

India

FY2024 Ex-Post Evaluation Report of

Japanese ODA Loan “Himachal Pradesh Crop Diversification Promotion Project” and
Technical Cooperation Project “Project for Crop Diversification in Himachal Pradesh” and
“Phase II Project for Crop Diversification in Himachal Pradesh”

External Evaluator: Tomoo MOCHIDA, Kaori OSONE, OPMAC Corporation

0. Summary

The Project¹ targeted small-scale farmers in five districts of Himachal Pradesh (hereinafter referred to as “HP State”), a mountainous state in India. The initiative aimed to develop and rehabilitate production infrastructure such as minor irrigation facilities, as well as provide support for farmers. This included the extension of agricultural services, and the establishment of mechanisms to promote crop diversification through the cultivation of vegetables with a high market value, with the objective of improving the income of farmers in the project area. At both the appraisal and the ex-post evaluation stages, the Project was consistent with the development policies of the central and state governments, and the Project was aligned with development needs of the country. The Project was also consistent with Japan’s aid policy and JICA’s cooperation strategies. Coordination was undertaken with other JICA schemes such as the JICA Overseas Cooperation Volunteers, as well as with other development partners. However, concrete outcomes expected from such coordination could not be confirmed. Therefore, its relevance and coherence are rated high. Although the project period exceeded the original schedule, the project costs remained within the plan. Accordingly, the efficiency is rated high. With respect to effects, the operation and effects indicators had been achieved by the target year. Expected qualitative effects, such as improvement in the living standards of the local population in the project area, as well as the enhancement of the social and economic capacity of women, were confirmed. Therefore, the effectiveness and impacts are rated high. The operation and maintenance (O&M) of the infrastructure facilities developed were to be undertaken by water users’ associations (Krishak Vikas Associations, hereinafter referred to as “KVA”) formed and supported under the Project. However, in some cases, O&M has not been smoothly implemented. Since no regular monitoring has been conducted since project completion, it has been difficult to ascertain the overall situation of the irrigation facilities developed. At certain sub-project sites where appropriate O&M has not been conducted, no measures have been considered and undertaken to address these issues, making it less likely that such problems will be resolved in the near future. Consequently, the sustainability of the outcome of the Project is

¹ “The Project” refers to the three projects: the Japanese ODA Loan Project “Himachal Pradesh Crop Diversification Promotion Project” and the two Technical Cooperation Projects, “Himachal Pradesh Crop Diversification Promotion Project” and “Himachal Pradesh Crop Diversification Promotion Project (Phase 2).”

moderately low.

In light of the above, the Project is evaluated to be satisfactory.

1. Project Description



Project Location (HP State, the districts delineated by the red boundary represent the areas where the Project was implemented.) (Source: Project Completion Report, Himachal Pradesh Crop Diversification Promotion Project (Phase 2))



Sub-project site for lift irrigation scheme in Hamirpur District (Source: Photo Taken by Evaluator)

1.1 Background

At the time of project planning, India was described as a major agricultural country, with more than 70% of its population living in rural areas and approximately 60% of the total labor force engaged in the agricultural sector. Furthermore, more than 70% of the poor population were in rural areas. Although the share of agriculture in the Gross Domestic Product (GDP) accounted for 19.0% in FY2004, this had declined to 17.7% in FY2010. Nevertheless, agriculture and rural development were considered indispensable for poverty reduction and socio-economic development in India.²

HP State is a mountainous state stretching along the foothills of the Himalayas with a land area of approximately 5.567 million hectares and an altitude ranging from 350 meters to 7,000 meters. The population was 6.08 million (2011 census) and about 70% of the labor force was engaged in agriculture. However, 80% of farmers were smallholders cultivating less than 1.2 hectares, and farming remained largely at the subsistence level.³ On the other hand, the cool climate of HP State is suitable for producing high value-added crops such as off-season vegetables and fruits. With the rapid increase in middle-class incomes in nearby

² (Source) Materials provided by JICA (February 2011). The ratio of agriculture in GDP is based on Statistics Year Book India 2013. At the time of the ex-post evaluation, as of 2023, 44% of total employment in India was in agriculture, while as of 2024, 63% of the population resided in rural areas, and the agriculture, forestry, and fisheries sector accounted for 16.4% of GDP in 2024 (Source: World Bank Open Data).

³ (Source) Ex-Ante Evaluation Sheet of the ODA Loan Project (2011). However, according to the 2011 Census, the population of HP State was 6.86 million. At the time of the ex-post evaluation, the estimated population of HP State was 7.49 million in 2023, and approximately 54% of the state's workforce was engaged in the primary sector (Source: HP Economic Survey 2024–2025).

metropolitan areas such as Delhi, the demand for fresh fruits and premium vegetables was expected to rise sharply. However, due to the steep terrain, most crops were rainfed cereals. Vegetable cultivation, which requires irrigation during the winter season, was limited to farmers with simple irrigation facilities. Regarding roads, only a limited number of the villages in the state had year-round vehicular access.

1.2 Project Outline

In HP State in northern India, the Project aimed to promote crop diversification by the development and rehabilitation of production infrastructure such as minor irrigation facilities and farm access roads. Strengthening of support for farmers also took place, such as the extension of agricultural services, and, in particular, the promotion of the cultivation of vegetables with a high market value, thereby contributing to improvement in the livelihoods of farmers in Himachal Pradesh.

Himachal Pradesh Crop Diversification Promotion Project (hereinafter referred to as “LP1” for Loan Project Phase 1)

Loan Approved Amount / Disbursed Amount	5,001 million yen / 4,557 million yen	
Exchange of Notes Date / Loan Agreement Signing Date	February 17, 2011 / February 17, 2011	
Terms and Conditions	Interest Rate	1.4% (0.01% for consultants)
	Repayment Period (incl. Grace Period)	30 years 10 years)
	Conditions for Procurement	General Untied
Borrower / Executing Agency	The President of India / Department of Agriculture (hereinafter referred to as “DOA”), HP State	
Project Completion	June 2021 ⁴	
Target Area	5 target districts in HP State: Bilaspur, Hamirpur, Kangra, Mandi, and Una	
Main Contractor(s) (Over 1 billion yen)	-	

⁴ Definition of Project Completion: Approval of the Terminal Impact Assessment Report.

Main Consultant(s) (Over 100 million yen)	AECOM ASIA COMPANY LTD. (Hong Kong) / NJS ENGINEERS INDIA PVT. LTD. (India) / AGRICONSULTING S.P.A. (Italy)
Related Studies (Feasibility Studies, etc.)	[Development Study] The Study on Diversified Agriculture for Enhanced Farm Income in the State of Himanchal Pradesh (JICA, Jan. 2007 - Mar. 2009) [Preparatory Survey] The Preparatory Survey on Himachal Pradesh Crop Diversification Promotion Project (JICA, September 2009 - Mar. 2010)
Related Projects	“Himachal Pradesh Crop Diversification Promotion Project (Phase 2)” (Loan Agreement signed on March 26, 2021, hereinafter referred to as “ODA Loan Project (Phase 2)”). ⁵

Technical Cooperation Project for Crop Diversification in Himachal Pradesh (hereinafter referred to as “TCP1”)

Overall Goal		Crop diversification is promoted in the target area based on the advantageous climatic conditions.
Project Purpose		The promotion mechanism for crop diversification is established in DOA Himanchal Pradesh.
Output(s)	Output 1	DOA's capacity to plan and implement crop diversification activities is strengthened.
	Output 2	Training system to promote crop diversification is developed.
	Output 3	The extension skill of the core extension officers ⁶ is improved.
	Output 4	Crop diversification model is developed and practiced in the pilot area.
Total cost (Japanese Side)		633 million yen
Period of Cooperation		March 2011 - March 2016
Target Area		Five (5) target districts in HP State
Implementing Agency		DOA, HP State

⁵ In the ODA Loan Project (Phase 2), the project area was expanded to cover all districts of Himachal Pradesh, with the objective of further increasing farmers' income through crop diversification and value addition.

⁶ “Core extension officers” refer to extension officers and engineering staff belonging to the PMU responsible for implementing the ODA loan project. They were the target group of the Technical Cooperation Projects and served as the central focus of technology transfer.

Other Relevant Agencies/ Organizations	State Agricultural Management and Extension Training Institute (SAMETI), Krishi Vigyan Kendras (KVKs), Palampur Agricultural University, etc.
Consultant/ Organization in Japan	Nippon Koei Co., Ltd.; NTC International Co., Ltd.
Related Projects	ODA Loan Project (Phase 2)

Phase II Project for Crop Diversification in Himachal Pradesh (hereinafter referred to as “TCP2”)

Overall Goal		Crop diversification according to Agro-Ecological Situations is promoted in the 5 districts of Himachal Pradesh.
Project Purpose		Organizational capacity of the Department of Agriculture (DOA) to promote crop diversification in the 5 districts is strengthened.
Output(s)	Output 1	Technical capacity of DOA/Project Management Unit (hereinafter referred to as “PMU”) staff to promote crop diversification practices is strengthened.
	Output 2	Through activities in pilot areas, packages of techniques to promote crop diversification are compiled.
	Output 3	Effective marketing activities for farm produce are identified.
	Output 4	Sustainable plans of DOA to promote crop diversification in the respective 5 districts are formulated based on achievements of the project.
Total cost (Japanese Side)		720 million yen
Period of Cooperation		February 2017 - November 2022 (including extension: March 2022 - November 2022)
Target Area		Five (5) target districts in HP State
Implementing Agency		DOA, HP State
Other Relevant Agencies/ Organizations		HP State Agricultural Marketing Board; HP State Agricultural Marketing Corporation; HP State Agricultural Management and Extension Training Institute (SAMETI); Krishi Vigyan Kendras (KVKs); HP State Agricultural University
Consultant/ Organization in Japan		Nippon Koei Co., Ltd.
Related Projects		ODA Loan Project (Phase 2)

1.3 Summary of the Terminal Evaluation

Terminal Evaluation of TCP1 (July 2015)

1.3.1 Prospect of Achieving the Project Purpose at the Time of Terminal Evaluation

The progress of the project was smooth, and it was considered certain that the project purpose would be achieved by the end of TCP1 for the following reasons:

- (1) The “Crop Diversification Guidelines”⁷ had been compiled.
- (2) The capacity of core extension officers had been strengthened through training and practical exercises, and many core extension officers had already started extension activities.
- (3) Core extension officers were expected to replicate crop diversification in approximately 210 LP1 sub-project sites, with reference to the “Crop Diversification Guidelines.”

1.3.2 Prospect of Achieving the Overall Goal (including other impacts) at the Time of Terminal Evaluation

It was considered that the pathway to achieving the overall goal had been established and that the likelihood of its achievement was high for the following reasons:

- (1) Irrigated areas would certainly increase through LP1.
- (2) Extension officers with strengthened capacity were expected to continue delivering high-quality extension services.

1.3.3 Recommendations at the Time of Terminal Evaluation

For TCP1, “approval of the guidelines and notification to all 12 Deputy Director of Agriculture Offices (DDAOs) and block level offices” was recommended at the time of the terminal evaluation. The guidelines were formally approved and distributed to all Block Project Management Units (BPMUs) and block-level officers between October and November 2015. With the dissolution of the PMU planned for June 2021, a recommendation for the “dissemination of the learnings and experiences of TCP1 within the DOA,” was made. This was so that core extension officers, who had engaged in extension activities under the PMU, could be assigned to the district and block offices of the DOA, allowing them to continue their extension work as DOA extension officers. It was also recommended that the Deputy Directors of Agriculture, who were also the heads of the district offices, deepen their understanding of the crop diversification guidelines and appropriately monitor the activities of extension officers. Subsequently, the functions of the PMUs were smoothly transferred to the ODA Loan Project (Phase 2), which was under implementation at the time of this ex-post evaluation. The DOA has continued to support the core extension officers and provide

⁷ The “Crop Diversification Guidelines” is a document consisting of two parts: Part I summarizes the technical aspects required to promote crop diversification in HP State; and Part II compiles information necessary for the training of core extension officers and farmers engaged in promoting crop diversification. These guidelines correspond to Output 4 of TCP1.

training.

At the Time of Completion of TCP2 (November 2022)

1.3.4 Prospect of Achieving the Project Purpose

No overall judgment was made regarding the status or the prospect of achieving the project purpose. However, as the following observations were made with respect to the two indicators set under the project, where these indicators were more or less achieved, it is considered that the project purpose had been achieved at the time of completion.

