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Report No: PAD3581

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF US$80 MILLION

TO THE

REPUBLIC OF INDIA

FOR AN

INTEGRATED PROJECT FOR SOURCE SUSTAINABILITY AND CLIMATE RESILIENT RAIN-FED AGRICULTURE IN HIMACHAL PRADESH

January 23, 2020

Agriculture And Food Global Practice
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective January 3, 2020)

Currency Unit =	Indian Rupees
US$ 1=	INR 71.82

FISCAL YEAR
April 1 – March 31

Regional Vice President:	Hartwig Schafer
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ABBREVIATIONS AND ACRONYMS

AWP	Annual Work Program
APO	Assistant Project Officer
ASCI	Administrative Staff College of India
CAG	Controller and Auditor General
CAT	Catchment Area Treatment
CDD	Community Driven Development
CPF	Country Partnership Framework
CRI	Corporate Results Indicator
CSA	Climate Smart Agriculture
DPL	Development Policy Lending
DPO	District Project Officer
EC	Executive Committee
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
ESA	Environment and Social Assessment
ESCP	Environment and Social Commitment Plan
ESF	Environment and Social Framework
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
ESS	Environment and Social Standards
FA	Financial Analysis
FM	Financial Management
FRFI	Functional Review of Forest Institutions
GAP	Gender Action Plan
GDP	Gross Domestic Product
GeM	Government e Marketplace
GIS	Geographic Information System
GHG	Green House Gas
GOHP	Government of Himachal Pradesh
GoI	Government of India
GP	Gram Panchayat
GP-RMP	Gram Panchayat Resource Management Plan
GRS	Grievance Redress Service
Ha	Hectares
HP	Himachal Pradesh
HPFD	Himachal Pradesh Forest Department
HPMHWDP	HP Mid-Himalayan Watershed Development Project
IBRD	International Bank for Reconstruction & Development
ICT	Information and Communication Technology
IFMIS	Integrated Financial Management Information System
IFMS	Integrated Forest Management System
IFR	Interim Financial Report
IIM	Indian Institute of Management
INR	Indian Rupees
IP	Indigenous People
IPF	Investment Project Financing
IPNMP	Integrated Pest and Nutrient Management Plan
IPPF	Indigenous People Planning Framework
IPR	Independent Procurement Reviews

IT	Information Technology
IUFR	Interim Unaudited Financial Report
IWM	Integrated Watershed Management
KVK	Krishi Vigyan Kendra
LMP	Labor Management Plan
M&E	Monitoring & Evaluation
MG	Matching Grant
MIS	Management Information System
MW	Megawatt
Mt	Metric Ton
NCP	National Competitive Procurement
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NIC	National Informatics Centre
NPP	National Procurement Procedures
NPV	Net Present Value
NRM	Natural Resources Management
NTFP	Non-Timber Forest Product
O&M	Operation and Maintenance
OLTIS	Online Treasury Information System
OMIF	Operation, Maintenance and Investment Fund
PCCF	Principal Chief Conservator of Forest
PDO	Project Development Objective
PES	Payment for Ecosystem Services
PF	Procurement Framework
PIP	Project Implementation Plan
PMIS	Project Management Information System
PMU	Project Management Unit
PPR	Project Post Review
PRA	Participating Rural Appraisal
PPSD	Project Procurement Strategy for Development
PRAMS	Procurement Risk Assessment Management System
RFP	Request for Proposal
RFQ	Request for Quotation
RPF	Resettlement Policy Framework
SC	Scheduled Caste
SEP	Stakeholder Engagement Plan
SLM	Sustainable Landscape Management
SLWM	Sustainable Land and Water Management
SPD	Standard Procurement Document
ST	Scheduled Tribe
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TDFP	Tribal Development Framework Plan
TDP	Tribal Development Plan
ToR	Terms of Reference
TSA	Technical Support Agency
WB	World Bank
WOP	Without Project
WP	With Project

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
India	Integrated Project for Source Sustainability and Climate Resilient Rain-fed Agriculture in Himachal Pradesh	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P165129	Investment Project Financing	Moderate

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Disbursement-linked Indicators (DLIs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
18-Feb-2020	31-Mar-2025

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To improve upstream watershed management and increase agricultural water productivity in selected Gram Panchayats in Himachal Pradesh.

