant changes.

Rationale for Changes and Their Implication on the Original Theory of Change

16. The first restructuring was based on the mid-term review's (MTR's) recommendations and aimed to: (a) adjust certain indicator targets to better reflect on-the-ground realities, including higher demand for matching grants, lower demand for market infrastructure rehabilitation, and a reduced meat productivity target due to COVID-19–related constraints on the availability of Boer goats for breeding; (b) introduce new intermediate indicators to enhance monitoring, such as the number of irrigation schemes, irrigated area, and small grants for nutrition activities; and (c) disaggregate beneficiaries between productive and nutrition sector activities. The second restructuring stemmed from savings generated by the US$-NPR exchange rate, prompting a government request to: (a) extend the closing date by 12 months to June 30, 2024, and (b) increase targets for matching and small grants. Neither restructuring affected the project's Theory of Change.

II. OUTCOME

A. RELEVANCE OF PDO

Assessment of Relevance of PDOs and Rating

17. Nepal's ADS, endorsed in 2015, provides the policy framework for the sector, aiming for a 6 percent growth in agricultural GDP by 2025. The strategy supports the Government of Nepal's (GoN's) vision of a self-reliant, sustainable, competitive, and inclusive agricultural sector. The project aligns with the ADS's two main pillars: (a) increasing productivity through improved agricultural research, extension, and efficient use of resources while enhancing climate resilience, and (b) promoting commercialization by shifting agriculture, including livestock, from subsistence to more profitable, market-oriented practices.

18. The project aligns with the CPF (FY19-23), and its Performance and Learning Review (PLR) extended to FY24. By supporting income generation, inclusion of small farming households and women, and climate resilience, the PDO addresses priorities in Focus Areas 2 and 3 of the PLR. It also supports the 2022 Country Climate and Development Report's priorities by promoting the Green, Inclusive, and Resilient Development (GRID) approach, scaling up CSA in marginalized, food-insecure communities, and advancing human capital development for the nutrition security of vulnerable populations, particularly pregnant women and children under two.

19. The project also aligns with Nepal's Second Nationally Determined Contribution (SNDC), National Adaptation Plan (NAP), and Long-term Strategy for Net-zero Emission (LTS). It supports the SNDC's focus on agriculture, particularly cattle sheds for manure production and access to CSA. The NAP's three relevant programs—sustainable agriculture, building climate change adaptation capacity, and promoting agro-practices—are directly supported by the project. Additionally, the LTS targets net-zero emissions by 2045, with sustainable agriculture playing a key role. The project contributes by improving access to climate-resilient seeds, irrigation, and CSA practices. Finally, that IDA, through the GAFSP grant, has supported a follow-on FANSEP II project to scale up best

practices under FANSEP to 16 new rural municipalities suggests that the project and its Development Objective continue to remain relevant for Nepal. FANSEP II was approved by the Board on September 18, 2023, with a closing date of June 30, 2027.

20. The Relevance of PDO is rated High.

B. ACHIEVEMENT OF PDO (EFFICACY)

Assessment of Achievement of Outcomes

21. Split ratings were used to assess PDO outcomes given changes to the indicator targets before and after restructurings (Annex 1D). The ratings were based on information from the project's M&E system, Implementation Status Reports, the Baseline Survey conducted by the Development Impact Evaluation (DIME), Project Completion Report, and the Year 6 (Y6) Survey of November 2024 by the Project Management Unit (PMU). To assess endline results of the project, the ICR team used the Y6 survey to determine whether targets were met at project closing, as it covered beneficiaries across all intervention regions. Although other data sources, such as the DIME Endline Evaluation (June 2023), were available, the ICR team opted not to use this dataset for assessing project targets due to the inability of the surveys to estimate individual level impacts of the interventions.[1] Furthermore, the DIME endline survey did not cover project achievements following extension of the project closing date to June 2024. However, the DIME datasets were used to compute indicators baseline and understand the underlying transitions driving the outcomes. The results presented in this efficacy section (table 1) do not represent average treatment effects. Rather, they are pre-post intervention outcome comparisons that helped assess whether the project met its targets for the treated sample.

Table 1: Summary of Achievement of Result Indicators

Indicators	Unit	Baseline (BL)	Target (EOP)	Achievement (A)	Achievement as % of incremental project target ((A)-(BL))/((EOP)-(BL)) *100
Improved Climate Resilience					
Increased household income (revenue minus cost)					
All households	NPR	249,249	BL+30%=324,024	389,598	188% achievement
Male headed households	NPR	252,958	BL+30%=328,845	402,877	98% achievement
Female headed households	NPR	232,408	BL+30%=302,130	360,027	183% achievement
AG Revenue: Crop + livestock revenue + self-consumed	NPR	81,583	BL+30%=106,058	164,191	338% achievement
AG Profit: Crop + livestock revenue + self-consumed - production costs	NPR	51,721	BL+30%=67,237	131,986	517% achievement
Farmers adopting improved technologies, including CSA	Number	0	33,000	34,475	104% achievement
Improved Agricultural Productivity					
Average Food grains	tons/ha	2.43	BL+25%=3.04	2.92	80% achievement
Average Vegetables	tons/ha	6.75	BL+30%=8.78	18.15	561% achievement
Average Goat meat	KG/goat	21.8	BL+40%=30.1 (O)	27.14	64% achievement
			BL+25%=27.3 (R)		97% achievement
Weighted Average Milk	Liters/animal	652.29	BL+35%=880	1312.55	290% achievement
Improved seed replacement rate					
Overall	Percent	25	BL+35%=33.75	41	183% achievement

[1] The DIME surveys were conducted at the community level, limiting the project team's ability to estimate impacts at the individual level. Furthermore, COVID-related disruptions during implementation resulted in the loss of one project year. Consequently, Year 6 (Y6) data offered a more accurate assessment of project outcomes.

Paddy	Percent	31	BL+35%=41.85	39	74% achievement
Maize	Percent	24	BL+25%=30	40	267% achievement
Wheat	Percent	25	BL+35%=33.75	42	194% achievement
Potato	Percent	16	BL+25%=20	30	350% achievement
Improved Nutrition Practices					
Improved FIES Score					
All households	Score	-6.2	BL+5%=-6.51	-8.15	629% achievement
Male headed households	Score	-6.2	BL+13%=-7.01	-8.64	303% achievement
Female headed households	Score	-6.2	BL+3%=-6.39	-7.66	785% achievement
Minimum Dietary Diversity score for pregnant and nursing women	Percent	41	BL+30%=53	81	325% achievement
Minimum Dietary Diversity score for children aged 6 to 24 months old	Percent	17	BL+30%=22	44	529% achievement
Minimum Acceptable Diet score for children aged 6 to 24 months old	Percent	20	BL+30%=26	26	100% achievement
Household Dietary Diversity Score	Number	6.82	BL+20%=8.18	7.27	33% achievement
Number of food categories consumed by women aged 15-49	Number	7.22	BL+30%=9.39	8.32	50% achievement
Number of food categories consumed by children 6-24 months old	Number	3.8	BL+30%=4.94	4.01	18% achievement

Note: (O) represents the original target and (R) represents the revised target.

PDO Outcome 1: Enhanced Climate Resilience

22. Climate resilience in this project was defined as beneficiaries' ability to withstand and recover from climatic shocks, particularly droughts and rainfall. The project aimed to achieve this by promoting climate-resilient technologies, crop diversification, and additional income generation. Achievement was measured by: (a) scale of climate resilient technologies adoption (number of beneficiaries); and (b) impact on household income.

23. **Adoption of climate-resilient technologies.**[2] The project promoted improved production technologies and practices through Farmer Field Schools and on-farm demonstrations. While some technologies were already available, 20 more were to be validated by NARC. Adoption was driven by increased knowledge from demonstrations of low-cost practices like row and relay cropping, mulching with fertilizers, bio-pesticides, composting, farmyard manure use, and stall feeding. A second adoption pathway involved the distribution of seeds, inputs, and equipment with 15 percent cost-sharing by beneficiaries. The most widespread adoption came through matching and demand-based grants, which provided producers with access to finance for investment in improved technologies and practices.

24. Adoption of specific crop production technologies ranged from 0.5 percent for drought/flood-tolerant varieties and green manure to 43 percent for agricultural machinery (Annex 1E). For individual livestock technologies, adoption ranged from 0.8 percent (artificial insemination) to 59.4 percent (better feeds). Adoption varied by household cost, with free technologies like plastic tunnels, improved seeds, and goat varieties adopted more quickly. Overall, the share of farmers that adopted any technology was 65 percent for crops technologies and 83 percent for livestock technologies, with a combined adoption rate of over 83 percent for both crops and livestock technologies. Improved seed distribution and matching grants played a key role. In total, 34,775 beneficiaries adopted improved agricultural technologies, surpassing the target of 33,000.

25. **Impact on household income**. Income increase expected from productivity improvement and matching grant investments was expected to enhance household resilience against climate variability. The results suggest that gross household income increased by 188 percent over baseline, reflecting the effectiveness of the financing instruments deployed. Moreover, agricultural income and profits experienced achievement of targets at 338

[2] Adoption rate was determined by dividing the number of households that reported adopting the technology within the past 12 months, within the past 3 years, or more than 3 years ago by the total number of respondents.

percent and 517 percent, respectively, suggesting that improvements in climate resilience contributed significantly to these gains, with climate-resilient agriculture driving overall income growth.

26. The increase in farmers' income can be attributed to several key factors. Adoption of improved agricultural practices, such as polyhouse vegetable production, optimized irrigation techniques, and better disease management, has significantly boosted yields. Livestock productivity enhancements, including crossbred Boer goats and improved feeding and health practices, have led to higher market prices and reduced losses. Farmers have also gained from better market access through collective bargaining, though goat farmers still require support in negotiating live-weight pricing. The use of high-quality seeds, particularly truthfully labeled seeds, has improved crop quality and pricing. Additionally, financial literacy initiatives have enabled farmers to track production costs and manage finances more effectively. Finally, government and project support, including grants for infrastructure, irrigation, and training programs, have further contributed to increased earnings.

27. **Ratings**. Without the restructuring, enhanced climate resilience was rated *Moderate*, as only one of the two indicators was achieved, and agricultural profit improvements showed no progress. Following restructurings, the rating increased to *High*, as both targets—agricultural profits and the number of farmers adopting improved technologies were surpassed (Annex 1E). The slow initial adoption is attributed to the time required for farmers to embrace new technologies and experience their benefits, despite the project's efforts in creating awareness through OFDs and FFS.

PDO Outcome 2: Improved Agricultural Productivity - crops and livestock species

28. The project planned to achieve this objective by: (a) promoting the adoption of improved technologies and practices through FFS and OFD, including providing inputs and services; (b) supporting access to finance for productive sub-projects; and (c) enhancing value addition and market access investments.

29. **Disseminating improved technologies and practices.** The project organized separate FFS and OFDs for crops and livestock (dairy, poultry, and goat rearing) as provided in table 2. The crop FFS covered topics like fertilizer application, irrigation, seed selection, and pesticide preparation, while livestock FFS addressed feed management, animal shed maintenance, disease identification, and manure management. OFDs demonstrated technologies such as zero/conservation tillage, pheromone traps, off-season vegetables production, and Urea Molasses Multi-Nutrient Block (UMMB) practices. A total of 42,224 beneficiaries participated in FFS and OFD, accessing technology learning, with most beneficiaries engaging through one or both approaches. Determining unique participant numbers is challenging, but nearly all beneficiaries likely accessed the technologies.