Indicator	Status
Indicator 1: Extension programs / activities for crop diversification implemented by DOA are improved in the sub-project areas under LP1.	Substantially achieved
Indicator 2: Number of farmers practicing vegetable cultivation in the sub-project areas under LP1 is increased.	Achieved

Source: "Project Completion Report of the Himachal Pradesh Crop Diversification Promotion Project, Phase 2-Stage 2," November 2022.

1.3.5 Prospect of Achieving the Overall Goal at the Time of Completion

No overall judgment was made regarding the prospect of achieving the overall goal. However, as the following observations were made with respect to the two indicators set under the project where one of these indicators shows achievement with conditions expected and the other one achieved, it is expected that the prospect of the overall goal being achieved is high.

Indicator	Status
Indicator 1: Areas under vegetable cultivation and quantity produced in the five districts are increased	Predicted to be achieved conditionally
Indicator 2: Quantity of farm produce marketed within and outside the state is increased	Achieved

Source: "Project Completion Report of the Himachal Pradesh Crop Diversification Promotion Project, Phase 2-Stage 2," November 2022.

1.3.6 Recommendations at the Time of Completion of TCP2

The following five recommendations were made for achievement of the overall goal:

- Conducting extension activities for vegetable cultivation on site by DOA extension officers;
- Implementing new DOA schemes for vegetable cultivation and its improvement;
- Strengthening cooperation between DOA and the ODA Loan Project (Phase 2);
- Sharing information on agricultural marketing with farmers and conducting necessary technical training; and
- Improving the O&M of irrigation facilities.

2. Outline of the Evaluation Study

2.1 External Evaluator

Tomoo MOCHIDA, Kaori OSONE, OPMAC Corporation

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

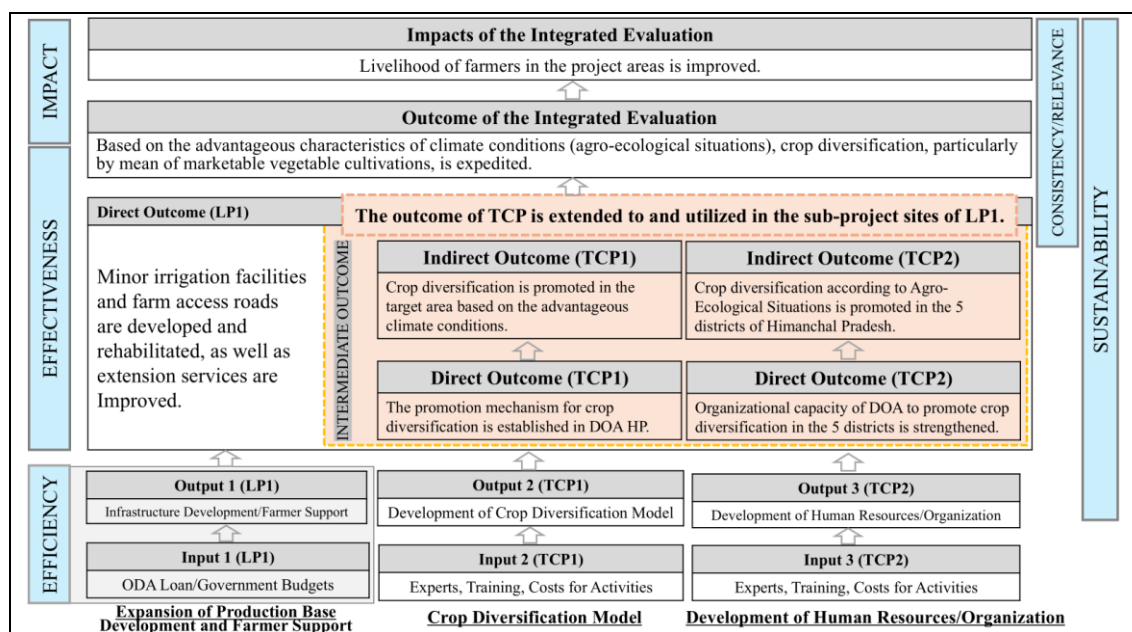
Duration of the Study: October 2024 - February 2026

Duration of the Field Study: January 14 - February 4, 2025, and May 26 - June 6, 2025

2.3 Concept of Integrated Evaluation

The Project consisted of mutually linked initiatives combining LP1 and TCP1/TCP2, implemented mainly in five districts (Bilaspur, Hamirpur, Kangra, Mandi, and Una districts) of HP State. As shown in the diagram below, the channels of achievement of the project effects and the interrelationships of the three projects were organized as a logic model for the purpose of integrated evaluation. The outcome of the integrated evaluation (project objective) was defined as: “Based on the advantageous climate conditions (agro-ecological situations), crop diversification, particularly by means of the cultivation of marketable vegetables, is expedited.” Consequently, the impact expected from the Project was defined as: “Livelihood of farmers in the project areas is improved (particularly through increases in farmers’ cash income).” To achieve the project objective, LP1 implemented small-scale infrastructure development (such as minor irrigation facilities and access roads) and support for farmers in 210 sub-project sites across the five districts of HP State (Output 1). TCP1 developed a crop diversification model (Output 2). TCP2 aimed to strengthen organizational capacity and enhance human resource development at DOA (Output 3). Taking into account the interrelationship whereby the outcomes of TCPs were expanded regionally through LP1, the evaluation judgment of the integrated project outcome focused primarily on the effects of LP1, while the results of TCPs were considered as supplementary.⁸ Although comparisons of planned and actual project costs and durations were made for the TCPs in accordance with the ex-post evaluation reference, these factors were not taken into account in the judgment of efficiency in the integrated evaluation.

⁸ In accordance with the ex-post evaluation reference, the achievement level of the project purpose under TCPs was regarded as part of the manifestation of the effects of LP1. A comparison was made between the target values set at the time of appraisal and the actual values at the time of ex-post evaluation, in order to confirm the degree of contribution of TCPs to the manifestation of these effects, and this was taken into account in the evaluation judgment.



Source: Prepared by Evaluator

Figure 1: Logic Model of the Integrated Evaluation

2.4 Constraints During the Evaluation Study

In this ex-post evaluation, a qualitative survey and a well-being survey were conducted in order to assess improvements in farmers' incomes and other impacts in the project target areas. The qualitative survey, including a pre-test, covered 51 farming households across nine sub-project sites in five target districts. The well-being survey was conducted with 19 households at four of these sub-project sites.⁹ LP1 implemented infrastructure development for production and farmer support services at 210 sub-project sites, and TCP1 and TCP2 were also carried out in areas that included these sites. However, as noted above, given the limited sample sizes in this ex-post evaluation, it is difficult to generalize the impacts of the Project based solely on the results of the qualitative survey and the well-being survey. Nonetheless, these results are considered to provide confirmation of certain aspects of the projects' impacts.

⁹ For the qualitative survey, the ex-post evaluation team, in consultation with the State Project Management Unit of the ODA loan (Phase 2), purposively selected target households (a total of 51) from the five districts of HP State. The selection considered population of each district, the types of infrastructure developed, the size of the Culturable Command Area (CCA), the number of women included in the KVA, and accessibility. Semi-structured interviews (An interview technique that follows a pre-prepared list of questions while flexibly expanding the questioning based on the respondent's answers) were conducted face-to-face. Where possible, non-beneficiary households were also included in the survey sample in each village to allow comparison with responses from beneficiary households. Excluding the pre-test, the number of households surveyed was 41, comprising 36 beneficiaries and 5 non-beneficiaries. For the well-being survey, 19 beneficiary households (with a total of 19 respondents) were drawn from among the 41 households in Hamirpur, Kangra, Mandi, and Una districts.

3. Results of the Evaluation (Overall Rating: B¹⁰)

3.1 Relevance/Coherence (Rating: ③¹¹)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of India

India's 11th Five-Year Plan (April 2007-March 2012) set an increase of agricultural production as one of its key macroeconomic objectives. Among the priority issues, it emphasized the shift to high value-added crops such as vegetables and fruits, while giving due consideration to national food security. Similarly, HP State, under its 11th Five-Year Plan (2007–2012), emphasized policies to increase agricultural income, enhance agricultural produce, and develop necessary infrastructure.

At the time of the ex-post evaluation, national-level policies in the agriculture sector that were given high priority included, for example, “Rashtriya Krishi Vikas Yojna (RKVY) (National Agricultural Development Scheme),” promoting the diversification and mechanization of agriculture. Another example was the establishment of the National Agricultural Market (eNAM), an electronic trading portal designed to create a unified domestic market for agricultural produce. At the HP State level, agricultural policies included the Him Unnati Yojna, seeking to enhance the productivity of smallholder farmers through region-based and cluster approaches,¹² as well as the Mukhyamantri Krishi Samvardhan Yojna (Chief Minister's Agricultural Promotion Scheme).

The Project was therefore consistent with the development policies of both the Government of India and the Government of HP State.

3.1.1.2 Consistency with the Development Needs of India

As described in the project background, at the time of LP1 appraisal, the agricultural sector accounted for a large share of India's total labor force, land area, and GDP. Given HP State's cool climate, which is suitable for the production of high value-added cash crops such as vegetables, and its proximity to major consumption markets like Delhi, crop diversification and value addition were considered effective means to improve rural livelihoods.

At the time of the ex-post evaluation, in FY2023–24, the share of the agriculture and related sectors in Gross Value Added (GVA) had declined to 18.2% nationally and 14.3% in HP State. On the other hand, the share of employment remained significant, at 46.1% nationally and 54.0% in HP State, underscoring the continued importance of the sector. In addition, landholdings in HP State are small, with an average farm size of 0.95 hectares. By

¹⁰ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

¹¹ ④: Very High, ③: High, ②: Moderately Low, ①: Low

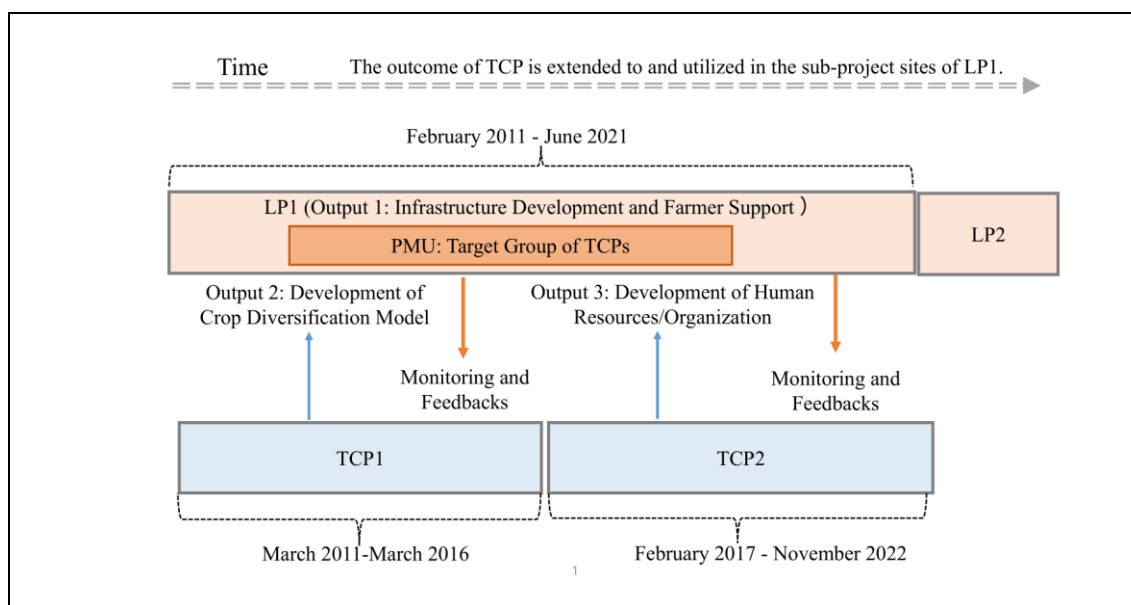
¹² Extension activities are carried out for a group of farmers organized as a cluster.

category, farms classified as marginal (less than 1 hectare) account for 30% of the total cultivated area. Therefore, the need for crop diversification into high value-added crops and for productivity enhancement is considered to remain high in HP State.