Components

Component Name	Cost (US$, millions)
Component 1. Sustainable Land and Water Resource Management	55.05
Component 2. Improved Agricultural Productivity and Value Addition	31.38
Component 3. Institutional Capacity Building for integrated Watershed Management	3.67
Component 4. Project Management	9.90

Organizations

Borrower:	Republic of India
Implementing Agency:	Department of Forest, Government of Himachal Pradesh

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	100.00
Total Financing	100.00
of which IBRD/IDA	80.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	80.00

Non-World Bank Group Financing

Counterpart Funding	20.00
Borrower/Recipient	20.00

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2020	2021	2022	2023	2024	2025

Annual	4.50	19.00	25.00	14.00	10.00	7.50
Cumulative	4.50	23.50	48.50	62.50	72.50	80.00

INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Environment, Natural Resources & the Blue Economy

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Moderate
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
10. Overall	Moderate

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Conditions

I. STRATEGIC CONTEXT

A. Country Context

1. **India continues to remain the fastest growing major economy in the world in 2018-19,** despite a slight moderation in its GDP growth from 7.2 percent in 2017-18 to 6.8 percent in 2018-19. Moderation in growth momentum is mainly on account of relatively low levels of private investment over the past several years. The latest data shows a broadening of the slowdown across all categories of aggregate demand. Although the current account deficit widened to 2.1 percent of GDP in FY18/19, robust capital inflows during the second half of the year allowed for a build-up of international reserves to US$411.9 billion at the end of the fiscal year (equivalent to ten months of imports). Going forward, subdued import growth and benign oil prices are expected to contain the current account balance. On the fiscal side, the general government deficit is estimated to have widened to 5.9 percent of GDP in FY18/19. The deficit is expected to fall over time (to 5.6 percent by FY21/22), although it should rise to 6.0 percent in FY19/20 with significant downside risks (owing to tax cuts recently adopted and the impact of slower economic growth on tax proceeds).

2. **Since the 2000s, India has made remarkable progress in reducing absolute poverty**. Between FY11/12 and 2015, poverty declined from 21.6 to an estimated 13.4 percent at the international poverty line (2011 PPP US$1.90 per person per day), continuing the earlier trend of fast poverty reduction. Thanks to robust economic growth, more than 90 million people escaped extreme poverty and improved their living standards during this period. Despite this success, poverty remains widespread. In 2015, 176 million Indians were living in extreme poverty, while 659 million – half the population – were below the higher poverty line commonly used for lower middle-income countries (2011 PPP US$3.20 per person per day). Implementation challenges of indirect tax reforms, stress in the rural economy and a high youth unemployment rate in urban areas, may have moderated the pace of poverty reduction since 2015.

B. Sectoral and Institutional Context

3. **Himachal Pradesh (HP) is a special category state in the Himalayan mountains.** With an altitude reaching 6,975 meters above mean sea level [msl] much of the state's area is sloping, with inclines of between 0.5 – 70 percent – much of it under agricultural production. Of a total of 3,243 Gram Panchayats (GPs), 17 percent have been declared economically disadvantaged and subject to special programs from the Government. Scheduled tribes (STs; 6 percent of the total population, one third of whom located in Scheduled Areas) are scattered throughout the state. One-quarter of the population are scheduled castes (SCs). HP is among India's leading states on gender equality and social development with the highest female labor force participation rate in the country, primarily in agricultural self-employment, which remains the mainstay of the state's largely rural economy.

4. **Women are predominantly engaged in agriculture and post-harvest activities, driven by male out-migration.** The percentage of women agriculture workers is relatively high in HP at 83 percent (2011) compared to other states in India. Households experience significant rates of semi-permanent, male-dominated and remittance-based migration. The economy is largely agrarian, and almost 90 percent of the tasks are carried out by women. Many of the constraints to more remunerative agriculture-based livelihoods, including those due to climate change, are particularly acute for women as compared with men. In addition, women (small and marginal) farmers also face barriers in accessing post-harvest equipment, demonstrations on agriculture technology, and micro-irrigation interventions.

5. **As a mountainous state, HP has an important role to play in contributing to India's climate change commitments but is particularly vulnerable to climate change and associated risks.** Lowland areas lack access to irrigation water and depend on decreasing amounts of rainfall during the critical monsoon season. Agricultural production is already shifting to higher altitudes, impacting the production of fruits, including HP's iconic apples. Climate change is also expected to increase average temperatures and decrease rainfall in the lowlands, while both temperatures and rainfall are expected to increase in the highlands, which could lead to more extreme flooding events, particularly in the context of continued forest degradation. HP's topography and available water resources are well-suited to hydro-power generation – only 14 percent of India's total power is from hydro, of which 8 percent (totaling 3,421 MW) is from HP. Meeting India's nationally determined contribution (NDC) commitment depends on further hydro exploitation in states like HP. HP also enjoys over one million hectares (ha) of forest cover, roughly 25 percent of the land area in the State and 1.5 percent of India's total forest cover, and has potential to further improve forest cover (including through increased density) and contribute to India's NDCs.