Table 2: Dissemination of Improved Technologies and Production Practices

	Crops	Livestock				Total
		Dairy	Goat	Poultry	Sub-total	
Producer groups organized	881	169	412	160	741	1,622
Group membership	21,614	4,204	10,193	3,806	18,203	39,817
FFS: FAO + PMU – organized (no)	591	56	99	43	198	789
Beneficiaries participating in FFS	14,916	4,612				19,528
Share of members participating in FFS	69%	25%				49%
OFD (no)	715	608				1,328
Members benefiting from OFD	15,172	7,524				22,696
Share of OFD participants	70%	41%				57%
Total FFS and OFD participants	30,088	12,136				42,224

30. Following FFS, producers received inputs and services, with 32 seed producer groups organized to produce high-yielding, climate-resilient seeds. To enhance the adoption and dissemination of climate-resilient and nutrition-focused agricultural technologies, the project distributed 81.81 metric tons of source seeds, 136,915 number of potato pre-basic seeds and 557.9 metric tons of improved seeds, along with 729.7 metric tons of seed potatoes. The project exceeded seed replacement rate (SRR) targets for all crops except paddy. The lower SRR for paddy was due to farmers using seeds for consumption, limited storage space, and seed quality issues.

Despite these challenges, 28.2 metric tons of paddy source seeds produced 766.9 metric tons of improved seed, with 46 percent used for planting, showing progress in improving SRR.

31. For livestock, the project distributed 55.8 metric tons of forage seeds comprising 10 different species for producing green forage during winter and summer seasons. Additionally, 438,512 fodder tree saplings and perennial forage seedlings were distributed, benefiting 45,366 farmers, of whom 75 percent were women. A total of 15 goat multiplier herds were established to produce improved bucks and does for producers. The project distributed 653 bucks and 2,862 does to producers. Likewise, poultry producing groups received 19,977 chicks of improved Giriraja, Black Australorp, and New Hampshire varieties. 13 artificial insemination facilities were established at the rural municipality level that, by closing, had carried out about 5,000 inseminations.

32. **Providing access to finance for productive sub-projects**. The project awarded $4.30 million in matching grants to 778 groups (18,984 beneficiaries) out of 1,622 crop and livestock producer groups (39,817 beneficiaries). Grants focused on vegetable production/processing (41 percent) and poultry/goat rearing (34 percent). The Food and Agriculture Organization (FAO) helped organize multi-stakeholder platforms and draft agreements protecting producers. During the extended period, demand-based grants for technology adoption were introduced, financing 391 sub-projects worth $1.44 million and benefiting 9,964 producers, mostly in vegetables and pulses (56 percent) and goat rearing (20 percent). In total, 1,169 sub-projects were financed, benefiting 28,948 producers (73 percent of total beneficiaries).

33. **Grants provided under FANSEP played a crucial role in enabling farmers to adopt improved agricultural practices**. Matching grants helped smallholder farmers invest in polyhouses, small scale pumps and drip irrigation systems (micro irrigation systems), and modern farm equipment, significantly improving productivity and resilience to climate shocks. In livestock farming, grants facilitated the introduction of crossbred Boer goats, improved shed construction, and access to quality feed and vaccines, leading to higher survival rates and market prices. Additionally, grants supported seed production groups in acquiring processing equipment, enabling them to produce and market truthfully labeled seeds, ensuring better-quality inputs for local farmers. The availability of financial assistance encouraged the adoption of new technologies, reducing initial investment barriers and allowing farmers to transition towards more profitable and sustainable agricultural practices.

34. **Grants under FANSEP also supported value addition and market access** through 62 sub-projects totaling about US$765,000, with a 20 percent community contribution. Of these, 35 focused on agriculture (e.g., vegetable and seed processing, market access) and 27 on livestock (e.g., milk and meat processing). An ICR field visit confirmed that the Tilakeshwor Agriculture Group in Pokhare, Sindhupalchowk, received NPR 1,500,000 from the project and NPR 343,641 from farmers to establish a Dairy Handling and Processing Unit. This benefited 30 group members directly and over 150 farmers indirectly. The unit collects 144,000 liters of milk annually, processing 30–40 liters daily into curd and paneer. The addition of milk collection and chilling facilities has spurred further dairy production and value-added investments in the community.

35. The impact of these interventions on improved productivity is significant. Four commodities were identified to measure project contribution: food grains, vegetables, goat meat, and milk. The project exceeded the target for vegetables but achieved 80 percent target for foodgrains (20.2 percent improvement against the 25 percent target). Achievement of targets for goat meat productivity was 97 percent, while that of milk productivity was 290 percent. Goat meat productivity was the only indicator for which the appraisal target of BL+40% was reduced to BL+25% at first restructuring.

36. **Ratings**. Without restructuring, the rating was Modest, as crop yields were near target levels, but animal-related indicators showed minimal progress. After the first restructuring, one target (weighted average milk) was met, while average goat meat, vegetable, and cereal yields reached 60–80 percent of their targets, justifying a *Substantial* rating. Following the second restructuring, two targets—weighted average milk and vegetable yields—were fully achieved, while cereal and goat meat yields showed significant progress, with goat meat yields reaching 97% of the target, supporting a *High* rating (Annex 1D)

Box 1: Selected Impacts of FANSEP Grants documented by the ICR Team

The Jai Maa Kali Livestock Group, a women-led group in Mahottari, has seen significant positive impacts from the matching grant and project support amounting to NR 1,430,000. With 25 members, the group raised crossbred Boer goats, which proved highly profitable due to their larger size and higher market value compared to local goats. Members earned a net profit of NPR 12,000 to 13,000 per crossbreed buck sold, doubling their income. Key factors contributing to this success included the Boer breed, elevated sheds, proper vaccination, and good feed management. However, the group faces challenges in negotiating better prices based on live weight rather than per animal. Additionally, they have initiated a revolving savings scheme that offers better loan conditions in contrast, to the high interest rates on loans from local MFIs that markedly impacts profitability. Financial literacy to better negotiate with MFIs could pave the way for offer more flexible lending terms to support their entrepreneurial activities.

The Sarbesore Nutrition Group, a 25-member all-female group in Kalinchowk Rural Municipality, benefited significantly from FANSEP's support. Through the Home Nutrition Garden (HNG) program, they received training, seasonal vegetable seeds, poultry, and fruit saplings. The group utilized a small grant of NPR 500,000 to establish 25 plastic tunnel houses for vegetable cultivation, which allowed them to grow a variety of nutritious vegetables and fruits. This has eliminated the need to purchase vegetables from the market and improved family health through a more balanced diet. The project increased food diversity and led to better feeding behaviors, with larger-scale and more diverse nutrition gardens compared to pre-project practices.

The Fetalitole Krishi Utpadak Krishak Samuha in Sindhupalchowk, with 25 members (15 female), received various grants through FANSEP. They were granted NPR 600,000 for vegetable farming under plastic houses, producing 48 metric tons of vegetables annually, 22 percent of which were sold in the market. The group also received NPR 1,500,000 for a potato processing unit, which generates a monthly net profit of NPR 40,000. Additionally, a grant of NPR 150,000 was provided for the rehabilitation of a small gravity flow irrigation system, improving water supply. Through improved farming techniques, particularly for potato cultivation, yields increased, resulting in financial benefits for group members. Women, including older members, earned NPR 9,000 to 10,000 during the potato season, providing a new source of income, especially for those who previously lacked cash income.

The Saphal Bal Balika Poshan Samuha, a nutrition group in Sindhupalchowk, was formed with FANSEP's help over 4 years ago, consisting of 25 Tamang ethnic group women members. Through the Home Nutrition Garden (HNG) program, members received training, seasonal seed packets, poultry (black astrolop and new hampshire breeds), and fruit saplings (kiwi, banana, guava, apricot, lemon, sweet orange). They also received NPR 500,000 in Small Grant Support, contributing to the construction of 25 semi-intensive poultry coops and the receipt of 250 Giriraj poultry. This initiative improved dietary diversity, particularly for pregnant and lactating women and children under 2, through knowledge on balanced diets, maternal health, and exclusive breastfeeding. Families now grow organic vegetables and raise poultry, reducing reliance on market-purchased items and increasing the nutritional quality of meals. Members earn NPR 13,000–20,000 per season from selling surplus produce, boosting their financial independence. One member was considering migrating to the Middle East for work but, thanks to FANSEP, she stayed and built a new house from the income. The group seeks additional support for poultry farm infrastructure, particularly replacing temporary bamboo fencing with more durable materials like chicken mesh wire. The program has significantly enhanced their self-esteem and livelihoods.

PDO Outcome 3: Improved Nutrition Practices

37. The project strategy was to undertake a convergent approach of: (a) working with women for behavioral change by generating awareness though NFSs; (b) supporting household-level food production through HNG; and (c) providing access to food production and processing facilities through small group grants. All beneficiaries of the nutrition interventions are women.

38. **Generating awareness through NFS**. The project organized 20,982 women into 861 nutrition groups (WNG). Nutritious recipes using locally available food were prepared and demonstrated. In addition, a recipe book was developed, behavior change messages were aired through local radios, and the project supported local municipalities to organize various events to promote nutrition improvement. FAO conducted 16 model NFS and trained facilitators who conducted an additional 128 NFS through the four cluster Project Cluster Units (PCUs). Each cluster implemented 36 NFS for a total of 144 NFS, with each NFS consisting of 24 sessions that disseminated information on nutrition-specific topics to enhance food and nutrition security awareness and knowledge. Around 3,617 women participated in the NFS and learned to perform nutrition situation analyses and anthropometric measurements on their children. A survey of 105 participants from 36 NFS indicated that the learning materials were relevant (97 percent), and the sessions were very useful (91 percent). The participants' knowledge and awareness level improved too: 62 percent of respondents had acquired knowledge on growth monitoring and nutritional implications, including use of mid upper arm circumference (MUAC) tape

on children (85 percent). A total of 77 percent of respondents understood the concept of dietary diversity, and 47 percent provided the correct meaning of exclusive breast-feeding. All respondents (100 percent) indicated a change in their dietary pattern following NFS participation. The project also conducted nutritious food preparation demos (12 demos with 642 participants) and training of teachers and children (185 events with 3,535 participants) which resulted in the establishment of six School Nutrition Gardens.

39. **Supporting food production through HNGs**. One key element of the nutrition program was to provide intensive training on establishment and management of HNG to produce seasonal fruits and vegetables, eggs, and meat to enrich daily meals with diversified and nutritious food items. This was achieved through demonstration of 840 model HNGs that trained 17,379 women. As a follow-on, the project distributed vegetable seeds and fruit saplings, and 109,729 improved chicks and ducklings (about 5-6 birds per household). These inputs were provided as HNG promotional inputs to 20,306 women beneficiaries and were supplemented by additional funding for nutritional investments through small grants (see below).

40. **Access to production and processing facilities through small group grants**. The project provided small grants for nutrition investment with a minimum 15 percent contribution by the recipient group. A total of 657 small grants with a cost of US$2.97 million benefiting about 16,425 women were financed. During the extended implementation period, an additional 156 demand-based nutrition grants with a cost of US$0.57 million were provided specifically to benefit households that could not secure small grant financing during the earlier years. The top four categories accounting for 82 percent (664) of the sub-projects included production of vegetables and fruits, and rearing of poultry and ducks. A total of 20,325 households benefited from these grant-financed investments (table 3).

Table 3: Broad Typology of Sub-projects Financed by Small Grants and Demand-based Grants

Sub-project type	Small grants	Demand-based grants	Total sub-projects	Women beneficiaries
Vegetable production	294	53	347	8,675
Fruit production	0	22	22	550
Poultry rearing	161	53	214	5,350
Duck rearing	81	0	81	2,025
Others	121	28	149	3,725
Total	**657**	**156**	**813**	**20,325**

41. The average number of HNG crops grown per household increased from 5.3 at baseline to 7.6, demonstrating both a broader adoption of the HNG approach for nutrition improvement and a greater diversity of HNG foods produced.