3.1.1.3 Appropriateness of the Project Plan and Approach

Relevance of linkages between TCPs and LP1 in terms of the logic

As shown in Figure 1, TCP1 and TCP2 were implemented with the aim of building a crop diversification model and strengthening human resource development and the development of organizational capacity, in order to expand the outputs of LP1, namely, the enhancement of small-scale production facilities and farmer support services across the entire target area. In TCP1, crop diversification guidelines were developed. The intended users were core extension officers and engineering staff belonging to the PMU responsible for managing LP1. Training materials and curricula were intended for use when core extension officers conducted training for farmers. With respect to human resource development, crop diversification plans were to be prepared by the PMU for each sub-project site under LP1. TCP1 provided support to the PMU in preparing these plans. Furthermore, the project purpose of TCP2 was to improve both the quantity and quality of extension programs and the activities for crop diversification implemented by the DOA in LP1 target areas, as well as to increase the number of farmers engaged in vegetable cultivation. A complementary approach toward the same objective was taken by combining the development of small-scale production infrastructure through LP1 with model building and human resource development through TCP1 and TCP2. These two TCPs were implemented continuously over a period almost identical to that of LP1, and smooth coordination was achieved among the three projects (Figure 2). Therefore, it can be said that the approach of this Project was appropriate.



Source: Prepared by Evaluator

Figure 2: Linkages between TCPs and LP1

Planning Considering Natural and Geographical Conditions

The Project incorporated measures to introduce farming practices suited to the agricultural and climatic conditions. For example, in the cultivation of cucumbers and cauliflowers, market price surveys for both vegetables were conducted, and cultivation methods were proposed with the aim of harvesting during periods when prices were higher. The technical challenges identified were the use of drip irrigation to address water shortages for cucumbers, and the use of mulch sheets (covering materials for the soil surface) to cope with heavy rainfall for cauliflowers. As a further example, in hilly areas with sufficient surface water, flow irrigation facilities were constructed; in flatter areas, lift irrigation facilities were installed; and in areas with sufficient groundwater, tube-wells were established. Thus, project planning took into account natural and geographical conditions.

Equity and Gender Perspective

With regard to gender, efforts were made to ensure that both women and men benefited equitably from the Project. Recognizing that women tend to be more frequently engaged in household labor, the three projects promoted women's involvement through Self-Help Groups (hereinafter referred to as "SHGs"), included women as core members of the operation and management of KVAs, and sought to ensure the active participation of women in decision-making processes.

Utilization of Lessons Learned from Similar Projects in the Past: Promoting Early Participation of Farmers and Support Tailored to Beneficiary Characteristics

Lessons learned from the ex-post evaluations of similar Japanese ODA loan projects emphasized “the importance of establishing maintenance and management systems.” Accordingly, this project (LP1) planned to “promote beneficiary participation from the planning stage and to strengthen the capacity of the water user associations responsible for operation and maintenance, as well as the executing agency supporting them”. Following the handover of production infrastructure to KVAs, responsibility for O&M was borne by KVAs. The three projects required beneficiary farmers to form KVAs and provided training and equipment. However, in some areas, active participation of KVA members was not observed. Beneficiaries of LP1 were farmers owning farmland within the Culturable Command Area (CCA),¹³ with physical boundaries defining the extent of beneficiaries. Therefore, even within the CCA, not all farmers were actively engaged in crop diversification due to such reasons as being too busy. Consequently, there were cases where irrigation facilities were not adequately maintained. Although the project design incorporated lessons learned, there was room for improvement in the approach to provide more tailored and detailed support.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan’s ODA Policy

At the time of appraisal, the Ministry of Foreign Affairs’ *Country Assistance Policy* for India (May 2006) identified “improvement of the poverty and environmental issues” as a priority objective, highlighting the reduction of poverty through improvement of income and the promotion of employment for the rural population. The three projects subject to this evaluation were positioned within JICA’s assistance to India as contributing to key development issues such as the enhancement of agricultural productivity, the development of rural infrastructure, and the creation of employment opportunities in rural areas. The objective and impacts of the Project - promoting crop diversification through the cultivation of vegetables with high market value, thereby contributing to the improvement of farmers’ incomes - were consistent with Japan’s aid policy and JICA’s development agenda.

3.1.2.2 Internal Coherence

At the time of the ex-ante evaluation, no specific linkages or coordination with other JICA-assisted projects were planned. During the ex-post evaluation, it was confirmed that PMU staff had visited JICA-supported ODA loan project sites in Kerala, Tamil Nadu, and

¹³ CCA (Culturable Command Area) refers to the portion of the total irrigable area under an irrigation project that is suitable for cultivation and can be irrigated using the project’s canal system. Areas that are not suitable for cultivation - such as forests, barren land, roads, and buildings - are excluded, while land that is currently uncultivated but can be cultivated is included.

Odisha States (2012), with the aim of familiarizing themselves with JICA's procedures and rules.¹⁴ During these visits, experience was shared not only regarding loan procedures, but also concerning the roles and responsibilities of loan consultants. However, no specific outcomes of such linkages have been confirmed.¹⁵

3.1.2.3 External Coherence

At the time of appraisal, the World Bank (WB) and Asian Development Bank (ADB) were providing assistance for the rehabilitation and modernization of several irrigation facilities. At the time of the ex-post evaluation, no linkages with WB or ADB projects, or resulting outcomes, were confirmed. According to the Project Completion Report (PCR) of LP1, the National Bank for Agriculture and Rural Development (NABARD) provided funding for the compilation and distribution of a collection of success stories of the project. However, the actual outcomes of such collaboration could not be confirmed.

With respect to relevance, the Project was consistent with development plans and development needs, and the design and approach were evaluated as appropriate. There was a complementary relationship established and promoted between model development and human resource / organizational capacity building under TCPs, and infrastructure development and farmer support under LP1. Regarding coherence, the Project was aligned with the cooperation policies of the Government of Japan and JICA. However, tangible results of linkages with other JICA projects or support were not confirmed.

Therefore, its relevance and coherence of the Project are high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

As described in Section 2.3 "Concept of Integrated Evaluation," efficiency was assessed based on the outputs and inputs of LP1.

[LP1] Infrastructure Development and Farmer Support

Output 1 of the integrated evaluation (outputs of LP1) included the following four components: (1) Infrastructure Development, (2) Farmer Support, (3) Institutional Strengthening of the DOA, and (4) Consulting Services.

¹⁴ It is not clear which other Japanese ODA loan projects the PMU visited.

¹⁵ In addition, with regard to linkages between LP1 and other JICA projects, the Japan Overseas Cooperation Volunteers (JOCV) and training on the Smallholder Horticulture Empowerment & Promotion (SHEP) approach should be noted. However, due to the outbreak of the COVID-19 pandemic, the activities of JOCV were limited to one year. Furthermore, training on SHEP began in FY2021 - 2022 when LP1 was about to be completed.

(1) Infrastructure Development

A comparison between the planned and actual outputs for the main infrastructure components is presented below.

Table 1: Comparison of Planned and Actual Achievements of Production Infrastructure Development and Farmer Support under LP1

Output 1 (Unit)	Planned	Actual	Difference
Irrigation facilities (ha)	3,712.0	4,671.1	959.1
Farm road development (km)	100.0	36.9	-63.1
Solar-powered lift irrigation (sites)	-	80	-
Micro irrigation ^{Note 1} (ha)	-	372.6	-
Trained KVA members	2,100	8,400	6,300
Farmer groups (groups)	At least 5	1,050	1,045
Formulation and implementation of CDPs ^{Note 2}	210	210	0

Source: Project Completion Report (LP1), Volume II, December 2021

Note 1: Micro irrigation such as drip irrigation using tubes and sprinkler irrigation, were introduced to ensure water-saving and efficient water supply.

Note 2: "CDP" stands for Crop Diversification Plan.

Approximately one-third of the sub-project sites initially planned were changed, and the construction of farm roads was implemented at 37% of the planned length. According to the Executing Agency, the actual construction work started three to four years after the appraisal was completed. During this period, local conditions had changed, resulting in modifications to the sites to be developed under the project. During the first three years up to 2014, some of the sub-projects initially planned were implemented with support from other government schemes and were therefore excluded from this project's scope. Although project plans were formulated to meet the conditions and needs of each sub-project site, changes over time led to revisions of outputs, such as the modification of target irrigation facilities and farm roads. However, it is considered that these changes were made based on the needs of beneficiary farmers in the target areas, with careful attention made to ensure that they would not hinder the achievement of the project objective.

(2) Farmer Support

Under the farmer support component, various activities were implemented to strengthen farmers' capacities, including the organization of farmer groups and training on vegetable cultivation. Although not originally planned, activities related to shiitake mushroom cultivation, training, and production processing, were also included under this component.

(3) Institutional Strengthening of the DOA

This component included the establishment of the PMU, capacity development of PMU staff, enhancement of agricultural extension service functions, and the implementation of

baseline surveys and impact assessments.

(4) Consulting Services

Consulting services were provided to support the PMU staff in implementing the project.



Photo 1: Cultivation room for shiitake block cultivation at the Shiitake Cultivation and Training Center in Kangra District (Source: Photo taken by Evaluator)



Photo 2: Irrigation canal in a flow (gravity) irrigation area in Kangra District (Source: Photo taken by Evaluator)



Photo 3: Farmers washing harvested vegetables with irrigation water in Mandi District (Source: Photo taken by Evaluator)



Photo 4: Farm access road leading to the CCA in Hamirpur District. The total length of the improved road is 596 meters. (Source: Photo taken by Evaluator)

[TCP1] Development of Crop Diversification Model

The achievement status of Integrated Evaluation Output 2 (corresponding to Output 1 of TCP1) is as follows:

Output 2	Results ^{Note 2}
2.1: DOA ^{Note 1} 's capacity to plan and implement crop diversification is strengthened.	Crop Diversification Plans were prepared for 210 sub-project sites under LP1.
2.2: Training system to promote crop diversification is developed.	A training system was developed.

Output 2	Results ^{Note 2}
2.3: The extension skill of the core extension officers is improved.	The knowledge and skills of core extension officers were improved.
2.4: Crop diversification model is developed and practiced in the pilot area.	A “framework for promoting crop diversification models” was developed.

Source: TCP1 “Joint Terminal Evaluation Report” (July 2015), Project Completion Report (TCP1) (November 2015), and responses to the questionnaire at the time of the ex-post evaluation.

Note 1: The target group refers to the core extension officers of the PMU.

Note 2: For Outputs 2.2 to 2.4, achievement was confirmed in the terminal evaluation study. Achievement of Output 2.1 was confirmed during the ex-post evaluation.

[TCP2] Human Resource Development and Organizational Strengthening

The achievement status of Integrated Evaluation Output 3 (corresponding to Output 2 of TCP2) is as follows:

Output 3	Results ^{Note}
3.1: Technical capacity of DOA/PMU staff to promote crop diversification practices is strengthened.	The technical capacity of DOA/PMU staff was largely improved.
3.2: Through activities in pilot areas, packages of techniques to promote crop diversification are compiled.	Technical packages for promoting crop diversification were compiled.
3.3: Effective marketing activities for farm produce are identified.	Effective activities were identified.
3.4: Sustainable plans of DOA to promote crop diversification in the respective 5 districts are formulated based on achievement of the project.	Five-year action plans were prepared for the 210 sub-project sites under LP1.

Source: Project Completion Report (TCP2) (November 2022); responses to the questionnaire at the time of the ex-post evaluation.

Note: For Outputs 3.1 - 3.3, achievement was confirmed in the terminal evaluation of TCP2, while for Output 3.4, achievement was confirmed in the ex-post evaluation.

Implementation Structure

The Executing Agency of the Project was DOA of HP State. To facilitate the smooth implementation of LP1, the Himachal Pradesh Agriculture Development Society (HPADS) was established in February 2011 as a body independent from DOA.¹⁶ The PMU was placed under HPADS, forming a three-tier structure consisting of the State Project Management Unit (hereinafter referred to as “SPMU”), District Project Management Units (hereinafter referred to as “DPMU”), and Block Project Management Units (hereinafter referred to as “BPMU”). The state-level SPMU was located in Hamirpur, with three district-level DPMUs and eight block-level BPMUs established under it.

¹⁶ It was established under the HP Cooperative Societies Registration Act, 2006.

3.2.2 Project Inputs

(For details on LP1, refer to “Comparison of the Original and Actual Scope of the Project” on the final page of this report.)