42. The interventions improved the Minimum Dietary Diversity (MDD) score of all women to 69.2, pregnant women by 81, and for children to 44— corresponding to an achievement of targets by 147%, 325%, and 529%, respectively. The Minimum Acceptable Diet (MAD) score for children aged 6 to 24 months old increased to 26, representing a 100% achievement of the target. The interventions were effective in improving the FIES score, MDD scores for women and children, and the MAD score for children aged 6 to 24 months.

43. Unlike other indicators, the baseline for the FIES indicator was derived from the DIME Midline survey rather than the DIME Baseline Survey, due to concerns about seasonal and policy-related distortions in the latter. Clear improvements in food security are observed in the Y6 survey relative to this adjusted benchmark. For further details, see Annex 1H.

44. **Ratings**. Before the first restructuring, no measurable progress was observed the FIES score, the MDD score for pregnant and nursing women, and the MAD score for children aged 6–24 months, leading to a *Negligible* rating. However, in subsequent rating periods, all targets were achieved, warranting a *High* rating (Annex 1D). This improvement primarily reflects the time required for behavioral change in nutrition practices among the predominantly conservative women groups, despite the early implementation of nutrition field schools.

Justification of Overall Efficacy Rating

45. The achievement of the project's three PDO outcomes—enhanced climate resilience, improved agricultural productivity, and improved nutrition practices—increased progressively from *Negligible* to *High* following restructurings. The overall efficacy ratings were therefore *Negligible* before restructuring, *Substantial* after the first restructuring and *High* at the close of project.

C. EFFICIENCY

Assessment of Efficiency and Rating

46. **Economic and Financial Efficiency.** The ex-post economic and financial analysis methodology was conducted using two separate independent methods. Both methods considered the actual project duration, including an extension of 12 months, actual project costs, and project benefits reported for the PDO indicator achievements. The analysis considered a time horizon of 20 years and applied a discount rate of 12%.

47. The first method of EIRR estimation followed the methodology used at appraisal and is based on farm models developed for the major crops and livestock production systems promoted by the project. The baseline data was used to develop the 'without project' scenario while the endline data was used to develop the 'with project' scenario. The weighted average income per household based on the farm models for the focus commodities and the number of producer groups/beneficiaries supported by the project amounted to NPR 56,926. The ex-post Economic Internal Rate of Return (EIRR) as estimated by this method is 25.8 percent with a Net Present Value (NPV) of US$ 17.3 million, which is slightly lower than the ex-ante EIRR estimate at appraisal of 27.4 percent.

48. The second method of EIRR estimation was based on the achievement of the PDO indicator on average household incomes. The endline survey shows that the income has increased to NPR 131,986. Considering the project beneficiaries of 38,392 and the project costs of US$ 27.08 million, the EIRR of the project is estimated at 31.1 percent with a corresponding NPV of USD 44.2 million.

49. **Nutrition Benefits**. At appraisal, the project's EIRR excluded nutrition-related economic benefits and lacked a method for assessing them. For the ICR, these benefits were estimated using literature and secondary data. With 20,867 beneficiaries, including 7,631 children under five, the project likely reduced stunting by 18.63 percent through a 27 percent improvement in share of children with improved minimum dietary diversity[3]. This estimate is based on the Cost of Inaction Tool by Nutrition International, which values Nepal's annual malnutrition cost at US$1.1 billion.[4] Applying this, the project's ex-post EIRR rises from 25.8 percent to 29.0 percent, with an NPV of US$23.3 million. Including GHG benefits, the EIRR increases to 44.5 percent and 58.2 percent, and NPV to US$48.5 million and US$73.6 million under low and high carbon shadow prices, respectively. While the ex-post NPV exceeds Appraisal estimates, the EIRR with high carbon prices is slightly lower. Further details are in the Annex 4.

50. Comparison with similar nutrition-sensitive projects (Annex 4) indicates that FANSEP demonstrated the highest financial and economic efficiency, with a strong return on investment, yielding $2.40 per dollar spent with incorporation of GHG externalities.

51. **Administrative efficiency.** The project was relatively slow in implementation and took almost two years from approval to start implementing key activities due to delay in hiring of FAO and COVID pandemic. These delays left beneficiary households with a limited number of crop and livestock production cycles to realize the full impact of benefits. However, despite the initial challenges the project was able to demonstrate good results related to the adoption of production technologies. The potential undisbursed funds resulting from exchange rate savings were judiciously used to provide demand-based grants to support adoption of improved production and nutrition practices and technologies. Excluding Bank Supervision costs, approximately 80 percent of the budgeted administrative (project management) costs were utilized (Annex 3). At project closing, administrative costs

[3] The 18.63 percent reduction in stunting due to dietary diversity is derived by multiplying the 27-percentage point increase in MDD from the baseline with the 69 percent effectiveness rate of translating dietary diversity improvements into stunting reduction. (Annex 4).

[4] https://www.nutritionintl.org/learning-resource/cost-inaction-tool/

accounted for 20 percent of the total budget, down from 24 percent at appraisal, demonstrating a satisfactory level of operational efficiency.

52. The project's high rate of return and notable operational efficiency, warrant *Substantial* Efficiency rating.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

53. Based on the ratings for Relevance of Objectives, Efficacy, and Efficiency without and with restructurings, the project's overall outcome is rated "Moderately Satisfactory". Details on the derivation are provided in table 4.

Table 4: Project Outcome Rating

	Objectives without restructuring	**Objectives with first restructuring**	**Objectives with second restructuring**
Relevance of PDO	**High**		
Efficacy of PDO	**Negligible**	**Substantial**	**High**
Efficiency	**Substantial**		
Outcome ratings	**Unsatisfactory**	**Satisfactory**	**Highly Satisfactory**
Score on a 6-point scale	2	5	6
Disbursement (US$ million)	10.5	6.0	5.6
Share of disbursement	0.48	0.27	0.25
Weighted value of the outcome rating	0.48 * 2 = 0.96	0.27 * 5 = 1.35	0.25 *6 = 1.5
Final outcome rating	**0.96 + 1.35 + 1.5 = 3.81 >> 4.0 - Moderately Satisfactory**		

6-point scale: Highly Satisfactory (6); Satisfactory (5); Moderately Satisfactory (4); Moderately Unsatisfactory (3); Unsatisfactory (2); Highly Unsatisfactory (1).

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

54. **Gender.** The project addressed three of the four pillars of the Bank's Gender Strategy 2016-23: (a) deepen women's voice and agency; (b) improve access to assets and services; and (c) improve human capital and endowments/skills. Rural women play a central role in crop and livestock production related activities and are indeed at the center of nutrition-related activities.

55. **Deepened women's voice and agency**. The project enhanced women's voice and agency through three key interventions. First, 861 exclusive women's groups with 20,867 members were formed for nutrition-related activities, all led and managed by women. Second, for productive crop and livestock activities, 1,622 groups were organized with 39,817 members, 72 percent of whom (28,543) were women. Third, 4,388 representatives received training in business planning, entrepreneurship, gender mainstreaming, and farm management; women comprised 58 percent (2,521). Additionally, 317 women (20 percent) participated in multi-stakeholder platforms, and 1,058 women attended farmer business schools, far exceeding the 343 male participants. These efforts strengthened women's leadership and decision-making roles.

56. **Improved access to assets and services**. The project significantly improved women's access to assets and services. Of the 778 productive agriculture and livestock sub-projects (US$4.26 million), women received US$3.0 million (70 percent). Among 18,984 matching grant beneficiaries, 71 percent (13,548) were women. All 657 small grants (US$2.97 million) for nutrition-focused sub-projects benefited 16,270 women. Additionally, 547 demand-driven investments (391 production + 156 nutrition) supported 13,471 beneficiaries, with women comprising 79 percent (10,650). Women also gained better access to training, making up 72 percent of the 40,985 farmers trained—13,727 in FFS and 15,525 in on-farm demonstrations. These interventions enhanced women's financial inclusion and technical capacity.

57. **Improved human capital**. The project improved human capital through four key interventions. Women in nutrition groups received training on child nutrition, MUAC screening, and maternal feeding practices. Nutrition Field Schools provided experiential learning on home gardens, with support for vegetable seeds, fruit saplings, and poultry. Small grants for nutrition-related activities boosted food production. These efforts led to 20,306 households establishing or expanding home gardens, increasing both the number of gardens and the variety of food groups

available. As a result, more children under 24 months received a minimum adequate diet from a diversified food supply.

58. **Mobilizing Private Sector Financing.** The project did not include a dedicated financing instrument for mobilizing private sector financing. However, through cost-sharing arrangements for procuring production and market-access-related equipment and materials via matching grants, improved technology adoption through demand-driven grants, and nutrition-related investments through small grants, project farmers (both individuals and groups) and nutrition groups contributed a total of US$1.65 million in private capital enabled (PCE) by the project (table 5).

Table 5: Financing of Matching Grants and Demand-based Grants

	Sub-project Cost	Grant + GoN share	Recipient Contribution
Matching grants	4.26	3.50	0.76
Crop/livestock Demand-based grants	1.44	1.20	0.24
Small nutrition grants	2.97	2.41	0.56
Nutrition Demand-based grants	0.57	0.48	0.09
Total	**9.24**	**7.59**	**1.65**

III. KEY FACTORS AFFECTED IMPLEMENTATION AND OUTCOME

59. **Project implementation faced few challenges**. Although approved in September 2018, identifying beneficiaries and forming producers' groups was only completed by January 2021, two years after approval. Following this, a baseline survey was initiated, and some activities on seed and breed multiplication began, along with FFS and NFS sessions. The first set of matching and small grants was approved in November 2021, three years after approval, with only 397 sub-projects out of a target of 710 approved by August 2022. At this point, artificial insemination facilities had not been established, and marketing infrastructure, processing, and handling investments had yet to be identified. The MTR in November 2021 revealed that NARC had not started its technology validation trials, with the project set to close in June 2023, just 1.5 years later.

A. KEY FACTORS DURING PREPARATION

60. **The project's simple, tested design facilitated easy implementation by scaling out AFSP activities to eight new districts**. These activities were successful and had identified implementation complexities, which were resolved. Most activities already had foundational materials, such as Behavior Change Communication (BCC), FFS, and technology adoption grants, and critical aspects like PMU arrangement, DIME evaluation, and FAO technical assistance were tested in AFSP. New cultivars for hill districts were available from AFSP, and the 2017 CSA Profile identified potential practices for validation. Despite being limited to 16 rural municipalities, the project required setting up PCU in four district offices and ensuring district-level understanding. After initial delays, the simplified scaling-out approach enabled swift implementation.

61. **The Productive Alliance (PA) and Microfinance Institution (MFI) models proved too ambitious for FANSEP**. While the World Bank has experience with the PA model, it remains relatively new to the country. The project targeted marginalized smallholder farmers rather than commercially oriented ones, leading to a simplified model that fostered producer-buyer partnerships. Through farmers business schools, training was provided in business, marketing, and financial literacy, and producer groups were matched with buyers at 16 rural municipality platforms. However, engaging MFIs proved difficult due to their limited interest in rural investments, high lending costs, and farmers' low financial literacy. Vulnerable groups in turn faced barriers like weak infrastructure, low education, and restricted credit access. High collateral requirements and rigid financial structures further hindered financing. Initially, the matching grant program aimed to integrate MFI financing, but due to their lack of participation, the GoN and beneficiaries covered the funding gap.

62. **The availability of improved seeds and animal breeds was less than expected, impacting productivity**. Distributing improved varieties and breeds was a key strategy, but issues during implementation compounded poor preparation. With few experienced, equipped, and registered community-based SPGs, intensive skill-building in seed

production, processing, and storage was necessary. Basic seed enterprise processing and field inspections were also required. Constraints included limited access to improved Boer bucks for multiplier herds, breedable Does, and poultry breeds, particularly during COVID.

B. KEY FACTORS DURING IMPLEMENTATION

Key factors during Implementation – subject to government control

63. **Staffing issues in the implementation agency delayed project start-up**. Although key personnel were in place within six months of project effectiveness in November 2018, the first Project Director and fiduciary staff were transferred by January 2020, creating a void in the PMU. This led to delays in appointing M&E and fiduciary consultants, engaging FAO staff under the Technical Assistance (TA) contract, onboarding NARC, arranging project finances, and establishing the four cluster PCUs.

64. **Delays in FAO TA support affected project implementation**. Although the FAO contract was signed in July 2019, full staffing was only completed by July 2020, with just eight of 122 positions filled by January 2020. This delay disrupted project timelines. COVID restrictions (March–June 2020) halted field activities but allowed FAO to develop guidelines for FFSs, Farmer Business Schools (FBSs), NFSs, grants, demonstrations, and stakeholder engagement. These were finalized nearly two years after project approval, delaying the start of most activities.

65. **Delays in NARC's delivery of validated technologies led to the unavailability of climate-resilient and nutrition-smart solutions**. An MoU was signed only in July 2020, and a long list of technologies was proposed in February 2021. By the MTR in November 2021, validation trials had not started. Given the limited time left, the PMU dropped support for trials in the final year. The technologies were finally delivered in September 2023, after the project's extension to June 2024, leaving little time for widespread dissemination.

Key factors during Implementation – subject to World Bank's control

66. The Bank conducted ten review missions, including an MTR, with experts in various fields. However, a livestock expert crucial to the supervision of several tasks was missing. The Aide Memoires kept track of all agreed actions and their finalizations. Implementation status issues were reported candidly.

Key factors during Implementation – outside government control

67. *COVID-19 pandemic.* This affected field level work during March-June 2020. The lock down paralyzed the supply chain system relating to seeds, chicks, tools, and improved goats for breeding. The project was unable to carry out facilitators' training or conduct FFS due to the travel restrictions. However, since the implementation manuals and guidelines were still under preparation by FAO, the suspension of field work helped FAO complete this task expeditiously such that upon lifting of COVID restrictions, implementation could commence without any bottleneck.

68. *Nepal's transition to federalism.* Although the new government enjoyed a historic supermajority in Parliament at project appraisal, transitioning from the previous unitary system to the new federal system was assessed as a daunting task with considerable governance risk. The new system, in principle, afforded opportunities to decentralize development benefits and make service delivery more effective and accountable. However, issues relating to jurisdictional overlap and lack of clarity in role and responsibilities of the central and provincial structure created implementation issues. For example, while the last mile livestock service centers at the community level were dismantled, the rural municipalities were not concurrently capacitated to provide these services to the communities.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

69. The ToC, based on UNICEF's malnutrition framework, focused on nutrition. The PDO indicators captured productivity and nutrition but lacked comprehensive climate resilience measures, focusing only on technology adoption and income. While project components aligned with the PDO, the RF tracked key outputs and intermediate

results. Attribution could have improved with indicators on knowledge gains (FFS, NFS), sustained technology adoption, and increased production and diversity in HNGs to strengthen links to dietary diversity.

70. The project benefited from the M&E system of the predecessor project. The AFSP Management Information System (MIS) was proposed to be upgraded and generate periodic progress reports with physical and financial monitoring inputs from the four PCUs. Impact evaluation was carried out by DIME, but the approach did not fully align with the project's results framework, limiting the utility of the evaluation. While periodic beneficiary assessments and studies were also suggested to complement data gathered from the regular monitoring, it would have been useful to specifically indicate matching and small grants as themes for detailed assessment. As a result, the ICR team utilized the Y6 survey dataset to conduct an endline assessment, measuring performance against project targets established in the results framework at closure.

M&E Implementation

71. Project monitoring was comprehensive, with regular reporting to Bank review missions on crops and livestock, covering physical and financial achievements. Sporadic studies on livestock, nutrition gardens, and crop-cutting exercises were conducted. A 2023 evaluation of FFS, FBS, and NFS was completed, and FAO provided a 2024 Terminal Report. The PMU prepared a completion report highlighting achievements. The Randomized Control Trial baseline survey, delayed by COVID-19 and FAO hiring, captured pre-project conditions but caused implementation delays. The May 2022 midline evaluation, however, was too early to assess tangible impacts after only two seasons.

72. The endline evaluation by DIME (April-May 2023) assessed project outcomes but had three key limitations. First, it did not establish causality between nutrition activities and food security, dietary adequacy, or diversity, although it measured outcomes. Second, it did not assess the impact of demand-based grants completed in late FY2024. Third, it focused on community-level impacts, including non-beneficiaries, requiring the ICR team to extract beneficiary outcomes, complicating comparisons with control households. Despite these challenges, the ICR team used DIME's datasets to analyze trends. Additionally, the PMU commissioned a Year 6 survey to cover outcomes until June 2024, received in November 2024. In light of the lack of data on matching grant impacts, the ICR team conducted a targeted field visit to obtain qualitative and quantitative insights on the impact of matching grants.

M&E Utilization

73. The monitoring data from MIS was very useful in assessing project implementation performance. Financial progress and disbursement reporting highlighted incremental US$ available due to exchange rate savings. The November 2021 MTR led to May 2022 restructuring, expanding matching and small grants. The April 2023 closing date extension allowed the use of project savings for beneficiaries' technology adoption and nutrition activities through demand-based grants. However, outcome reporting after the mid-line evaluation continued to reflect only mid-line achievements, deferring updates to the end-line evaluation. This, along with compressed implementation time, shifted the focus to completing activities rather than outcomes. Towards the project closing, multiple workshops were conducted to clarify reported results as well as gaps in information. This effort significantly informed the M&E strategy building for FANSEP-II.

Justification of Overall Rating of Quality of M&E

74. The overall M&E quality is rated as *Modest* due to misalignment between the M&E design and DIME's impact assessment approach, and the failure to update project outcomes from the midline evaluation to project closure.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

75. The Category "B" project had moderate, reversible environmental and social (E&S) impacts, triggering six World Bank policies. An Environmental and Social Management Framework was implemented with designated E&S focal persons. The project maintained a Moderate E&S risk rating and achieved a Satisfactory performance rating at closure. Key challenges included weak PMU capacity, incomplete ESMPs, and a weak grievance system, but mitigation measures improved compliance. Lessons learned emphasize hiring dedicated E&S staff early, regular monitoring, frequent training, and strengthened grievance systems.

76. Financial management (FM) improved after staffing issues were resolved but faced internal control lapses. Strengthening controls and institutionalizing expenditure monitoring remain priorities. Procurement, including FAO's delayed hiring, was mostly completed, with performance rated Moderately Satisfactory.

C. BANK PERFORMANCE

Quality at Entry

77. **The project built on the Agriculture Food Security Project (AFSP),** expanding its technical design by scaling out FFS to promote farming innovations and empower female farmers. Farmer and women's groups played a key role in nutrition education. The project refined AFSP's grant model, introducing market-oriented Matching Grants for small producers and improving market infrastructure and value addition. Implementation focused on eight districts and sixteen rural municipalities, supported by a central PMU and four cluster offices. FAO provided technical assistance, continuing its support from AFSP to address government capacity gaps. However, sustained capacity-building efforts remain critical to strengthen government implementation capabilities.

78. **The PDO indicators were overly ambitious in many respects**. First, the FIES target (-9.0), reflecting very high food security, was unrealistic given the baseline. Second, the project aimed at 1,600 producer groups comprising 40,000 households, but only 448 matching grants were provided, covering about 11,000 households. Third, a 25 percent improvement in seed replacement appears insufficient for the targeted 25-30 percent crop productivity increase, and a 35-40 percent improvement in milk/meat productivity without herd upgrades was ambitious.

79. **Risk mitigation measures for FAO TA and NARC were generally adequate but could have been better managed**. To prevent delays, the FAO contract should have been signed before project negotiations. FAO's expanded scope included technical support, capacity building, and developing operational manuals, making timely delivery critical for project success. An oversight mechanism with regular reviews and joint decision-making between PMU and FAO is necessary to address issues early. Additionally, capacity-building sessions for FAO and government staff would minimize delays. For NARC, an early MoU could have mitigated risks of delayed delivery of validated technologies.

Quality of Supervision

80. The Bank team provided close support to the project in navigating challenges such as federalization and the COVID-19 pandemic through regular supervision missions, field visits, and continuous follow-up. This led to the project's first restructuring, aligning its design more closely with ground realities and better addressing beneficiary needs. The Bank organized thematic workshops, particularly on safeguards and M&E, to strengthen the capacity of the PMU/PIUs. However, the Bank could have recommended conducting targeted studies to assess sub-project impacts and draw lessons, particularly for activities financed through grant programs.

81. The Bank team had frequent task team leader (TTL) turnover with the project managed by four TTLs from design to closing which could have affected consistency in policy dialogue. The delay in project implementation in the early years was caused by the delay in signing the FAO TA contract and due to the incidence of COVID. During COVID, virtual sessions helped accelerate manual preparation, launching activities post-lockdown. Missions addressed issues related to staff performance, fiduciary, safeguards, M&E, and sustainability. The last year overlapped with the start-up of FANSEP II, with combined missions in January and April 2024, balancing coverage of issues for both projects.

82. The Bank could have recommended that the project undertake targeted studies to assess impacts and capture lessons learned, particularly for sub-projects financed through grant programs. Additionally, the Bank could have supported a more systematic review of best practices and lessons from key interventions—such as modalities of FFS and NFS—to better inform the design of FANSEP-II. During the second restructuring, the Bank team could have conducted a more thorough review of project achievements for a more realistic assessment of some PDO indicators.

Justification of Overall Rating of Bank Performance

83. Although the Quality of Supervision was adequate, this was not matched by Quality at Entry. The Bank performance is therefore rated as Moderately Satisfactory.

D. RISK TO DEVELOPMENT OUTCOME

84. The sustainability of FANSEP interventions hinges on continued access to improved seeds, breeds, and marketing arrangements post-project, with key risks including maintaining productivity, operating and maintaining market infrastructure, and ensuring successful productive alliances. While rural municipalities have committed to supporting infrastructure maintenance and facility operations, financial constraints and group management experience could pose challenges. The involvement of rural municipalities has fostered confidence in the project's success, leading to the development of Food and Nutrition Security Enhancement Project II (P181087), which will build on these achievements and ensure continued support for beneficiaries through improved technologies and market access.

I. LESSONS AND RECOMMENDATIONS

85. Five lessons and related recommendations emerge from this review.

(a) **The project's unique design and financing enable an integrated approach that combines nutrition, climate resilience, and agricultural productivity to improve smallholder livelihoods.** Unlike traditional projects, it addresses interconnected rural challenges through nutrition-sensitive and climate-smart interventions. The use of matching and demand-based grants fosters community participation and accountability, ensuring that gains in production lead to inclusive, sustainable outcomes—especially for women and children—while also enhancing resilience and food security**.**

(b) **Integrating nutrition benefits into efficiency analysis is vital for capturing the full value of nutrition-sensitive agriculture projects.** Traditional assessments often overlook nutritional outcomes like improved dietary diversity and food security. Including these metrics ensures a more accurate reflection of societal impact, strengthens the investment case, and guides better resource allocation. This ICR's methodology for quantifying nutrition benefits offers a replicable model for future projects, enabling comparability of results across contexts and reinforcing the link between agriculture, nutrition, and development goals.