3.2.2.1 Project Cost

[LP1]

The actual project cost remained within the planned budget (87% of the planned amount). At the time of planning, the total project cost was 6,035 million yen, of which the ODA loan portion was 5,001 million yen and the contribution of the Indian side 1,034 million yen. In actual figures, the total project cost amounted to 5,227 million yen, consisting of 4,557 million yen from the ODA loan and 670 million yen from the Indian side.

Table 2: Comparison of Planned and Actual Project Costs

(Unit: JPY million)

No.	Item	Planned (A)	Actual (B)	Difference (B) - (A)	(B) / (A) (%)
1	JICA ODA Loan	5,001	4,557	-444	91%
2	Government of India contribution	1,034	670	-364	65%
3	Project total (1+2)	6,035	5,227	-808	87%

Source: Project Completion Report (LP1)

Note: The exchange rate applied at the time of appraisal was 1.88 JPY/INR (September 2010), while the weighted average exchange rate used at the time of the ex-post evaluation was 1.63 JPY/INR (2011 - 2021).

[TCP1]

The actual project cost slightly exceeded the planned amount (118% of plan). The inputs of the Japanese side (actual) included costs for infrastructure development at pilot sites. The inputs of the Indian side (actual) included the assignment of counterpart personnel. Initially, it was planned that both the DOA and the PMU would be recipients of technology transfer, but in practice, 119 technical staff of the PMU had become the main recipients of technology transfer (as of the terminal evaluation in July 2015). Among these, the core extension officers of the PMU (30 officers as of the terminal evaluation) were the primary recipients of extension-related technology transfer.

[TCP2]

The actual project cost also slightly exceeded the planned amount (103% of plan). The inputs of the Japanese side included the dispatch of experts. It was planned that the inputs of the Indian side would include the assignment of project management members and counterpart personnel, although the actual project cost on the Indian side is unknown.

3.2.2.2 Project Period

The project periods of LP1, TCP1, and TCP2 are as follows. While LP1 exceeded the planned period, TCP1 and TCP2 were implemented almost as originally scheduled.

Table 3: Comparison of Planned and Actual Project Periods

Project	Planned (A)	Actual (B)	(B) / (A) (%)
LP1	Feb 2011 - Mar 2018 (86 months)	Feb 2011 - Jun 2021 (125 months) ^{Note 1}	145% (=125/86 months)
TCP1	Jan 2011 - Dec 2015 (60 months)	Mar 2011 - Mar 2016 (61 months)	102% (=61/60 months)
TCP2	Aug 2016 - Jul 2021 (60 months)	Feb 2017 - Nov 2022 (70 months) ^{Note 1}	102% (= (70 - 9)/60 =61/60 months) ^{Note 2}

Source: JICA's documents, Project Completion Report (LP1 and TCPs)

Note 1: According to JICA documents at the time of appraisal, the definition of the project completion date for LP1 was "completion of the farmer support activities (March 2018)." However, the Project Completion Report clarified this definition as "acceptance of the terminal impact assessment report" together with the completion of the farmer support activities, and recorded that JICA had approved an extension of the project period until May 2021. In this ex-post evaluation, the definition presented in the Project Completion Report was adopted for the assessment of the project period.

Note 2: In March 2020, travel restrictions and limitations on field activities were imposed due to the outbreak of COVID-19, resulting in changes to the implementation schedule. The nine-month extension of the project period caused by the pandemic was treated as an external factor in this ex-post evaluation. Accordingly, the actual project period of 70 months was adjusted to 61 months, excluding the nine months during which project activities were suspended due to COVID-19.

The following section reviews each individual project.

[LP1]

The actual project period (125 months) exceeded the planned period (86 months), reaching 145% of the plan. Due to delays in the selection of the consultant, there were delays in the finalization of sub-project design standards and surveys in the infrastructure development component, while the organizational development component faced delays in activities such as the baseline survey. In particular, training on vegetable cultivation under the farmer support component continued until December 2021, compared to the original plan of March 2018. Up to June 2021, the project period was extended by two years to implement the activities still pending, and the shiitake mushroom cultivation program. The project activities were completed in May 2021, and the project was officially concluded in June 2021 upon acceptance of the terminal impact assessment report.

[TCP1]

The actual project period slightly exceeded the planned duration (102% of plan).

[TCP2]

Taking into account the extension caused by travel restrictions and limitations on field activities due to the COVID-19 pandemic, the actual project period was assessed to have

slightly exceeded the planned schedule (102% of plan).

The PMU staff were required to ensure that both LP1 and TCPs were implemented in coordination, aligning infrastructure development and capacity-building activities for farmers and extension officers towards crop diversification with the implementation schedule of LP1.

3.2.3 (For LP1) Internal Rate of Return (Reference Value)

Economic Internal Rate of Return (EIRR)

At the time of appraisal, the EIRR for the project was calculated as 15.96% for the sub-project sites in the five districts of Himachal Pradesh. The calculation was based on the following assumptions:

Item	Details
Benefits	Agricultural product sales and related revenues
Costs	Project cost (excluding taxes), and operation and maintenance costs
Project life	30 years

Source: JICA's documents

For this ex-post evaluation, an attempt was made to recalculate the EIRR by collecting the necessary data. However, no sub-project site was found to possess actual data on O&M costs or agricultural product sales revenue. Moreover, because the exact calculation method used at appraisal could not be fully identified, recalculation was attempted using the method employed in the Project Completion Report, but the required data could not be obtained. The unavailability of data was due to the lack of information on crop-wise yields and revenues, as well as O&M costs at the sub-project level. This situation reflects the fact that post-project monitoring of agricultural income and O&M conditions has not been sufficiently carried out across the widely dispersed sub-project sites.

As described above, although there were changes in outputs and although the project period exceeded the original schedule, the total project cost of LP1 remained within the plan.

Therefore, efficiency of the Project is high.

3.3 Effectiveness and Impacts¹⁷ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

As described in Section 2.3 “Concept of Integrated Evaluation,” the assessment of the achievement of the “Integrated Evaluation Outcome” considers not only the “Direct

¹⁷ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

Outcome” of LP1 but also the outcomes of the two TCPs (their Project Purposes as direct outcomes and Overall Goals as indirect outcomes) as part of LP1’s effects.

Direct Outcome of LP1

[LP1]

The project objective and indicators corresponding to the direct outcome of LP1, as shown in Figure 1, are as follows.

Project Objective	The project aims to develop and rehabilitate production infrastructure, such as minor irrigation facilities and farm access roads, and to enhance farmer support services, including the dissemination of agricultural technologies
Indicators	Benefited area (ha), Area under vegetable cultivation (ha) in the rainy season, Area under vegetable cultivation (ha) in the dry season, Number of beneficiary farmer households

As a result of the project, the area that became culturable due to the development of irrigation facilities more than doubled compared with pre-project situation. The area under vegetable cultivation increased more than tenfold in both the rainy and dry seasons. Because vegetables are typically cultivated four times a year, the reported cultivated area represents the sum of multiple cropping cycles. The substantial increase in vegetable cultivation area is attributed to (i) the ability to cultivate vegetables multiple times with available irrigation water, and (ii) an expansion of land suitable for vegetable cultivation. The number of beneficiary households reached 363% of the planned figure, significantly exceeding the target. This was partly because approximately one-third of the originally planned sub-project sites were replaced (as noted in “Section 3.2 Efficiency”), and also because changes in irrigation schemes, such as shifting from well irrigation to gravity (flow) irrigation, expanded the command area and increased the number of beneficiary farmers.

Table 4: Comparison of Planned and Actual Operational Effect Indicators

Indicator	Baseline	Target	Actual ^{Note 2}	(C)/(B)*100 (%)
	2010	2021	2020/21	
		Three years after project completion ^{Note 1}		
	(A)	(B)	(C)	
Benefited area (ha) ^{Note 3}	2,183	3,712	4,671	125.8
Vegetable cultivation area (ha) - rainy season	110 ^{Note 4}	1,410	1,391	98.7
Vegetable cultivation area (ha) - dry season	170 ^{Note 4}	1,820	1,878	103.2
Number of beneficiary farmer households	-	4,320	15,693	363.3

Source: JICA’s documents and Project Completion Report (LP1)

Note 1: The target values (B) were those set at appraisal as planned in the third year (2021) after project completion.

Note 2: The actual values (C) are the most recent figures recorded in the Project Completion Report. The year

of project completion was 2021.

Note 3: The benefited area corresponds to the Culturable Command Area (CCA). According to JICA documentation, the baseline figure of 2,183 ha was a provisional value that was to be updated through the baseline survey. Although irrigated land already existed in the project area prior to LP1, the DOA confirmed that the irrigated area at the time of the 2009 baseline survey was 856 ha. The actual benefited area of 4,671 ha (2020/21) reflects both the pre-existing irrigated area and the area improved through the project. In the sub-project sites where irrigation facilities were developed, vegetables are generally harvested four times a year, while food grains are harvested twice a year. Food grains cultivated during the rainy season are maize, rice, pulses, etc. while those during the dry season are wheat, barley, pulses, etc.

Note 4: While JICA documents list the baseline values for vegetable cultivation area as 170 ha for the rainy season and 110 ha for the dry season, the DOA confirmed during the field survey that the correct figures are 110 ha (rainy season) and 170 ha (dry season), as shown in the table.

Intermediate Outcomes (Direct Outcomes) in the Integrated Evaluation

[TCP 1]

Among the intermediate outcomes shown in Figure 1, the project purpose and indicators of TCP1 corresponding to the direct outcomes are as follows.

[TCP1] Project Purpose	Project	The promotion mechanism for crop diversification is established in DOA Himachal Pradesh.
Indicator		Extension activities based on the Guidelines which capture the essence of Crop Diversification Model are expanded in five districts. ^{Note}

Note: At the terminal evaluation (July 2015), it was confirmed that details of the Crop Diversification Model (CDM) were reflected in the Crop Diversification Guidelines. Accordingly, the original indicator, "Extension activities based on the Crop Diversification Model are expanded in 5 districts," was redefined as the indicator in the table above and approved by the Joint Coordination Committee (JCC).

According to the Terminal Evaluation Report (July 2015) of TCP1, a mechanism was established that enabled core extension officers to begin extension activities in all 210 LP1 sub-project sites using the Crop Diversification Promotion Guidelines. At that time, extension activities had already commenced in several LP1 target sites. In this ex-post evaluation, it was confirmed that crop diversification plans have been prepared for all 210 LP1 sub-project sites, and that training for farmers through core extension officers has been conducted at all of these sites. Therefore, it is concluded that the project purpose of TCP1 was achieved.

[TCP2]

The project purpose and indicators of TCP2 are as follows.

[TCP2] Project Purpose	Organizational capacity ^{Note 1} of DOA to promote crop diversification in the 5 districts is strengthened.
Indicators	1. Extension programs/ activities for crop diversification implemented by DOA are improved in the sub-project areas under the ODA Loan Project (i.e., LP1) (80% of trainings to farmers targeted in the annual plans are conducted ^{Note 2}). 2. Number of farmers practicing vegetable cultivation in the sub-project areas under the ODA Loan Project (i.e., LP1) is increased by 20% ^{Note 3} .

Note 1: "Organizational capacity" refers to "ability and capacity of an organization expressed in terms of its (i) Human resources: their number, quality, skills, and experience, (ii) Physical and material resources:

machines, land, buildings, (iii) Financial resources, and (iv) Information resources: pool of knowledge, databases, and, etc. ” (as defined in the ex-ante evaluation sheet of TCP2).

Note 2: The ex-ante evaluation sheet of TCP2 stated that the implementation rate should reach 80%, although neither the definition nor the calculation method was specified. In the Project Monitoring Sheet Ver. 2 (June 2019), this rate was shown as 8%. Furthermore, according to the Completion Report of TCP2, the same rate was set as the target value (8%). In that report, one of the existing schemes implemented by the DOA in the five target districts was regarded as an extension activity for crop diversification. The vegetable cultivation area during the rabi season (winter cropping season, from October to May) under this scheme was recorded as 13,321 ha, and this figure was compared with the area covered by the same scheme within LP1 subproject sites. The reason why the denominator used for the indicator was the total vegetable cultivation area in the five districts rather than that of LP1 sub-project sites is presumed to be that the indicator aimed to assess the overall strengthening of the organizational capacity of DOA beyond the scope of LP1.

Note 3: Although no numerical target was specified in the ex-ante evaluation sheet of TCP2, the Project Monitoring Sheet Ver. 2 (June 2019) set the target at 20%.

Note 4: According to the Completion Report of TCP2 (pp. 3 - 5), before the start of the project, farmers in the sub-project sites had not been engaged in vegetable cultivation.