(c) **Strong M&E systems are critical for nutrition-sensitive agriculture projects**. Such project enables the tracking of both outputs and key outcomes such as dietary diversity, nutrition, and food security. Given the multi-sectoral nature of these projects, robust M&E supports evidence-based decisions, identifies implementation gaps, and enhances learning. Without it, attributing nutrition outcomes to interventions becomes difficult, weakening the project's ability to demonstrate impact and secure sustained support. A well-designed M&E system is essential for accountability, effectiveness, and long-term success.

(d) **Careful consideration is required when applying the PA approach with vulnerable, small, and marginal farmers**. Although PA models have proven effective with growth-oriented, commercial farmers, marginal households often lack the resources, market access, and productivity levels needed to fully benefit. Without adaptation, the approach may result in exclusion or limited impact. To ensure inclusivity and effectiveness, the PA model must be tailored to the specific needs and capacities of these farmers, with appropriate support mechanisms in place.

(e) **Making PA and MFI models work for vulnerable groups requires a mix of technical assistance, financial innovation, policy advocacy, and digital solutions**. Technical support can build producer capacity and financial literacy, while innovations like blended finance and mobile banking improve credit access. Policy advocacy fosters a supportive environment for flexible financial products. Digital tools— such as mobile services and geospatial mapping— enhance targeting and efficiency. Together, these strategies can make PA and MFI models more inclusive, resilient, and impactful for underserved communities.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS FRAMEWORK

PDO Indicators by Outcomes

Enhanced Climate Resilience								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Farmers adopting improved agricultural technology (Number)	0.00	Sep/2018	33,000.00	Jun/2024	33,000.00	Jun/2024	34,775	Jul/2024
	Comments on achieving targets		This indicator is calculated by multiplying the number of project beneficiaries exposed to improved agricultural technologies by the adoption rate, as determined through survey data. The total number of unique beneficiaries receiving technology adoption support includes: (1) farmers receiving improved seeds or saplings, (2) those participating in demonstrations and training, and (3) those engaged in Farmer Field Schools (FFS) and field days. The adoption rate represents the proportion of project beneficiaries adopting improved technologies, including Climate-Smart Agriculture (CSA). Up to Year 5, an adoption rate of 78.26% (from the midline survey) was used, while for Year 6, the rate was updated to 90.58% based on the Year 6 Annual Outcome Survey (AOS).					
Farmers adopting improved agricultural technology - Female (Number)	0.00		21,450.00		21,450.00		24,836	
Farmers adopting improved agricultural technology - male (Number)	0.00		11,550.00		11,550.00		9,939	
Improved Agriculture Productivity								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Increased crop and animal productivity by direct beneficiaries (Percentage)	0.00	Sep/2018	28.00	Jun/2024	28.00	Jun/2024	78.69	Jul/2024
	Comments on achieving targets		Details of achievement are shown below for the five selected commodities.					
Crops (food grains) (Percentage)	0.00	Sep/2018	25.00	Jun/2024	25.00	Jun/2024	20.20	Jul/2024
	Comments on achieving targets		The baseline value for this indicator is 2.43 Mt/ha and the endline survey productivity is 2.61 Mt/ha. Grain yields are reported only for FANSEP beneficiaries that were part of a crop group. Crops considered for estimating crops productivity (food grains) are: Main Paddy, Early Paddy, Upland Paddy, Spring/Winter Maize, Summer					

			Maize, Wheat, Millet. Weighted grain yield is calculated as the weighted average of the individual grains (measured at plot level), where the weights represent the share of grain area in the total area cultivated for grains by the household. The crop yield is presented as a simple average of the four crops. The Y6 average yield is 2.92 Mt/ha, which is 20% over baseline, and is about 80% of the incremental target.					
Crops (vegetables) (Percentage)	0.00	Sep/2019	30.00	Jun/2024	30.00	Jun/2024	168	Jul/2024
	Comments on achieving targets		The baseline value for this indicator is 6.75 Mt/ha. Vegetable yields are reported only for FANSEP beneficiaries that were part of a crop group. Selected vegetables are included for measuring productivity. Weighted vegetable yield is calculated as the weighted average of the individual vegetables (measured at plot level), where the weights represent the share of vegetable area in the total area cultivated for vegetables by the household. The achievement is presented as a simple average of the selected vegetable yields. The average vegetable yield in the Y6 survey is 18.15 Mt/ha. This is 168% improvement over BL, and 561% achievement of the incremental target.					
Livestock (meat) (Percentage)	0.00	Sep/2019	35.00	Jun/2024	35.00	Jun/2024	24.50	Jul/2024
	Comments on achieving targets		The original and revised target for goat meat is 40% and 25% over BL, amounting to 2.3 kg. The reported achievement is 27.14 kg. This is an improvement of 24.5% over BL of 21.8 kg, and reflects a 97% achievement of the target.					
Livestock (milk) (Percentage)	0.00	Sep/2019	35.00	Jun/2024	35.00	Jun/2024	101	Jul/2024
	Comments on achieving targets		The baseline value for milk was 652 liters/animal. Milk includes both cow and buffalo milk. Y6 survey reported the yield as 1,312 liters, representing a 290% achievement of the incremental milk yield target and 101% increase over the baseline.					
Increased Household income (farm and off-farm) (Percentage)	0.00	Sep/2018	30.00	Jun/2024	30.00	Jun/2024	155	Jul/2024
	Comments on achieving targets		The baseline household income (revenue from agriculture and livestock sales plus value of self-consumed produce less the cost of production) was NPR 51,721 with a target of 30% increase over baseline. Reported increased income is NPR 131,986, which represents a 155% increase over baseline, and is substantially higher than the target of NPR 67,237. This represents a 517% achievement of the target.					
Female Headed Households (Percentage)	0.00	Sep/2018	30.00	Jun/2024	30.00	Jun/2024	55	Jul/2024
	Comments on achieving targets		The baseline household income (calculated as revenues minus costs) for female-headed households was NPR 232,408, with a target of a 30% increase. The reported income rose to NPR 360,027, reflecting a 55% increase over the baseline—significantly exceeding the target of NPR 302,130. This corresponds to 183% of the target achievement.					
Improved Nutrition Practices								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Improved score on the Food Insecurity Experience Scale (FIES) by direct beneficiaries (Number)	-8.58	Sep/2018	-9.00	Jun/2024	-9.00	Jun/2024	-8.15	Jul/2024
	Comments on achieving targets		The baseline of -8.6 may have overestimated food security, as the February 2021 survey was conducted shortly after the government's COVID-19 food support program. The mid-line survey in April 2022 took place before					

			project activities could influence food security and after the conclusion of government support, yielding a revised baseline FIES score of -6.2. The end-of-project (EOP) target was set at -6.51. The Year 6 survey reported a FIES score of -8.15, achieving 629% of the target.					
Improved Dietary intake (% over baseline) (Percentage)	0.00	Sep/2018	30.00	Jun/2024	30.00	Jun/2024	0	Jul/2024
	Comments on achieving targets		Details are provided in the two sub-indicators below.					
Pregnant and nursing women (Minimum Dietary Diversity Score for Women, MDD-W) (Percentage)	0.00	Sep/2018	30.00	Jun/2024	30.00	Jun/2024	97.56	Jul/2024
	Comments on achieving targets		This indicator measures the percentage of pregnant and nursing women aged 15–49 who consume at least 5 out of 10 defined food groups. The baseline value was 41%, with a target of 53% (reflecting a 30% improvement over baseline). The Y6 survey recorded an achievement of 81%, representing a 97.5% increase over the baseline.					
Children between 6-24 months (Minimum Acceptable Diet or MAD-Child) (Percentage)	0.00	Sep/2018	30.00	Jun/2024	30.00	Jun/2024	30	Jul/2024
	Comments on achieving targets		This indicator measures the percentage of the population in the defined category that meets the minimum dietary diversity requirements. The baseline was 20%, with a target of a 30% increase, equating to 26%. The project successfully achieved a 26% improvement over the baseline, reaching the target with 100% achievement of the planned increase.					
Children between 6-24 months (Minimum Diet Diversity or MDD-Child) (Percentage)	0.00	Sep/2018			30.00	Jun/2024	159	Jul/2024
	Comments on achieving targets		This indicator measures the percentage of children aged 6-24 months who consume at least 5 out of 10 defined food groups. The baseline value was 17%, with a target of 22% (reflecting a 30% improvement over baseline). The Y6 survey recorded an achievement of 44%, representing a 159% increase over the baseline.					

Intermediate Indicators by Components

Climate and Nutrition Smart Technology Adaptation and Dissemination								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Promising CSA and nutrition sensitive technologies validated through on-farm adaptation trials (Number)	0.00	Sep/2018	20.00	Jun/2024	20.00	Jun/2024	25	Jul/2024
	Comments on achieving targets		Through the Nepal Agriculture Research Council (NARC) a total of 404 validation trials (308 crops and 96 livestock) were conducted. NARC has provided the list of 25 (19 Crops and 6 livestock related) validated technologies. These technologies and complementary package of practices were delivered in the last year of project implementation precluding the possibility of meaningful dissemination or adoption. They are however being disseminated under the follow on FANSEP II					
	0.00	Sep/2018	40,250.00	Jun/2024	40,250.00	Jun/2024	39,817	Jul/2024

Farmers accessing technology dissemination services delivered by the project. (Number)	Comments on achieving targets		Based on the participation in Farmer Field Schools and On-Farm Demonstrations, 42,224 beneficiaries were able to access technology dissemination services. There is obviously some cross-participation across the two interventions and therefore this indicator is higher than the number of crop and livestock beneficiaries (39,817). Therefore, the achievement is reported as the total number of beneficiaries.					
Farmers accessing technology dissemination services delivered by the project-Female (Number)	0.00	Sep/2018	26,162.00	Jun/2024	26,162.00	Jun/2024	28,390	Jul/2024
Improved seed replacement rate (Percentage)	0.00	Sep/2018	35.00	Jun/2024	35.00	Jun/2024	41	Jul/2024
	Comments on achieving targets		The seed replacement rate is the percentage of total crop land cultivated with improved seeds. Improved seed refers to hybrid or certified seed obtained from government agencies, agrovets, or seed cooperatives. To be considered improved, the seed must have been purchased within the last two years. The seed replacement rate improvement target over baseline was 35%, averaged out across four commodities: paddy, wheat, maize and potatoes.					
Farmers reached with agricultural assets or services (Number)	0.00	Sep/2018	47,000.00	Jun/2024	47,000.00	Jun/2024	38,392	Jul/2024
	Comments on achieving targets		Farmers accessing dissemination services through Farmers Field Schools and On-farm Demonstrations total 42,224. Additionally, 28,948 producers benefited from matching grants and demand-based grants to access technology, add value to the commodities, and access markets through contracts with off-takers following the Productive Alliance approach. Farmers were also provided crop and livestock technology adoption inputs (seeds, irrigation schemes, poly-houses, goats, chickens, artificial insemination services, among others). As such, all project beneficiaries could be considered as having been reached with agricultural assets and services.					
Farmers reached with agricultural assets or services - Female (Number)	0.00		30,550.00		30,550.00		27,419	
Area covered by small irrigation schemes supported by project (Hectare(Ha))	0.00	Nov/2021	1,250.00	Jun/2024	1,250.00	Jun/2024	1,196	Jul/2024
	Comments on achieving targets		The project provided 627 small irrigation schemes (small scale pumps and drip irrigation systems) that irrigated 1,196 hectares and benefited 12,469 beneficiaries. This compares with the target of 678 schemes covering 1,250 hectares. Achievement is 93% in terms of the schemes target and 96% in terms of area irrigated.					

Income Generation and Diversification

Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
	0.00	Sep/2018	1,620.00	Jun/2024	1,620.00	Jun/2024	1,622	Jul/2024

Number of producer-based organizations supported (number)-GAFSP core indicator (Number)	Comments on achieving targets		Total number of producer groups established were 1,622 consisting of 881 crop producer groups and 741 livestock producer groups. These groups had a total membership of 39,817 farming households. Achievement exceeded the 1,620 producer groups target.					
Number of post-harvest facilities constructed and/or rehabilitated-GAFSP core indicator (Number)	0.00	Sep/2018	80.00	Jun/2024	80.00	Jun/2024	62	Jul/2024
	Comments on achieving targets		The total number of post-harvest facilities included 40 facilities for handling and processing of crop, vegetables, milk and meat commodities, and 22 facilities that supported market access infrastructures such as agriculture and meat markets (haats), and crop, vegetables, milk and meat collection and marketing centers. Achievement was 78% of the 80 post-harvest facilities target.					
Number of sub-projects (business plans) financed by the project on a matching grant basis (Number)	0.00	Sep/2018	780.00	Jun/2024	780.00	Jun/2024	778	Jul/2024
	Comments on achieving targets		The project financed 778 matching grant sub-projects: 62% for crops and 38% for livestock activities. Achievement was nearly 100% of the target of 780 matching grant sub-projects.					
Improving Nutrition Security								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
People receiving improved nutrition services and products -GAFSP core indicator (Number)	0.00	Sep/2018	22,000.00	Jun/2024	22,000.00	Jun/2024	20,867	Jul/2024
	Comments on achieving targets		The project achieved 95% of the target of 22,000 beneficiaries receiving nutrition services.					
Household Dietary diversity score including nursing mothers and children under two years (1000 day mother target) (Percentage)	0.00	Sep/2018	20.00	Jun/2024	20.00	Jun/2024	6.60	Jul/2024
	Comments on achieving targets		The household dietary score increased slightly from the baseline of 6.8 to 7.27. The target was a 20% improvement to 8.1. While the score diversity increased by 6.6% over baseline, it only achieved 33% of the original target.					
Number of small grant-financed subprojects (business plans) (Number)	0.00	Nov/2021	665.00	Jun/2024	665.00	Jun/2024	657	Jul/2024
	Comments on achieving targets		The target for nutrition-related small grants is 665. Achievement was 99% of the target. These grants benefited 16,425 women. An additional 156 demand-based nutrition grants were provided that benefited 3,807 women, taking the total to 813 grants benefiting 20,325 women.					
Project management, communication and M&E								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Grievances registered addressed within the deadline set by the project GRM (Percentage)	0.00	Sep/2018	95.00	Jun/2024	95.00	Jun/2024	100.00	Jul/2024
Periodic reports submitted on time (Number)	0.00	Sep/2018	13.00	Jun/2024	13.00	Jun/2024	12.00	Jul/2024

B.KEY OUTPUTS	
Objective/Outcome 1: Improved Productivity	
Outcome Indicators	1. Increase in average food grains productivity (average out for paddy, wheat, maize and millets) 2. Increased in average vegetables productivity (averaged out for a defined basket of vegetables) 3. Increase in average meat productivity (averaged out for goat and poultry) 4. Increase in average milk productivity (averaged out for cow and buffalo)
Intermediate Results Indicators	1. Number of promising CSA and nutrition sensitive technologies validated through on-farm adaptation trials 2. Number of farmers accessing technology dissemination services delivered by the project 3. Improved seed replacement rate (%)
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	1. Farmers reached with agricultural assets or services 2. Number of Farmers Field Schools conducted 3. Number of on-farm demonstrations carried out 4. Tons of improved seeds provided to the farmers 5. Number of improved goats provided for multiplication and for rearing 6. Number of Artificial Insemination facilities established at the municipality level 7. Number of producer-based organizations supported 8. Number of post-harvest facilities constructed and/or rehabilitated (collection and processing facilities, agri-markets, producers-owned and operated markets) 9. Number of sub-projects (business plans) financed by the project on a matching grant basis 10. Number of demand-based grants (during extended implementation year) 11. Area in hectares covered by small irrigation schemes supported by project 12. Number of plastic tunnels and polyhouses supported
Objective/Outcome 2: Improved Nutrition	
Outcome Indicators	1. Improved Food Insecurity Experience Scale Score 2. Share of women 15-49 years of age with Minimum Dietary Diversity as surrogate indicator for improved dietary intake for pregnant and nursing mothers (%) 3. Share of children 6-24 months with Minimum Acceptable Diet (%)
Intermediate Results Indicators	1. Household Dietary diversity score including nursing mothers and children under two years (1000-day mother target)

Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. Number of people receiving improved nutrition services and products 2. Number of Nutrition Field Schools conducted 3. Number of model Home Nutrition Gardens used to train women 4. Number of Home Nutrition Gardens supported 5. Number of chickens and fruit saplings distributed 6. Number of small grant-financed subprojects 7. Number of demand-based grants (during extended implementation year)

Objective/Outcome 3: Improved Resilience	
Outcome Indicators	1. Farmers adopting improved technologies (including climate smart agriculture technologies) 2. Increased household income
Intermediate Results Indicators	1. Number of farmers accessing technology dissemination services delivered by the project 2. Improved seed replacement rate (%)
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. Number of promising CSA and nutrition sensitive technologies validated through on-farm adaptation trials 2. Area in hectares covered by small irrigation schemes supported by project 3. Number of plastic tunnels supported 4. Number of polyhouses supported

C. DETAILS OF CHANGES MADE THROUGH THE TWO RESTRUCTURINGS

The first restructuring modified the targets based on the inputs from field experience. It was found that some indicators such as meat productivity targets were too ambitious. Additionally, a higher demand for matching grants was found. The second restructuring increased the budget for matching/demand-based grants due to exchange rate gains and extended the project life by one year. Therefore, targets for adoption, household income, and dietary intake were increased assuming that these additional grants achieve positive impacts.

Details of Changes	Restructuring of May 2022; disbursement: US$10.5 million	Restructuring of April 2023; disbursement of US$16.5 million
Project Closing Date	No change; retained as June 30, 2023	Extended by 12 months from June 30, 2023, to June 30, 2024, mostly to absorb US$-NPR exchange rate saving
PDO Level Indicators		
Farmers adopting improved agricultural technologies	No change: target retained at 31,800	Target increased from 31,800 to 33,000
Increased crop and animal productivity by direct beneficiaries	No change, except meat productivity improvement target which was reduced from 40 percent to 25 percent	No further change in crop and animal productivity targets
Improved score on FIES by direct beneficiaries	Target changed from 40 percent; replaced with absolute target of negative 9.0; also dropped gender disaggregation; measured at household level	No further change
Increased household income	No change: target retained as BL+25 percent	Target increased from BL+25 percent to BL+30 percent
Improved dietary intake	No change: target retained as BL+20 percent	Target increased from BL+20 percent to BL+30 percent for both categories: (a) pregnant/nursing women; and (b) children 6-24 months
Intermediate Results Indicators		
Promising technologies validated by NARC (including CSA and nutrition-sensitive)	20 technologies with a package of practices	Target remained unchanged at 20 technologies and package of practices
Farmers reached with agricultural assets and services	Target reduced from 65,000 (direct and indirect) beneficiaries to 45,000 direct crops and livestock beneficiaries. Nutrition beneficiaries excluded	Target increased from 45,000 to 47,000 direct beneficiaries of agriculture and livestock activities
Farmers accessing technology dissemination services	No change: target retained as 39,750	Target increased from 39,750 to 40,250
Number of post-harvest facilities constructed and/or rehabilitated	Target reduced from 184 to 80 facilities because of reduced demand	No change: target retained as 80 facilities
Number of producer-based organizations supported	No change: target retained at 1,590	Target increased from 1,590 to 1,620 organizations
Number of sub-projects (business plans) financed by the project on Matching Grant basis	Target increased from 448 to 710 sub-projects due to high demand	Target increased from 710 to 780 sub-projects
Improved seed replacement rate	No change: target retained as BL+25 percent	Overall target increased from BL+25 percent to BL+35 percent; target for rice and wheat: BL+35 percent; maize and potato: BL+25 percent
People receiving improved nutrition services and products	Target reduced from 57,500 to 21,000, mostly to focus not on all household members, but only targeted women participating in Nutrition Component	Targeted nutrition beneficiaries increased further from 21,000 to 22,000
Household Dietary diversity score including nursing mothers and children under two years (1000-day mother target)	No change: target retained as BL+20%	No change: target retained as BL+20%
New Intermediate Results Indicators		
Area covered under irrigation schemes	Target: 678 small irrigation schemes with 1,250 hectares of irrigated area	No change to small irrigation schemes (*Eight Deep Tube Well schemes proposed were conditionally agreed subject to Bank safeguards compliance)*
Number of sub-projects (business plans) financed by the project through Small Grants for Nutrition	On-going activity included for better monitoring. Target: Small grant financed sub-projects increased from 549 to 580	Target increased from 580 to 665 sub-projects

D. OBJECTIVES AND TARGETS FOR THE EFFICIENCY SPLIT RATINGS

Outcomes and Indicators	Unit	Baseline (BL)	Target	Objectives without restructuring			Objectives with first restructuring			Objectives with second restructuring		
				Target	Achievement	Achievement as % of incremental project target	Revised Indicators Target	Achievement	Achievement as % of incremental project target	Revised Indicators Target	Achievement	Achievement as % of incremental project target
Improved Agricultural Productivity (Overall Substantial Achievement)												
Average Food grains	tons/ha	2.43	BL+25%=3.04	15	11.20	75	20	15	74	25	2.9	80
Average Vegetables	tons/ha	6.75	BL+30%=8.78	18	31.1	173	24	19	80	30	18.2	562
Average Goat meat*	KG/goat	21.8	BL+40%=30.1 (O)	24	0	0				40	27.1	
			BL+25%=27.3 (R)				20	12	60	25		97
Weighted Average Milk	Liters/animal	652.29	BL+35%=880	21	0	0	28	31	110	35	1,313	290
Improved Nutrition Practices (Overall Substantial Achievement)												
Improved FIES Score**												
All households	Score	-6.20	BL+5%=-6.51	3	0	0.0	4	6.20	155	5	-8.15	629
Minimum Dietary Diversity score for pregnant and nursing women	Percent	41	BL +20% =49.2 (O)	12	0	0.0	16	24	153	20	81	
			BL+30%=53 (R)							30		333
Minimum Acceptable Diet score for children aged 6 to 24 months old	Percent	20	BL +20% =24 (O)	12	0	0.0	16	55	344	20	26	
			BL+30%=26 (R)							30		100
Improved Climate Resilience (Overall High Achievement)												
AG Profit: Crop + livestock revenue + self consumption - production costs	NPR	51,721	BL+30%=67,237	18	0	0.0	24	24.5	102	30	131,986	517
Farmers adopting improved technologies (including CSA)	Number	0	31,800 (O)	19,080	21,759	114	25,440	31,833	125		34,775	
			33,000 (R)							33,000		105

Note: Given the original five-year project duration, intermediate targets in the ISRs were proportionally adjusted to reflect elapsed time: the June 2022 ISR (year 3) used 60% of the original target as the benchmark, and the March 2023 ISR (year 4) used 80% of the post-first restructuring target. This approach enabled consistent comparison over time. Final ratings reflect both target achievement and World Bank rating methods.