In the Project Completion Report of TCP2, Indicator 1 was assessed as being largely achieved, while Indicator 2 was evaluated as having reached the target value. As the PMU was strengthened and the number of farmers engaged in vegetable cultivation increased through this mechanism, the project purpose of TCP2 was considered to have been largely achieved at the time of project completion.

Table 5: Comparison of Target and Actual Quantitative Effects of TCP1 and TCP2

TCP	Indicator of Project Purpose	Target Value TCP1: 2016 TCP2: 2022	At Project Completion TCP1: 2016 TCP2: 2022	Confirmed at Ex-post Evaluation (2025)
1	Extension activities based on the Crop Diversification Model are expanded in 5 districts. (Rephrased as “Extension activities based on the Guidelines which capture the essence of CDM are expanded in five districts.”) ^{Note}	N.A.	54 sites	210 sites
2	Extension programs/ activities implemented by DOA are improved in the sub-project areas under the ODA Loan Project (i.e., LP1) (8% of trainings to farmers targeted in the annual plans are conducted).	8%	6%	N.A.
	Number of farmers practicing vegetable cultivation in the sub-project areas under the ODA Loan Project (i.e., LP1) is increased by 20%.	20%	70% (households cultivating vegetables), 27% (households engaged in commercial vegetable cultivation)	N.A.

Source: The target values for the indicators of TCP2 are based on the Project Monitoring Sheet Ver. 2 (June 2019).

Note: Although no quantitative target values were set for TCP1, the number of sub-project sites where crop diversification plans were prepared is shown for reference in this ex-post evaluation.

Regarding the strengthening of the organizational capacity of DOA, at the time of the completion of TCP2 (November 2022), it was expected that the officers seconded from the DOA to the PMU would, after returning to the DOA, take the lead in implementing crop

diversification extension activities in all 210 sub-project sites. However, this has not been implemented.¹⁸

Table 6: Number of PMU Staff Members by Originating Organization

(Unit: persons)

Item	Staff Seconded from Other Institutions	DOA (Seconded)	Total
Data as of December 2021	160	57	217
(Reference) At Ex-post Evaluation ^{Note}	395	66	461

Source: The data as of December 2021 is taken from the Project Completion Report of LP1.

Note: For reference, responses obtained from the SPMU of the ODA Loan Project (Phase 2) during the ex-post evaluation are also presented. The latter figures include staff members of both the PMU and the Shiitake Cultivation and Training Center.

Intermediate Outcome (Indirect Outcomes) in the Integrated Evaluation

[TCP1] Among the intermediate outcomes shown in Figure 1, the overall goal and indicator corresponding to the indirect outcome of TCP1 are as follows:

[TCP1] Overall Goal	Crop diversification is promoted in the target area based on the advantageous climate conditions.
Indicator	20% of total cultivated land in the target areas is diversified to the vegetable.

As stated in “Section 1.3.2 Prospects of Achieving the Overall Goal at the Time of the Terminal Evaluation,” it was noted that a clear pathway toward achieving the overall goal had been demonstrated. However, since the actual counterpart for technology transfer under TCP1 turned out to be the PMU rather than both the DOA and the PMU as originally planned, it was considered important to establish measures to ensure sustainability.

[TCP2] Among the intermediate outcomes shown in Figure 1, the indirect outcome (TCP2) corresponds to the overall goal and indicators of TCP2, as follows:

[TCP2] Overall Goal	Crop diversification according to Agro-Ecological Situations is promoted in the 5 districts of Himachal Pradesh.
Indicators	1. 15% of area under vegetable cultivation and quantity produced in the 5 districts are increased (against baseline data). 2. 18% of quantity of farm produce marketed within and outside the state is increased (against baseline data).

Note: Based on the Project Monitoring Sheet Ver. 2 (June 2019).

For the project completion year of TCP2 (FY2021/22), the actual figures for the

¹⁸ It has been pointed out that extension activities at farmers' fields were not implemented for the following reasons: (1) engagement of extension officers in non-field activities (such as managing procurement centers), (2) no travel allowance provided for field visits, and (3) shortage of extension staff. (Source: TCP2 Project Completion Report, pp. 2-4 and 5-2)

vegetable cultivation area and vegetable production were slightly below the target values set for 2022; however, the volume of agricultural products sold exceeded the target (see Table 7). These indicators compare the planned and actual values for all five target districts, including the LP1 sub-project sites. The vegetable cultivation area increased from the baseline value of 28,451 ha (2016/17) to 30,443 ha in 2021/22, an expansion of 1,992 ha (107%). This degree of increase is considered broadly consistent with the expansion of vegetable cropped area attributable to LP1, as shown earlier in Table 4, suggesting that LP1 made a significant contribution to this outcome.

Table 7: Comparison of Planned and Actual Results for Indicators
of the Overall Goal of TCP2

Item		Baseline	Target Value	Actual Value	(B)/(A) x 100 (%)
		2016/17	2022 ^{Note 2}	2021/22	
			(%)	Year of project completion	
		(A)		(B)	
1	Vegetable cultivation area ^{Note 1}	28,451 ha	115	30,443 ha	107.0
	Vegetable production volume	587,977 t	115	600,309 t	102.0
2	Volume of agricultural produce for sale – project activity areas	729 kg/ household (2017) ^{Note 3}	118	933 kg/household (2022) ^{Note 3}	128.0
	Volume of agricultural produce for sale – non-project activity areas		118	850 kg/ household (2022) ^{Note 4}	116.6

Source: Ex-ante Evaluation Sheet, Project Completion Report (TCP2) (December 2022)

Note 1: The vegetable cultivation area represents the total annual vegetable cropped area (including both the rainy and dry seasons) in the five target districts.

Note 2: The target values were set in 2019 (Project Monitoring Sheet Ver. 2, June 2019) and indicate the percentage increase relative to the baseline. The cultivation area and production volume reflect the effects of COVID-19.

Note 3: Based on the results of the baseline survey conducted in May 2017.

Note 4: Based on the results of the end-line survey conducted in September 2022.

Outcome in the Integrated Evaluation

The outcome in the integrated evaluation for the Project is as follows:

Outcome in the Integrated Evaluation	Based on the advantageous characteristics of the climatic conditions (agro-ecological situations), crop diversification, particularly by means of marketable vegetable cultivation, is expedited.
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According to the qualitative survey¹⁹ conducted at the time of the ex-post evaluation, beneficiaries reported receiving various forms of support under the Project, including demonstrations of cash crop and vegetable cultivation, training on crop diversification, irrigation and water management, the construction of farm access roads, the provision of agricultural machinery such as tractors, and the development of both gravity and lift irrigation facilities. Based on these qualitative survey findings, the following analysis examines beneficiary responses regarding “cultivation practices based on the advantageous characteristics of the climatic conditions (agro-ecological situations),” “marketable vegetable cultivation,” and “agricultural extension services.”

Cultivation practices based on the advantageous characteristics of the climatic conditions (agro-ecological situations):

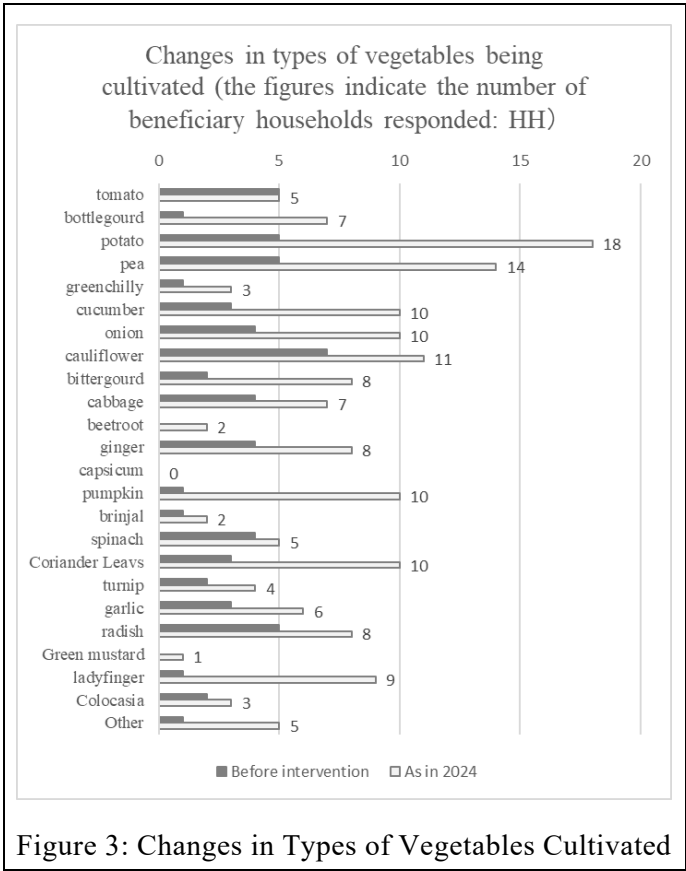
Beneficiaries reported the introduction of improved varieties suited to local climatic conditions (e.g., okra, onion, broccoli, cauliflower) as well as recommendation of specific crop such as ginger, garlic, and turmeric as countermeasures against wildlife damage, particularly from monkeys. They also noted receiving technical guidance on practices such as early planting, row seeding, mulching, intercropping, seedbed preparation. However, some respondents explained that certain crops had low survival rates because they were not well suited to local climatic conditions or were susceptible to wildlife damage. Others reported reduced yields due to plant disease.

Marketable vegetable cultivation:

The figure below compares the types of vegetables cultivated before and after the project intervention, based on responses from 36 beneficiary households. The results show that by 2024, many farmers were cultivating a broader variety of vegetables, such as potatoes, peas, and cauliflowers, than before the intervention. On the other hand, although not shown in the figure, cereals traditionally cultivated in the area, such as wheat (35 households before intervention, 33 after), maize (34 before, 31 after), and rice (15 before, 12 after), continued

¹⁹ In the qualitative survey, the average household size of the 41 sample households (defined as the number of family members living together under the same roof) was 6.1 persons, and the average age of respondents was 54.1 years. Among beneficiaries, the average landholding size was 0.87 ha (median: 0.74 ha; standard deviation: 0.86 ha), the cultivated area averaged 0.56 ha (median: 0.50 ha; standard deviation: 0.41 ha), and the irrigated area averaged 0.48 ha (median: 0.41 ha; standard deviation: 0.39 ha). These figures indicate that beneficiaries were generally operating on a small scale. Although the number of non-beneficiary samples was limited, their average landholding size was 0.48 ha (median: 0.56 ha; standard deviation: 0.26 ha), cultivated area averaged 0.35 ha (median: 0.30 ha; standard deviation: 0.26 ha), and irrigated area averaged 0.00 ha (median: 0.00 ha; standard deviation: 0.00 ha), indicating an even smaller farming scale.

to be grown with no major changes before and after the intervention.²⁰



Agricultural Extension Services:

Extension services were generally well received by beneficiary households: among the 36 respondents, 9 households rated the services highly and 20 rated them moderately, totaling 29 households (over 80%). Households that provided high or moderate ratings cited several positive aspects, including the usefulness of extension services, reduced labor requirements on small plots due to the introduction of agricultural machinery, the relative ease of adopting technologies such as organic fertilizer, and

opportunities for exposure visits (e.g., learning about potato storage practices and storage duration). Conversely, some households reported suspending vegetable cultivation for three consecutive years due to diseases outbreaks. Others had stopped cultivation for the past two years because damage to irrigation facilities made it difficult to secure adequate irrigation water, and repair costs exceeded their financial capacity. Some respondents noted that, apart from the production of organic fertilizer, other agricultural techniques were too labor-intensive to adopt. Others mentioned cultivating mushrooms only during the period when mushroom span had been provided. Households that joined KVAs after the handover of facilities pointed out the urgent need for repairs to severely damaged irrigation pipelines and for training on maintenance and management.

As described above, vegetable cultivation remained limited in some sub-project sites where irrigation facilities faced operational challenges. Nevertheless, across the project areas as a whole, vegetable cultivation expanded, and both climate-adaptive cultivation and

²⁰ The number of households refers to the 36 households that responded. The timing of intervention varied by sub-project site. The post-intervention situation is based on data from 2024 confirmed during the ex-post evaluation.

high-value vegetable production became more widespread. As crop diversification tailored to agro-ecological conditions progressed alongside the development of small-scale production facilities, the integrated evaluation indicates that the outcome of the Project was largely achieved by its completion.