E HOUSEHOLDS ADOPTION OF PRODUCTION TECHNOLOGIES

No	Technologies/services	Adoption rate (%)
Crop production		
1	Agricultural machinery	43.0
2	Farmyard manure	34.9
3	High-yielding varieties	25.0
4	Storing seeds in metal bins/super-bags	8.2
5	Row cropping	6.7
6	Relay cropping	5.8
7	Conservation tillage	4.5
8	Plastic tunnel/plastic house	4.0
9	Mulching	1.9
10	Biopesticides	1.8
11	Broadcasting method for rice	1.6
12	Insect traps	1.6
13	Composting	0.8
14	Green manure	0.5
15	Drought/flood tolerant varieties	0.5
Livestock production		
1	Better feeds including concentrate	59.4
2	Deworming	52.1
3	Veterinary services	40.4
4	Colostrum feeding for infants	38.4
5	Vaccination against infectious diseases	37.6
6	Feeding more nutritious food 1-2 months before breeding	22.7
7	Better housing/shed improvement	21.9
8	Preventing inbreeding	20.9
9	Stall feeding	17.9
10	Dipping to protect from external parasites	17.3
11	Improved fodder	16.3
12	Hygiene practices in milk production	8.1
13	Forage conservation for dry season	5.2
14	Feeding more nutritious food during breeding	5.2
15	Hired labor to assist with the management/care of livestock	5.0
16	Urea Molasses Mineral Block	3.4
17	Livestock insurance	3.0
18	Artificial insemination	0.8

Adoption rate was determined by dividing the number of households that reported adopting the technology within the past 12 months, within the past 3 years, or more than 3 years ago by the total number of respondents.

F. HOUSEHOLDS ADOPTION LEVELS OF CROP AND LIVESTOCK PRODUCTION TECHNOLOGIES

		Crop production (Number)	Livestock production (Number
1	One technology	199	67
2	Two technologies	175	61
3	Three technologies	94	51
4	Four technologies	52	51
5	Five technologies	16	42
6	Six technologies	6	33
7	Seven technologies	2	37
8	Eight technologies	-	70

Households adopting at least One Technology (X)	544	412
Households with no adoption or pre-FANSEP adoption (Y)	287	85
Grand Total (Z)	831	497
Overall adoption rate {(X/Z) *100%}	**65.5%**	**82.9%**

G. COMBINED ADOPTION LEVELS OF CROP AND LIVESTOCK PRODUCTION TECHNOLOGIES

		Number
1	One technology	140
2	Two technologies	134
3	Three technologies	130
4	Four technologies	123
5	Five technologies	134
6	Six technologies	84
7	Seven technologies	84
8	Eight technologies	74
9	Nine technologies	74
10	Ten or more technologies	188
Households adopting at least One Technology (X)		**1165**
Households with no adoption or pre-FANSEP adoption (Y)		235
Grand total		**1400**
Overall adoption rate {(X/Z) *100%}		**83.2%**

H. BENCHMARK VALUE OF FIES SCORE

1. The baseline survey conducted in February 2021 reported an average FIES score of -8.6, with 92 percent of respondents classified as fully food secure or only mildly food insecure. However, this likely overstates food security in the project areas due to the timing of the survey, which coincided with post-COVID recovery support (such as rice distributions) and the harvest season, when food availability is typically higher.

2. By contrast, national-level data from 2020 show that only 62.2 percent of the population was food secure, with 37.8 percent experiencing moderate or severe food insecurity. On average, this metric of food insecurity stood at 33.8 percent from December 2015 to 2021, reaching a peak of 37.8 percent in 2020 and a low of 29.5 percent in December 2015.[5] Given that the project's target areas are among the poorest in Nepal, actual food insecurity was likely even higher. To address this mismatch, the DIME midline survey conducted in May 2022—after the end of government support and before project activities began—was used to define a more accurate baseline. It reported a FIES score of -6.2, which serves as a more realistic reference point for assessing the improvements observed in the Y6 survey.

[5] https://www.ceicdata.com/en/nepal/social-health-statistics/np-prevalence-of-moderate-or-severe-food-insecurity-in-the-population--of-population

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Asuka Okumura	Team Leader
Timila Shrestha	Financial Management Specialist
Neena Shrestha	Procurement Specialist
Shambhu Prasad Uprety	Procurement Specialist
Chandra Kishor Mishra	Procurement Specialist
Annu Rajbhandari	Environmental Specialist
Prem Khanal	Social Specialist
Ishwor Neupane	Social Specialist
Ramesh Raj Bista	Procurement Team
Sujin Bajracharya	Procurement Team
Ama Esson	Team Member
Purna Bahadur Chhetri	Team Member
Sunita Kumari Yadav	Team Member
Harideep Singh	Team Member
Sunita Gurung	Team Member
Mamata Ghimire	Team Member

B. STAFF TIME & COST

Stage of Project Cycle	Staff Time & Cost	
	No. of Staff Weeks	US$ (including travel and consultant costs)
Preparation		
FY18	50.095	231,637.03
FY19	26.401	92,740.77

Total	76.50	324,377.80
Supervision/ICR		
FY19	0.000	3,709.40
FY20	22.667	143,231.10
FY21	46.014	382,470.94
FY22	33.551	232,672.70
FY23	47.872	509,120.05
FY24	102.744	710,464.13
FY25	12.559	87,430.28
Total	265.41	2,069,098.60

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US$M)	Actual at Project Closing (US$M)	Percentage of Approval (%)
Climate and Nutrition Smart Technology Adaptation and Dissemination	7.22	7.09	98.20
Income Generation and Diversification	8.47	8.46	99.88
Improving Nutrition Security	6.13	6.03	98.36
Project management, communication and M&E	6.88	5.50	79.94
Total	**28.70**	**27.08**	**94.36**

ANNEX 4. EFFICIENCY ANALYSIS

Introduction

1. The objective of the economic and financial analysis is to assess the ex-post economic and financial performance of the project at completion in June 2024. At appraisal, the project total costs were estimated at US$ 28.7 million, including the GAFSP grant of US$22.7 million and the counterpart contribution of US$ 6.0 million.

2. At appraisal, it was estimated that the economic and financial returns would result from the diffusion of production management technologies, adoption of improved technologies resulting in increased yields of major crops and increased production of these targeted crops and livestock products.

3. Although the project objective set at appraisal remained unchanged through implementation, the project's closing date was extended by 12 months in April 2023 to allow the project to effectively utilize the exchange rate gains that the project accrued during the implementation period.

Project Cost and Duration

4. The project's achievements were with an actual total project cost of US$ 27.08 million which is 94.36 percent of the cost at appraisal (US$ 28.7) because of effective utilization of the exchange rate gains in the last year of the project. The project also witnessed a 40.5 percent inflation from 2018-2024 which is higher than the 16.8 percent depreciation of the NPR. The overall project duration was 68 months from November 2018 (effectiveness date) to June 2024 (closing date). The project exceeded its original duration by about 12 months (21 percent). Refer to Annex 3 for component-wise details.

Project Benefits

5. *Increased productivity***.** Increase in yield of selected commodities was a key focus of the project. The project promoted adoption of improved production technologies, practices and crop varieties through demonstrations and FFS. A total of 39,817 famers participated in the FFS and other trainings conducted by the project. The project also supported access to improved technologies and cropping inputs by organizing the farmers into producer groups including seed multiplier groups. Similarly, 15 goat multiplier herds were promoted by the project for improving the breed of goats among targeted households. The project also set up 13 AI facilities and distributed 19,977 chicks for rearing by households. While the baseline and endline productivity estimates are available, other details such as the cost of cultivation, and sales price were not captured by the project. Additionally, the project did not capture separate crop wise data with respect to training activities but only kept track of the total turn out at these training events.

6. *Value addition and market access*. The project also set up 1,622 crop and livestock producers' groups and provided matching grants for sub-projects to 778 groups covering 18,984 beneficiaries, that were supposed to engage with off-takers for improved market access and other value chain activities. Further, to utilize the exchange rate gains in the last year of the project an additional 391 sub-projects covering 9,964 producers were supported for technology adoption. However, the effect of these sub-grants is difficult to assess on the productivity and access to markets.

Methodology for the Cost Benefit Analysis

7. The cost-benefit analysis at appraisal was primarily conducted by capturing the incremental financial benefits from increase in productivity of major crops (rice, wheat, maize and lentils) by 25 percent, potato by 50 percent, and vegetable by 30 percent over the base year productivity and an increase in productivity of milk (cattle and buffalo) by 35 percent and meat (goat and poultry) by 40 percent. The EIRR at appraisal was estimated to be 27.4 percent and a NPV of US$ 22.25 million.

8. The ex-post EIRR of the project has been calculated using the following two methods:

(a) *Closely following the appraisal methodology while accounting for the closing date extension of 12 months, actual project benefits, and actual project costs.* The farm models prepared at appraisal were revised with the baseline data to realistically reflect the pre-project / Without Project (WoP) scenario to more accurately determine the incremental changes resulting from project interventions. For the WoP scenario, the farm models reflect the data

collected at project closure. Sensitivity analyses have also been conducted to assess the robustness of the results in relation to key variables that may be subject to uncertainty.

(a) *Increase in agriculture incomes of the targeted households captured by the DIME survey and Y6 survey*. Given that the survey used statistically relevant methods, the income estimates are supposed to be robust.

(b) Economic benefits were also estimated to capture the impact from impact on nutrition based on two methods: (a) improvements in human capital due to improved nutrition and (b) potential economic cost reduction to the society as estimated by the cost of inaction tool developed by Nutrition International.

Cost Benefit Analysis Results

Based on increase in productivity

9. Based on the productivity increases reported for the key commodities, the baseline and endline figures related to average area under crop production and herd sizes representative farm models were prepared to account for the increase in farm incomes (table 1).

Table 1: Summary of income increase from productivity increase

Sl. No.	Focus Commodity	Yield		Avg. acreage (ha) /Herd size	Incremental income (NPR)
		Baseline	EoP		
1	Paddy	2.43	2.92	0.15	6,795
2	Wheat				
3	Maize				
4	Vegetables	6.8	18.2	0.04	19,795
5	Goat	21.8	27.1	7.9	29,093
6	Poultry	2.3	2.9	11.3	1,242
7	Dairy	652.0	1,312.6	2.9	221,410
Weighted average income increase					**56,926**

10. The weighted average income per household based on the farm models for the focus commodities and the number of producer groups/beneficiaries supported by the project comes to NPR 56,926 with the highest incremental income coming from dairy and the lowest incremental income coming from BYP. While this is lower than the average incremental income as recorded by the Y6 endline survey, this may be because the DIME survey captures income at the household level and each household may be engaged in more than one livelihood activity while the farm model considers them as distinct activities

11. The ex-post EIRR, estimated using this method, is 25.8 percent, with a corresponding NPV of US$17.3 million—both slightly lower than the appraisal estimates of 27.4 percent and US$22.25 million, respectively.

12. Sensitivity Analysis. A sensitivity analysis conducted on the two critical factors related to productivity gains: (a) total incremental benefits from various farm models: (b) delay in realization of the income streams shows that the ex-post EIRR from productivity benefits is robust. Even under extreme conditions of decrease in benefits by 40 percent the ex-post EIRR reduced to 15.4 percent which is well above the social discount rate. Similarly, even if the benefit streams get delayed by three years the ex-post EIRR falls to 15.4 percent which is well above the social discount rate. Only under an extreme condition of benefit streams falling by 50.9 percent, does the EIRR reduce to 12.0 percent making the project economically unviable.

Based on incremental household incomes

13. The EIRR is based on the achievement of the PDO indicator on incomes. The baseline HH income (revenue from agriculture and livestock sales + value of self-consumed produce less the cost of production) was NPR 51,721 and the

HH income reported at project end was NPR 131,986 or an increase of 155.2 percent over the baseline income levels. Considering the project outreach of 38,392 households and the project costs of US$ 27.08 million the EIRR of the project is estimated to be 31.1 percent with a NPV of USD 44.2 million. This shows that the incremental project benefits from the project exceed the project costs and that the incremental project costs are well justified. It is important to note that, while this approach yields a substantial increase in NPV compared to the productivity-focused approach, the corresponding increase in EIRR is relatively modest. This difference is primarily due to the timing of the benefits, as incremental household income gains occur in later periods, reducing their impact on the EIRR due to discounting effects.