3.3.1.2 Qualitative Effects (Other Effects)

Qualitative effects are organized and assessed under the section on Impact.

3.3.2 Impacts

3.3.2.1 Intended Impacts

Impacts in the Integrated Evaluation

The impact and specific indicators in the integrated evaluation are as follows:

Impact in the Integrated Evaluation	Livelihood of farmers in the project areas is improved.
Indicators	• Improvement in the living standards of residents in the project target areas: increased income, diversification of livelihoods, and improvement of living conditions. • Improvement in the social and economic empowerment of women.

In the following section, drawing also on the qualitative survey results, the indicator “improvement in the living standards of residents” is assessed from three perspectives: “increase in income,” “diversification of livelihoods,” and “improvement in living conditions.” The indicator “improvement of the social and economic empowerment of women” is addressed under “3.3.2.2 Other Positive and Negative Impacts,” specifically in subsections “(3) Gender,” and “(5) Social Systems, Norms, Well-being, and Human Rights.”

Improvement in Living Standards of Residents: Increase in Income

No quantitative target value for the impact indicator was set. However, the Project Completion Report of LP1 compared the income improvement effects, as shown in Table 8. According to this table, the income of farmers increased substantially through both seasonal and off-season vegetable cultivation (actual value reached 174% of the target).²¹

²¹ The actual values have increased significantly compared to the targets. According to the Economics and Statistics Department, Himachal Pradesh (2024–25), the state’s per capita nominal income rose from 87,721 INR in 2011–12 to 173,565 INR in 2020–21, nearly doubling. Furthermore, the Terminal Impact Assessment Report (estimated in 2021) indicates that beneficiary farm household income (estimated for 2019) was reported at 240,100 INR. Taking these factors into account, the data were deemed appropriate for evaluation purposes.

Table 8: Effects of Income Improvement

(Unit: INR)

Indicator	Baseline Value	Target Value	Actual Value	(C)/(B) (%)
	2009	2022	2020/21	
		Year of Project Completion	Year of Project Completion	
	(A)	(B)	(C)	
Increase in farmers' income	20,584	145,000	252,675	174

Source: Project Completion Report (LP1)

Table 9 compares household revenues and costs from vegetable cultivation before the project intervention and in 2024, based on interview responses from 36 beneficiary households. The number of households reporting engagement in vegetable cultivation increased from 12 before the intervention to 29 in 2024. All households cultivating vegetables also reported selling them. Average household income from vegetables increased (although the median slightly declined). However, costs also increased due to greater use of inputs such as seeds and chemical fertilizers. Consequently, while the average net income rose, the median declined slightly, and the range between the highest and lowest values widened. This suggests that disparities in household net income from vegetable cultivation have grown.

Table 9: Revenues and Costs from Vegetable Cultivation

(Unit: INR)

Descriptive Statistics	Pre-Intervention (price-adjusted) ^{Note 1}			Post-Intervention (2024 Actual)		
	Vegetable Revenue (a)	Vegetable Costs (b)	Net Income per Household (a-b)	Vegetable Revenue (c)	Vegetable Costs (d)	Net Income per Household (c-d)
Number of Respondent Households	12	28	11	29	31	28
Average	153,954	34,040	91,028	201,653	65,669	135,064
Median	58,887	2,522	46,657	58,000	13,850	33,795
Maximum	655,013	662,537	620,801	958,385	801,500	851,430
Minimum	4,253	428	-148,704	12,500	1,400	-184,500

Source: Qualitative Survey

Note 1: The pre-intervention period varied by sub-project site. Major pre-intervention cultivation situations prior to project implementation were identified and adjusted using the Consumer Price Index to 2024 prices. Revenues were calculated based on production volume multiplied by market prices, regardless of whether sales occurred. Farmers cultivating vegetables sold a portion of their harvest besides using them for their own consumption.

Note 2: As indicated in Footnote 19, the respondents in the qualitative survey generally operated farms of a small scale.

According to the results of the qualitative interviews, all beneficiary households had experienced changes in household income when comparing the periods before and after the project interventions. Some beneficiaries reported that the cash income obtained from cultivating cash crops enabled them to purchase seeds, fertilizers, and other inputs, and that their bank savings had increased. These cases suggest the emergence of a positive cycle in

which cash income allows reinvestment in farming operations, leading to higher yields and increased sales revenue, which in turn contributes to further income growth.

Meanwhile, 7 out of the 36 beneficiary households did not respond as to whether they had earned income from vegetable cultivation. Among them, 4 households were located in sites with lift irrigation facilities, where damage to facilities had limited their access to irrigation water, which is presumed to be the reasons for the non-response. In contrast, non-beneficiary households (5 households were interviewed) reported that no changes had occurred in their household income.

Improvement in Living Standards: Diversification of Livelihoods

According to the qualitative survey conducted for this ex-post evaluation, 12 out of 36 households had sold vegetables before the intervention, whereas 29 households reported selling vegetables in 2024 after the intervention. Many respondents stated that they had not sold vegetables in local markets prior to the intervention, but that afterward they had begun both cultivating and selling vegetables. In addition, some households reported producing and selling processed agricultural products. These findings indicate that vegetable cultivation and agro-processing contributed to the diversification of livelihood activities among the residents.



Photo 5: Organic fertilizer in Kangra District
(Source: Photo taken by Evaluator)



Photo 6: Sales outlet supported by the Project
in Hamirpur District (Source: Photo taken by
Evaluator)

Improvement in Living Standards: Enhancement of Living Environment

According to the qualitative survey, the living environment had improved substantially compared with the period before the intervention. The number of households living in kutcha houses (dwellings constructed with mud walls) decreased markedly from 15 before the intervention to 1 after, while the number of households living in pucca houses (brick- or concrete-built houses with galvanized iron roofs) increased from 7 to 21. These changes indicate a clear improvement in housing conditions. Household ownership of four-wheel

vehicles increased from 4 to 12 households, scooters or motorcycles from 10 to 25 households, and mobile phones from 22 to 35 households, suggesting improvements in convenience, mobility, and access to information.

Furthermore, the contributions of the Project to increased income and improved living standards can also be assessed positively from the perspective of SDG Goal 1 (No Poverty).

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Environment

Under the Japan Bank for International Cooperation (JBIC) Guidelines for Confirmation of Environmental and Social Considerations (April 2002), this project (LP1) was classified as Category FI because the sub-projects could not be identified prior to JICA's loan approval and some were expected to have potential environmental impacts. At appraisal, the necessity of environmental permits was confirmed. However, according to JICA's appraisal documents, preparation of an Environmental Impact Assessment (EIA) report was not required under Indian domestic law.²²

According to the Project Completion Report, the environmental classification of sub-projects, collection centers, and farm access roads fell under Category B or Category C. Environmental parameters monitored at sub-project sites included noise levels and water quality. Some sub-project sites slightly exceeded the noise standards, while others lacked monitoring reports. Water quality tests conducted by the Himachal Pradesh Department of Irrigation and Public Health confirmed that all measurement points met the standard values. Furthermore, no negative environmental impacts, including noise, were reported in the qualitative survey responses.

With regard to LP1, materials were distributed on the proper use and disposal of fertilizers and pesticides, and training on organic fertilizers was provided. More than half of the irrigated farmers practiced appropriate fertilizer application as well as pest and disease management.²³

2) Resettlement and Land Acquisition

According to the Initial Environment and Social Screening Studies,²⁴ LP1 was not expected to require land acquisition, nor to be implemented in areas likely to cause significant environmental impacts. To secure small parcels of non-cultivated land, such as

²² In the Project Completion Report (LP1) (December 2021), based on the EIA Notification (2006) that stipulates EIA procedures, it was confirmed that Environmental Clearance under the said notification is not required for 210 sub-project sites.

²³ (Source) Project Completion Report (LP1), December 2021

²⁴ (Source) Project Completion Report (LP1), December 2021

for pump stations or farm access roads, land was obtained through voluntary land donation by sub-project beneficiaries. In such cases, affidavits regarding the use of the donated land were to be collected from the concerned farmers.²⁵ During the implementation of LP1, any concerns arising in relation to land acquisition were to be addressed by the KVA.²⁶ According to responses to the questionnaire completed by the Executing Agency, there were no reports of land expropriation or negative environmental impacts either during or after LP1. No involuntary resettlement occurred, and no complaints were received from residents or communities regarding land acquisition.

3) Gender Equality

Under TCP1, SHGs were organized to promote income-generating activities among women. Capacity building and technical training were conducted, and activities were designed to ensure equitable benefits for both men and women. Recognizing that women tend to be more frequently engaged in household labor, efforts were made to increase their involvement through SHGs, to include women as key members of KVA committees, and to ensure their active participation in decision-making processes. According to the qualitative survey, SHG activities included agricultural product processing and sales, group-based lending and savings, farming operations, and the production and sales of handicrafts. These activities contributed to enhancing women's involvement in decision-making in agricultural and processing activities. Many women reported that they now take part in discussions and decision-making within their households, families, SHG groups, and communities, for example, on what crops to cultivate and where to sell them. SHGs also strengthened connections and mutual support among women, and collaborative production and marketing of processed agricultural products contributed to increase income and an expanded economic role for women. More frequent social interactions further enhanced women's roles and trust within the community, as well as their self-esteem. These changes indicate that women's roles have expanded beyond the household, reflecting significant progress in women's empowerment. Such enhanced participation and mutual support among women are also positively evaluated from the perspective of SDG 5 (Gender Equality).

²⁵ According to the Project Completion Report (LP1) (December 2021), affidavits regarding land donation were submitted by the farmers who made the donations.

²⁶ During the ex-post evaluation field survey, interviews with farmers revealed cases where beneficiaries who had donated land did not receive the promised electricity supply through solar panels. Conversely, inquiries with the DOA/PMU indicated that, following the handover of equipment and facilities, responsibility for operation and maintenance had been transferred to the farmers. Consequently, any deficiencies in electricity supply caused by malfunctioning solar panels are being addressed as the responsibility of the beneficiary organization, KVA.

4) Marginalized People

No particular issues were observed.

5) Social Systems and Norms, People's Well-being²⁷ and Human Rights

The irrigation facilities and agricultural support introduced under the Project brought wide-ranging impacts on beneficiaries' lives and contributed to the improvement of their well-being. The well-being survey (see column below) identified two key aspects: First, increased crop production and higher incomes improved living environments and job satisfaction, directly enhancing people's well-being. The introduction of irrigation facilities and agricultural machinery, along with improved cultivation techniques, enabled a shift from rainfed agriculture to stable farming practices, which increased farmers' confidence and satisfaction. This also improved family living conditions and provided a greater sense of psychological security. Second, women's participation and cooperation in the community were promoted through SHGs and KVAs. These activities improved access to information, strengthened mutual trust, and contributed to enhanced psychological safety and satisfaction.²⁸

Column: Survey on People's Well-being

<Survey Methodology>

From the 41 households covered by the qualitative survey in five districts, 19 beneficiary households were selected from four districts (Hamirpur, Kangra, Mandi, and Una). One respondent was interviewed from each household using semi-structured interviews to examine changes in well-being after the Project, as well as the contributing factors for these, based on the well-being domains. Following JICA's "Evaluation Methods for Human Well-being/Happiness", a pre-test was conducted during the qualitative survey, examining factors that influenced changes in well-being across 11 domains. Based on these results, and taking into account local customs and project characteristics, the main survey focused on 10 domains considered most relevant: income and assets, housing, health, education, work, the natural environment, social connection, governance, and leisure (time use).

<Survey Results>

All respondents reported that their sense of happiness and satisfaction had improved compared to before the Project, which indicates an overall enhancement in their well-being. The introduction and use of irrigation facilities and crop diversification had led to increased and diversified income sources, improving living conditions. Opportunities for local cooperation through SHGs and KVAs enhanced self-esteem, psychological security, job fulfillment, and satisfaction, thus contributing to overall well-being. No respondents reported a sense of disparity within the community, and no significant differences were observed among districts. The main factors contributing to improved happiness and satisfaction in each domain are summarized below.