14. Sensitivity Analysis. A sensitivity analysis conducted on the two critical factors: (a) number of households realizing increase in incomes; and (b) income increase shows that the project would economically unviable if the income increase realized by the households falls to 60 percent of the current increase (i.e. an average income of NPR 99,880) and only if 60 percent of the households realize this income increase (i.e. outreach falls to 23,035) the project's EIRR will reduce to 8.5 percent. However, as long as at least 70 percent of the households (i.e. at least 26,874 households) continue to realize an income of 70 percent of the current increase (that is, an average income of NPR 107,906) the project will remain economically viable with an EIRR of 15.3 percent (higher than the social discount rate). The result of the sensitivity analysis is presented in the table below:

Table 2: Sensitivity analysis of income levels

		Income levels as percentage of endline incomes				
		60%	**70%**	**80%**	**90%**	**100%**
Outreach as percentage of current outreach	**60.0%**	8.5%	13.3%	17.0%	20.1%	22.7%
	70.0%	10.3%	15.3%	19.1%	22.3%	25.1%
	80.0%	12.0%	17.1%	21.1%	24.4%	27.3%
	90.0%	13.4%	18.7%	22.8%	26.3%	29.2%
	100.0%	14.8%	20.2%	24.5%	28.0%	31.1%
	110.0%	16.1%	21.6%	26.0%	29.6%	32.8%
	120.0%	17.3%	22.9%	27.4%	31.1%	34.3%

Economic benefits of nutrition

15. The Nutrition International Cost of Inaction Tool is an online, evidence-based and user-friendly analytical tool built for country-level policymakers and advocates. It was created to rapidly generate estimates on the health, human capital and economic costs of inaction on stunting, low birthweight and anaemia (in women and children) for over 140 plus countries. The tool estimates that the annual cost of inaction in Nepal is US$ 1.1 billion, and that Nepal experiences 158,080 new cases of stunting every year with a total of 790,400 children under the age of five experiencing stunting in Nepal. On average in Nepal a child affected by stunting lose 10.8 IQ points and 1.5 school years, resulting in long-term productivity losses.

16. Based on the project's coverage of 20,867 households under nutrition benefits and if these activities would have impacted 7,631 children[6] under the age of 5. We assume that the 27 percent MDD gains, computed by considering the percentage point gains in proportion of children with diverse diets in Y6 (=44 percent) compared to baseline (= 17 percent), would translate into a 18.63% reduction in stunting. This is calculated by multiplying the MDD gains of 27

[6] Based on census 2021, 8.36% of children are under the age of 5 and the average number of people per household in Nepal is 4.37.

percent by the 69 percent[7] translation of diet diversity benefits to reduced incidence of stunting in the Asian context.[8] Based on these calculations, the annual gains from reducing stunting (starting from project year 8) are estimate at USD 1.98 million. This improves the ex-post-EIRR of the project to 29.0 percent, with a corresponding NPV of US$ 23.3 million.

17. Thus, the economic benefits from nutrition related activities substantially improve the project's ex-post EIRR from 25.8 percent to 29.0 percent. Furthermore, accounting for GHG emission benefits at low shadow prices of carbon further increases the EIRR further to 44.5%.

18. Comparison with similar nutrition-sensitive projects (table 3) indicates that FANSEP demonstrated the highest financial and economic efficiency, with a strong return on investment, yielding $2.40 and $1.47 per dollar spent with and without incorporation of GHG externalities, respectively.

Table 3: Comparison of Financial Indicators Among Nutrition-Sensitive Agriculture Projects

Project Name	Project Code	Country	Whether Nutrition Benefits Included in EFA	Social Discount Rate	Time Horizon	Project Implementation timeline	Project Cost (USD million)	NPV (USD million)		EIRR	
								With GHG	Without GHG	With GHG	Without GHG
Food and Nutrition Security Enhancement Project	**P164319**	**Nepal**	**Yes**	**12%**	**20 years**	**7 years**	**27.08**	**48.5**	**23.3**	**44.50%**	**29.00%**
			No	**12%**	**20 years**	**7 years**	**27.08**	**42.5**	**17.3**	**42.40%**	**25.80%**
Food Security and Agriculture Productivity Project	P155513	Bhutan	No	10%	20 years	6 years	12.6	6.3	3.9	22.2%	18%
Andhra Pradesh Rural Inclusive Growth Project	P152210	India	No	12%	20 years	5.5 years	69.4	NA	38.9	NA	27.20%
Agricultural Productivity and Nutrition Improvement Project	P132754	Kyrgyz Republic	Yes	13%	20 years	8 years	38	NA	59.3	NA	28.70%

Note: To ensure comparability across projects with GHG benefit estimations, the estimates are presented using the low shadow price of carbon as a reference. The NAs indicate that the analysis for certain categories was not conducted.

[7] As per a meta-analysis by Zeinalabedini et al. (2023), reduced diet diversity is associated with a 69% increase in stunting incidence in Asia. We assume that this translates into improved diet diversity reducing stunting incidence at the rate of 69%.

[8] Zeinalabedini M, Zamani B, Nasli-Esfahani E, Azadbakht L. A systematic review and meta-analysis of the association of dietary diversity with undernutrition in school-aged children. BMC Pediatr. 2023 May 29;23(1):269. doi: 10.1186/s12887-023-04032-y. PMID: 37246212; PMCID: PMC10226245.

ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

The draft ICR was endorsed by Dr. Govinda Prasad Sharma, Secretary, Ministry of Agriculture and Livestock Development (MoALD), Government of Nepal on April 13, 2025. His verbatim comments are reproduced below.

1. The ICR report was found to be comprehensive as it precisely highlights the key achievements, learning of FANSEP implementation from November 2018 to June 2024 including one year no cost extension period. In-depth assessments and analysis have been made in examining the overall performance rating and documenting the achievements against the result framework indicators. The ICR report duly acknowledges the constraints and challenges posed by the COVID-19 pandemic in the implementation of the project interventions.

2. The logical linkages toward achieving the PDOs are well articulated, supported by a clearly charted ToC a well-summarized appraisal context, and a thorough assessment of the relevance of the PDOs.

3. The recommendations provided are both valid and practical, offering actionable insights that can be integrated into the planning process or considered when designing future similar projects.

4. The Ministry would truly appreciate the guidance and support of the WB team for the smooth implementation of project activities through missions and other backstopping support to the project team. The FANSEP project team (both the government and FAO TA team) deserves appreciation for the overall project performance rating which is ''moderately satisfactory''.

5. The ICR report has duly recognized the FANSEP and NARC collaboration for the validation of 25 climate resilient and nutrition sensitive technologies including19 crop technologies and 6 livestock technologies in project rural municipalities. The validated CSA technologies and practices were disseminated through FFS and on-farm demonstrations as a tools of adoption of those technologies for better productivity of crops (cereal and vegetable), milk and goat meat.

6. The ICR has clearly elaborated the benefits of matching grants on adoption of CSA technologies, construction/ rehabilitation of small irrigation schemes and purchase of small-scale machineries by the producer groups that led to increased productivity, income, and improving efficiency of farm operations and drudgery reduction.

7. The Ministry recognizes the effective implementation of income-generating interventions, including technical support to producer groups, market infrastructure development, handling and processing units for dairy products, seed processing. MoALD is particularly encouraged by the impressive gains in agricultural income and appreciates the role of private capital mobilization through cost-sharing mechanisms in matching grants, infrastructure development. FANSEP also introduced the FBS model at the farmer level marking a significant milestone, which played a vital role in building farmers' capacity in business plan preparation, market-led production planning, value addition, record keeping, and profitability analysis, particularly for smallholder agri-entrepreneurs/farmers.

8. The Ministry appreciates the project team and the WB for initiating NFS for the first time in the country targeting golden 1000 days population and women of reproductive age groups. NFS greatly improved their knowledge and awareness level on nutrition situation analysis, growth monitoring of children, mother and children’s nutrition and health, diet and dietary diversity, minimum dietary diversity of children, women and household dietary diversity.

9. The ICR has highlighted the project supported efforts to increase access to the production and consumption of seasonal vegetables and fruits along with poultry eggs and meat through home nutrition gardens (HNG) and small grants support to the members of nutrition groups. The project demonstrated both a broader adoption of the HNG approach for nutrition improvement and a greater diversity of HNG foods produced.

10. The ICR found that FANSEP interventions were found effective in improving FIES score, minimum dietary diversity (MDD) scores for women and children, and the minimum acceptable diet score for children aged 6 to 24 months.

11. The ICR acknowledged that the project maintained a moderate environmental and social risk rating throughout its implementation and was awarded a satisfactory performance rating at closure.

12. The Ministry recognizes the efforts of project team for developing the program implementing guidelines, manuals for FFS, FBS and NFS, training curriculum besides documenting success stories, exit strategy, project completion report of the project. The project developed resources and reports will be an asset for upscaling the successful interventions in FANSEP II and other similar projects within the ministry.

13. The Ministry affirms the project's contribution for the capacity development of stakeholders such as farmers, members of nutrition groups, project staff and municipal technicians along with program of quality seed and breed multiplication for wider adoption at the community level is expected to contribute to the sustainability of the project results and upscaling for larger impacts.

14. The Ministry looks forward to continued collaboration with all development partners and stakeholders in future food and nutrition security initiatives and expresses its commitment to scaling-up successful lessons in future agricultural development programs.

ANNEX 6. SUPPORTING DOCUMENTS

PART A

Strategic Documents

- World Bank Country Partnership Framework (CPF) for Nepal FY19-23 (Report No. 121024-NP) and Performance and Learning Review of CPS FY19-FY24 (Report No. 168048-NP)
- Nepal's Agricultural Development Strategy (ADS) of 2015 for a 10-year period up to 2025
- Nepal's Country Climate and Development Report (2022)
- Nepal's Second Nationally Determined Contribution (2021-2030)
- National Adaptation Plan (2021-2050)
- Long-term Strategy for Net-zero Emission (2021-2050)
- Implementation Completion and Results Report of Agriculture and Food Security Project (closed in 2018, and predecessor project to FANSEP – P164319)

Project Documents

- Project Appraisal Document of September 2018
- Grant Agreement
- Restructuring Papers of May 2022 and April 2023

Monitoring and Evaluation Reports

- Periodic Monitoring Reports on Project Implementation Progress
- MTR Working Papers and Presentations
- Baseline Survey Report by DIME - 2021
- Midline Survey Presentation by PMU - 2022
- Final Evaluation Report by DIME - 2024
- Final FAO Implementation Report 2024 – Findings and Recommendations
- Final Report on Effectiveness of Crop and Livestock FFS, FBS, and NFS – June 2023
- Year 6 Outcome Survey Report by the Project Management Unit

Additional Sources of Information

- Nepal Agriculture Statistics 2020, 2021, 2022, 2023
- Nepal 2022 Demographic and Health Survey Report
- Research Papers on Cross-bred Goat Productivity in Nepal
- Nepal Nutrition and Food Security Portal
- National Dairy Development Board Study of 2022 on Nepal Dairy Sector
- NARC – Cattle Breeding Center Publication (reporting on lumpy skin disease)

Implementation Support Mission Documents (post-review mission documents)

- Aides Memoire
- Mission Technical Notes and Back-to-Office Reports
- Implementation Status Reports

Project Cost Information

- Reporting from PMU on project cost and disbursement information
- Disbursement Data from Client Connection