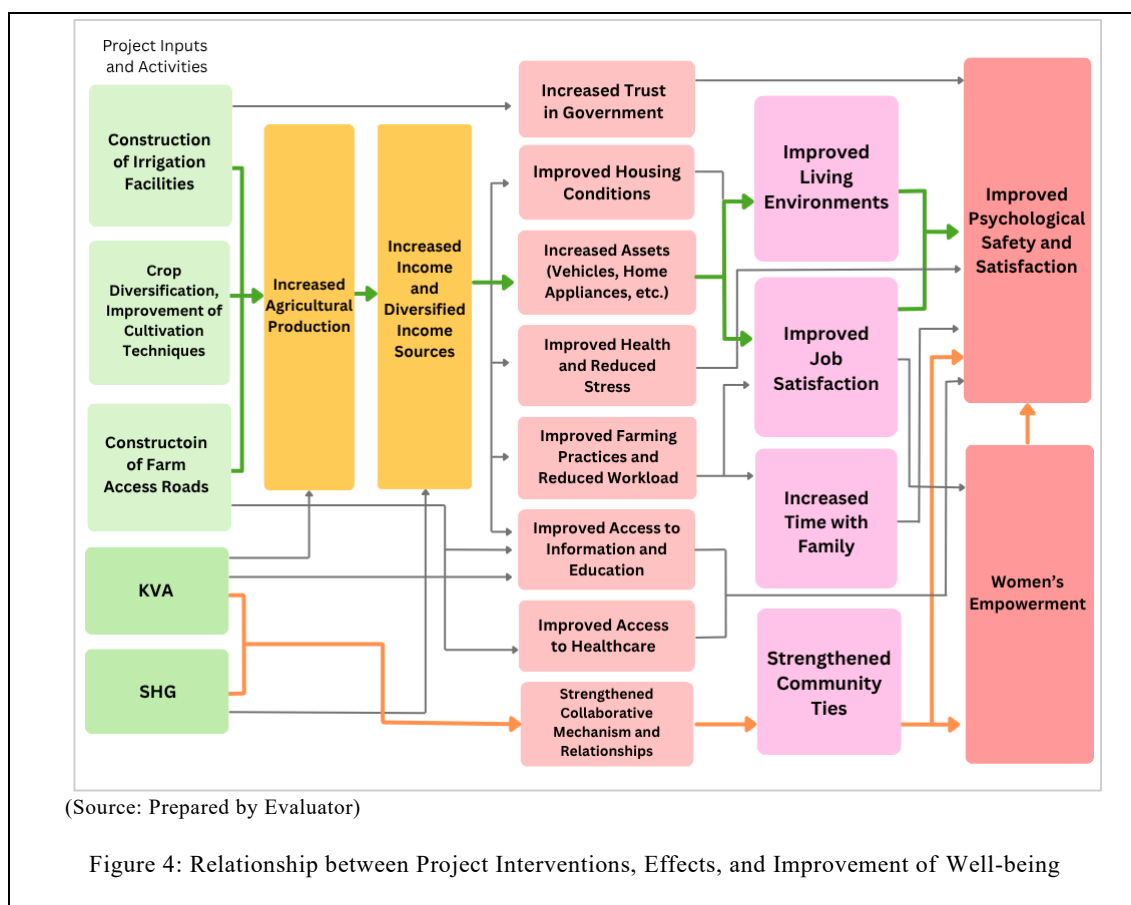
²⁷ In JICA's ex-post evaluations, this concept is understood as a state in which people's lives, livelihoods, and dignity are protected and fulfilled. To capture this state, it is necessary to adopt a framework that comprehensively and multidimensionally assesses various aspects of people's social and daily lives, including their subjective perceptions. In this approach, the perspective of "people's well-being" in ex-post evaluations is based on a hierarchical concept that considers the relationship between subjective well-being/life satisfaction and the individual domains that constitute it. Accordingly, the degree of sufficiency or fulfillment in each domain determines "people's well-being," which is expressed in the form of subjective well-being/life satisfaction.

²⁸ Through their experiences in producing and selling processed products and exhibiting them at fairs to earn income, women have expanded their roles beyond the household. This was considered an indication that social norms are gradually changing.

Domain	Factors Contributing to Enhancing Happiness/Satisfaction (Respondents' Comments)
Income and Assets	Crop diversification and irrigated farming enabled more stable vegetable sales and higher income. Respondents reported being able to construct or renovate houses, build livestock sheds, purchase tractors, cars, motorcycles, home appliances (such as washing machines and audio systems), and smartphones, as well as prepare for their children's weddings.
Housing	Increased income allowed many households to newly construct or renovate their houses. Many replaced kutchra (mud-based) houses with pucca (concrete) ones, improved durability, added a second floor, expanded rooms, and renovated bathrooms and kitchens with tiled walls, windows, etc.
Health	Acquiring vegetable cultivation techniques and crop diversification reduced dependence on rainfall, while increased income directly reduced stress and brought a sense of relaxation and peace of mind. Growing organic vegetables improved nutrition. The improvement of farm roads enhanced connectivity with main roads and access to hospitals. Improved farm roads facilitated ambulance access to villages, allowing ambulances to reach households in medical emergencies, which was particularly beneficial for elderly residents.
Education	Previously, farmers used traditional methods without knowledge of seed quality. Through agricultural training and SHG activities, they acquired modern agricultural techniques, vegetable cultivation methods, and food processing skills. They are now able to contact DOA officers easily. Improved farm roads have also facilitated school bus access for children.
Natural Environment	Respondents expressed concern about climate instability, including erratic monsoons, extreme heat, and declining rainfall, as well as crop damage caused by wildlife. However, they noted that with irrigation facilities, they no longer had to wait for rain, and water scarcity was no longer an issue.
Social Connection	Through SHG and KVA activities, community ties and trust have strengthened. Some noted that they now meet others more often, visit one another for agricultural consultations, and spend time together. A few, however, mentioned that with higher income, mutual help has decreased as individuals have become more self-reliant.
Safety	With farm road improvements and access to mobile phones, people felt safer knowing they could contact police or ambulances quickly. However, increased income has led to more motorcycles, traffic accidents, and to substance abuse.
Governance	Stable water supply from irrigation and increased income through the introduction of new technologies have made beneficiaries feel more supported by the government. They can now easily contact DOA officers. They also feel their opinions are valued and considered in SHG and KVA activities.
Work	Higher production and income enabled farmers to hire labor. They expressed happiness and satisfaction in producing diverse crops for their own consumption instead of relying on markets.
Leisure (Time Use)	Use of agricultural machinery reduced working hours and allowed more time with family and friends.

Factors Strongly Influencing Well-being

When asked to identify the single most influential factor on well-being among the ten domains, the top responses were "Work" (7 respondents) and "Income and Assets" (6 respondents). For beneficiary farmers, improvements in the farming environment and the introduction of new agricultural technology and machinery have led to visible increases in production and income, which are factors directly linked to their well-being. The increase in income has also contributed to improvements in housing, health, and access to information, while enhancing trust in government and satisfaction with work. Group activities such as KVAs and SHGs further strengthened community ties and enhanced individual self-esteem. A few negative opinions were noted, but these were considered secondary effects influenced by other social factors, rather than direct results of the Project itself. The relationship between project interventions and people's well-being can be illustrated as follows: For example, the construction of irrigation facilities and access roads, crop diversification, and the improvement of cultivation techniques led to increased agricultural production, diversification of income sources, and accumulation of assets. These improvements, in turn, led to better living environments and higher job satisfaction, ultimately resulting in improved psychological safety and satisfaction, that is, an overall enhancement of well-being.



6) Unintended Positive / Negative Impacts

From the qualitative survey, it was found that as agricultural income increased, some young people gained access to better education opportunities. Consequently, this led to a number of cases where they chose not to continue farming and instead sought non-agricultural employment. In the well-being survey as well, several respondents expressed that they felt proud and happy that their children could receive higher education and pursue alternative professions, which contributed to their sense of well-being.

On the other hand, a few respondents pointed out negative impacts. Although these were not direct results of the Project, the construction of farm access roads and increased ownership of motorcycles and cars due to higher incomes were associated with a rise in

traffic accidents.²⁹ Respondents also mentioned an increase in drug or substance abuse,³⁰ as well as a decline in mutual assistance within communities, attributed to higher income levels and changes in access to information. Furthermore, the qualitative survey suggested a widening income gap between beneficiaries and non-beneficiaries.

Overall, through the development of minor irrigation facilities and other production infrastructure, along with the strengthening of agricultural support services, crop diversification has been promoted in the target areas. Although the beneficiary survey was based on a limited sample size, results of the qualitative survey suggest that the Project contributed to improving farmers' income. No significant environmental or social problems were observed. From the perspective of the Sustainable Development Goals (SDGs), the Project can also be evaluated positively in terms of SDG 1 (No Poverty) and SDG 5 (Gender Equality).

Accordingly, the Project has mostly achieved its objectives. Therefore, effectiveness and impacts are high.

3.4 Sustainability (Rating: ②)

3.4.1 Policy and System

At the time of the ex-post evaluation, it was confirmed that the HP State Government had launched the Him Unnati Yojna scheme in FY2023/24. The 210 sub-project sites developed under LP1 were expected to be selected as target clusters.³¹ Under this scheme, DOA would provide continued support such as the distribution of vegetable seeds. These policies and institutional arrangements in HP State are considered to have a positive influence on the sustainability of the Project, and no particular issues have been identified.

3.4.2 Institutional/Organizational Aspect

During the LP1 period, KVAs were established at 210 sub-project sites. As noted in the

²⁹ The qualitative survey revealed an increase in the number of beneficiary households owning vehicles and other assets. However, available statistical data regarding the total number of traffic accidents in Himachal Pradesh has shown a recent declining trend (2,597 cases in 2022, 2,253 cases in 2023, and 2,147 cases in 2024). Therefore, the causal relationship between the number of accidents and this Project remains unclear. (Accessed on August 31, 2025: <https://roadsafety.hp.gov.in/front-reports>)

³⁰ According to reports, the number of arrests for violations of the Narcotic Drugs and Psychotropic Substances (NDPS) Act have continued to rise in Shimla, the capital of Himachal Pradesh—210 in 2022, 479 in 2023, and 507 in 2024. Although this upward trend seems consistent with the general increase in drug addiction cases across the state, the relationship between this trend and the Project remains unclear. (Accessed on August 31, 2025: <https://timesofindia.indiatimes.com/city/shimla/uphill-battle-against-drugs-in-hp-over-2k-cases-filed-this-year/articleshow/106372724.cms>)

³¹ In Himachal Pradesh, budgetary allocations have been made to identify a total of 2,600 clusters across the state, with planned support for seed distribution, mechanization, natural farming, and other inputs required for the cultivation of commercial crops. (Accessed on July 3, 2025: <https://agriculture.hp.gov.in/in/home-english/>)

section on efficiency, the infrastructure facilities were handed over from BPMUs to KVAs, which were assigned responsibility for operation and maintenance (O&M). KVAs established O&M units and collected fees from members to cover minor repairs and maintenance.³² However, at the time of the ex-post evaluation, some KVAs were observed to be not functioning effectively.

The PMU was composed largely of contract staff recruited through manpower agencies. Frequent transfers of extension staff occurred, and due to budget constraints, the number of extension staff was insufficient, resulting in vacancies.³³ Because of the shortage of regular DOA staff and limited budget allocations, neither systematic monitoring of the O&M status of the facilities constructed under LP1, nor the provision of necessary support when issues arose was being implemented.

3.4.3 Technical Aspect

During the project implementation, training was provided to KVAs on topics such as water management and their roles and responsibilities. However, no further training has been provided to KVAs since project completion.³⁴ Among the sites visited during the ex-post evaluation, some KVAs held general meetings twice a year, discussed repairs and cleaning of irrigation canals and after the end of the rainy season, secured labor from each household for facility cleaning, indicating relatively well-functioning groups. In contrast, other KVAs relied heavily on a few core members to carry out almost all minor repairs. When repairs requiring skills beyond the technical capacity of the KVA are needed, they are handled through outsourcing. For example, irrigation facility repairs are sometimes contracted to stonemasons. During the on-site survey conducted as part of the ex-post evaluation, the KVA reported no issues regarding the technical level of the outsourced stonemasons. However, the KVA indicated that when funds are required for such repairs, damage exceeding the KVA's financial capacity would be difficult to address.

³² A KVA is a legal entity registered under the HP Societies Registration Act, 2006, and is authorized to set and collect water user charges and other fees, as well as to raise funds from both internal and external sources. (PCR Vol. 2, p.46)

³³ According to data from the DOA offices of the five target districts included in the Project Completion Report of TCP2, out of 470 sanctioned posts, 277 were filled, resulting in a vacancy rate of 41%. At the time of the ex-post evaluation, it was confirmed that out of 689 sanctioned posts, 345 were filled, resulting in a vacancy rate of 50%.

³⁴ During the project implementation period, numerous manuals, including those for extension staff, were developed and confirmed to be stored at block-level PMUs visited during the ex-post evaluation. Some of the farmers visited were found to have retained manuals used in training.



Photo 7: Solar Panels in Una District
(Source: Taken by Evaluator)



Photo 8: Silt Accumulation at the Weir in a Lift Irrigation Area in Kangra District (Although countermeasures had been taken by the KVA in the past, siltation continues.) (Source: Taken by Evaluator)

During the project period, under the collaboration between LP1 and TCPs, training sessions were conducted at the BPMU level for PMU staff and stakeholders at sub-project sites (e.g., crop diversification techniques, organic farming methods, and water management training). As noted in section “3.3.1 Effectiveness,” the qualitative survey conducted during the ex-post evaluation confirmed an overall expansion of vegetable cultivation, adoption of cropping practices based on climatic conditions, and the spread of high-value vegetable production. However, based on interviews and collected materials during the field survey, continuous extension support at sub-project sites after project completion was limited. Therefore, challenges remain regarding the sustainability of support for vegetable cultivation techniques and the maintenance and management of the facilities developed.

3.4.4 Financial Aspect

Regarding the production infrastructure developed under LP1 and handed over to the KVAs, such as irrigation facilities, no budgetary measures have been taken by the DOA for maintenance, management, or capacity enhancement. Moreover, the DOA has not monitored the maintenance conditions of these facilities after project completion, nor has it assessed the financial requirements or provided financial support for necessary maintenance. At the same time, some KVAs reported that they were unable to undertake required maintenance when the costs exceeded their financial capacity. When significant damage occurred during the 2023 monsoon season, KVAs reported the losses to the BPMU, which then estimated the damage amounts and reported them to the SPMU. During the field survey conducted for this ex-post evaluation, possible countermeasures were under discussion. However, it was concluded that in addition to budgetary arrangements by the DOA,³⁵ a more institutionalized

³⁵ At the time of the ex-post evaluation, the estimated loss amounted to 24.2 million INR across 39 sub-project sites. The SPMU under the ODA Loan (Phase 2) will allocate restoration funds from the budget managed by HPADS.

response, rather than ad hoc measures, will be necessary going forward.

3.4.5 Environmental and Social Aspect

No notable negative impacts on the natural environment were observed. According to the SPMU, training and awareness-raising programs for beneficiary farmers contributed to reducing the use of chemical fertilizers and pesticides. The construction of water storage structures and ponds helped improve groundwater recharge. The promotion of micro-irrigation systems (such as drip and sprinkler irrigation) enhanced water-use efficiency, generating positive environmental effects through water savings.

3.4.6 Preventative Measures to Risks

It was considered important that the knowledge and experience gained through the Project be shared and institutionalized within DOA. However, as noted in Table 6 and Section 3.4.2, most PMU staff engaged under LP1 and its successor, the ODA Loan Project (Phase 2), were contract-based, and vacancies were observed among DOA extension staff in the five target districts. In addition, some KVAs faced challenges in maintaining the production infrastructure. Given these conditions, no sufficient risk mitigation measures were in place within the DOA to ensure the sustained realization of project benefits.

3.4.7 Status of Operation and Maintenance

The overall condition of O&M of the production infrastructure handed over to the KVAs could not be fully confirmed. However, site visits conducted during the ex-post evaluation revealed variation across sub-project sites: some facilities were being adequately maintained, while others were experiencing maintenance challenges and required additional support.

Based on the above findings, issues were identified in several areas related to the operation and maintenance of the Project, including organizational and institutional structure, technical capacity, financial aspects, and risk mitigation. At the time of the ex-post evaluation, the prospects for improvement or resolution of these issues remained limited. Therefore, the sustainability of the project effects is moderately low.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The Project targeted small-scale farmers in five districts of HP State, a mountainous state in India. The initiative aimed to develop and rehabilitate production infrastructure such as minor irrigation facilities, as well as provide support for farmers. This included the extension of agricultural services, and the establishment of mechanisms to promote crop

diversification through the cultivation of vegetables with a high market value, with the objective of improving the income of farmers in the project area. At both the appraisal and the ex-post evaluation stages, the Project was consistent with the development policies of the central and state governments, and the Project was aligned with development needs of the country. The Project was also consistent with Japan's aid policy and JICA's cooperation strategies. Coordination was undertaken with other JICA schemes such as the JICA Overseas Cooperation Volunteers, as well as with other development partners. However, concrete outcomes expected from such coordination could not be confirmed. Therefore, its relevance and coherence are rated high. Although the project period exceeded the original schedule, the project costs remained within the plan. Accordingly, the efficiency is rated high. With respect to effects, the operation and effects indicators had been achieved by the target year. Expected qualitative effects, such as improvement in the living standards of the local population in the project area, as well as the enhancement of the social and economic capacity of women, were confirmed. Therefore, the effectiveness and impact are rated high. The O&M of the infrastructure facilities developed were to be undertaken by KVA formed and supported under the Project. However, in some cases, O&M has not been smoothly implemented. Since no regular monitoring has been conducted since project completion, it has been difficult to ascertain the overall situation of the irrigation facilities developed. At certain sub-project sites where appropriate O&M has not been conducted, no measures have been considered and undertaken to address these issues, making it less likely that such problems will be resolved in the near future. Consequently, the sustainability of the outcome of the Project is moderately low.

In light of the above, the Project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Sustainable O&M of minor irrigation and other production infrastructure developed under LP1 (monitoring, and technical and financial support for O&M)

After project completion, KVAs became responsible for operating and maintaining the infrastructure developed under LP1, including minor irrigation facilities. However, when disasters or other events cause damage that exceeds the technical or financial capacity of KVAs, they may be unable to undertake the necessary O&M measures. At present, due to shortages in personnel and budget, regular monitoring and timely support by DOA extension officers are not being conducted. To ensure the sustainable O&M of the production infrastructure through the continued functioning of KVAs, and to further promote crop diversification and enhance farmers' incomes, it is necessary to clarify the roles and

responsibilities of DOA in supporting KVAs and establish a system that enables periodic site monitoring and the provision of technical and financial assistance when required.

Deployment of DOA Staff to the Project Management Units

To ensure the smooth implementation and management of LP1, multiple PMUs were established at the state, district, and block levels. During the implementation of LP1 and TCPs, staff were assigned to PMUs and training programs were conducted for capacity development. However, many PMU staff were not DOA personnel but contract employees hired through manpower agencies. As a result, the knowledge and experience accumulated during the project period were not fully retained within DOA once LP1 was completed and the PMUs were dissolved.

To address staff shortages and ensure the institutional retention of project-related knowledge and experience within DOA, it is important that DOA personnel, especially Agriculture Extension Officers (AEOs), who serve as front-line intermediaries with farmers, be assigned to PMUs. Increasing the number of AEOs as regular DOA staff will be particularly critical for sustaining the benefits of the Project.

4.2.2 Recommendations to JICA

Although LP1, the subject of this ex-post evaluation, has been completed, its successor project, the ODA Loan Project (Phase 2), is currently under implementation. As stated in section 4.2.1 “Recommendations to the Executing Agency,” it is necessary for JICA to coordinate with DOA to ensure that the roles and responsibilities of DOA in supporting KVAs are clearly defined and that a system enabling site monitoring and other support activities is established. Such arrangements should be pursued not only for the completed project but also for the ongoing successor project.

4.3 Lessons Learned

(1) Promotion of Crop Diversification from the Perspective of Individual Farm Management

Under LP1, crop diversification was promoted by introducing the cultivation of high-value vegetables to farmers who own farmland within sub-project sites known as CCAs. To ensure the sustainable operation and maintenance of the minor irrigation and other facilities developed, these farmers were required to organize into KVAs, and support was provided for their formation. However, the farmers who owned farmland in the target areas were not necessarily homogeneous. Some had a strong interest in vegetable cultivation, while others did not. Given this diversity of needs among farmers, it would have been advisable to develop a menu of support services capable of responding to the different types of needs that

coexisted within the same sub-project sites.

(2) Importance of Strengthening the PDCA Cycle Management Capacity of the Executing Agency through Coordination between LP1 and TCPs

In these projects, crop diversification was promoted by PMUs through the formulation of crop diversification plans for all LP1 sub-project sites, using the crop diversification model developed under the TCPs. A cycle was envisioned in which the current status of agricultural production would be analyzed through monitoring, and the findings incorporated into the plans. The crop diversification guidelines were then revised based on the results of the implementation. In this way, the “Plan–Do–Check–Act (PDCA)” cycle was practiced mainly with PMU staff, who were responsible for managing the implementation of LP1, as the primary target group of the TCPs. This contributed to the effective utilization of the small-scale production infrastructure developed under LP1 and, subsequently, to the promotion of crop diversification. It serves as a good example of how synchronized implementation of infrastructure development and technical support can generate tangible outcomes. In particular, the involvement of Executing Agency staff in planning and implementation at the sub-project sites contributed significantly to achieving project effects. Therefore, it is important that the selection and capacity development of the target groups be incorporated into the project approach, with a view toward ensuring sustainability beyond project completion.

(3) Establishing a Risk-based Decentralized Implementation and Management System in Small-Scattered Projects Across Multiple Agro-Ecological Zones

HP State is located in the western Himalayan mountain region, with elevations ranging from 350 meters to 7,000 meters. The terrain is highly varied, and the climatic conditions differ substantially depending on altitude. In these projects, planning and infrastructure development were carried out based on agricultural ecological zones, resource availability, and beneficiary needs. To implement small-scattered infrastructure development across 210 sub-project sites in five districts, a decentralized implementation system was adopted. This approach provides a good example of how support tailored to the needs of end beneficiaries, farmers, can be advanced by establishing a decentralized implementation and management system that assigns risk management responsibilities to actors capable of efficiently addressing risks at each sub-project site situated across diverse agro-ecological zones.

5. Non-Score Criteria

5.1 Performance

5.1.1 Objective Perspective

In the Project Completion Report (LP1) submitted by the Executing Agency, JICA's contributions were acknowledged, including missions dispatched from JICA Headquarters, regular consultations with the JICA India Office, and the sharing of lessons learned from past similar projects. Through this ex-post evaluation, these contributions were confirmed.

5.2 Additionality

The Project, subject to the ex-post evaluation, comprised LP1 together with the TCPs. TCP1 was implemented as an accompanying technical cooperation project to LP1, with the objective of facilitating the smooth implementation of LP1 by strengthening human resource capacity and developing a model for crop diversification. Subsequently, TCP2 was implemented in the five districts covered by LP1 to enhance the crop diversification model established under TCP1, particularly from the perspectives of post-harvest handling, processing, and marketing. Leveraging its dual cooperation modalities, Japanese ODA loan and technical cooperation schemes, JICA provided added value beyond capital investment by combining the consulting services financed through the Japanese ODA loan with the technical assistance delivered under the TCPs. This integrated support approach is assessed as having contributed to accelerating LP1 and promoting economic growth through improved agricultural productivity in the project areas.

End

Comparison of the Original and Actual Scope of the Project

(For LP1) Himachal Pradesh Crop Diversification Promotion Project

Item	Plan	Actual
1. Project Outputs	Irrigation facilities: 3,712 ha Farm access roads: 100 km Solar facilities: NA Micro-irrigation facilities: NA Number of trained Water Users' Associations (KVAs): 2,100 Farmers Groups: at least 5 Number of crop diversification plans prepared: 210	Irrigation facilities: 4,671 ha Farm access roads: 37 km Solar facilities: 80 sites Micro-irrigation facilities: 373 ha Number of trained Water Users' Associations (KVAs): 8,400 Farmers Groups: 1,050 Number of crop diversification plans prepared: 210
2. Project Period	February 2011-March 2018 (86 months)	February 2011-June 2021 (125 months)
3. Project Cost		
Amount Paid in Foreign Currency	471 million yen	NA
Amount Paid in Local Currency	5,564 million yen (2,960 million INR)	NA (NA)
Total	6,035 million yen	5,227 million yen
ODA Loan Portion	5,001 million yen	4,557 million yen
Exchange Rate	1 INR = 1.88 yen (As of September 2010)	1 INR = 1.63 yen (Weighted Average between 2011 and 2021)
4. Final Disbursement	May 2021	

End