6. **The Government of Himachal Pradesh (GoHP) is already well experienced in exploiting its natural resources as a driver of development but faces challenges ahead.** Over two-thirds of the total land area in the state is formally categorized as forest land, of which 46 percent supports coniferous and broadleaved forests, while the remaining 54 percent includes high altitude areas above the tree line, snow peaks, alpine pastures, and river beds. The state has zoned 23 percent of the legally classified forest area as protected areas, and the Himachal Pradesh Forest Department (HPFD) manages these areas to protect biodiversity and promote ecotourism. These forests provide catchment areas for 5 major river basins. While forest area is increasing, the quality of forests (e.g. canopy closure, species, and age class distribution) remains poor. Agricultural development has also flourished in HP: HP is a major source of fruit and off-season vegetables to other parts of India. However, most agricultural land (85 percent) continues to rely on rain-fed agriculture, and only one-third of irrigated land is used for more than one crop per year. Given the changing weather patterns already observed (annual and monsoon rains declining by 2.26 mm and 2.85 mm per year respectively; mean annual temperature increasing by 0.02 degrees Celsius per year), progress could be easily reversed unless the state invests in adaptation strategies to increase resilience.

7. **Natural resource management (NRM) therefore remains pivotal to the state's long-term economic and social development, especially in the context of climate change.** A profile of climate smart agriculture (CSA) in the state prepared for the project highlighted critical aspects of both the mitigation and adaptation agenda in the state. Agriculture is a minor source of the state's Greenhouse Gas (GHG) emissions, constituting only 1.8 percent of the total. Of these, 90 percent are attributable to rice cultivation; crop residue burning adds a further 8 percent, and enteric fermentation contributes less than 2 percent. Observed adoption rates of CSA technologies are typically less than 30 percent, leaving considerable scope for scaling up. CSA technologies are not scale-neutral, are risky, and there are significant up-front investment costs. Integrating these technologies more thoroughly into the existing research and extension system is essential. GoHP seeks to continue its impressive trajectory of rural transformation while maintaining biodiversity and ensuring sustainable land and water use, including exercising its role as custodian of a unique landscape with a special set of natural resource endowments that provide critical environmental services not only for its own population but for other states and indeed globally. The GHG balance accounting (Annex 3) and climate co-benefits (Annex 4) for this project illustrate the importance of the approaches proposed.

8. **HP has achieved notable success in devolving greater responsibility for community development to GPs.** There is considerable evidence from HP, elsewhere in India, and globally that development interventions are better planned, more relevant, more efficiently implemented, and more sustainable when local beneficiary communities have a substantial stake in their delivery and benefits. This is particularly the case for local NRM,

when communities are often both the direct cause and the victims of degradation. Supporting GPs to lead community-based development has and will continue to be a key tenet of the GoHP's approach moving forward.

C. Relevance to Higher Level Objectives

9. **The project is consistent with the World Bank Group – Government of India's (GoI) Country Partnership Framework (CPF) for Fiscal Years 2018 – 2022, discussed at the Board on September 20, 2018 (Report # 126667-IN)** by delivering outcomes for resource efficient growth in targeted GPs in HP and by enhancing the competitiveness of farmers and related agribusinesses in selected value chains. It also seeks to strengthen public sector institutions while leveraging the private sector and will contribute significantly to Lighthouse India by demonstrating approaches in challenging agro-ecological conditions of wider interest across the Himalayan range.

10. **The project can also contribute to help India achieve its NDC and potentially enable India to aim for a "1.5 degree Celsius compatible" rating** given the project's contributions: to (i) enhanced watershed management and hydrological flows that could potentially be harnessed for hydropower and (ii) enhanced reforestation and forest quality that can increase carbon sequestration and reduce emissions.

II. PROJECT DESCRIPTION

A. Project Development Objective

11. **The Project Development Objective (PDO) is: To improve upstream watershed management and increase agricultural water productivity in selected Gram Panchayats[1] in Himachal Pradesh.**

12. **The project will have the following PDO indicators:**

- New farm area brought under higher efficiency irrigation through project support in targeted GPs (Hectares)
- Share of participating farmers adopting climate smart agriculture practices (Percentage, gender disaggregated)
- Land area under sustainable landscape management practices (Corporate Results Indicator (CRI), Hectares (Ha))
- Number of reforms recommended by the institutional assessments that are implemented (Number)
- Share of participating farmers who give a rating of "Satisfied" or above on process and realized benefits of project interventions (Percentage, gender disaggregated) (Citizen Engagement Indicator)

B. Project Components

Component 1: Sustainable Land and Water Resource Management (US$55.05 million; US$44.04 million IBRD)

13. **This component promotes participatory and sustainable land and water management (SLWM) through financing the planning and implementation of upstream investments in selected micro-catchments.** GP-level resource management plans (GP-RMPs) will be prepared to ensure that local investments are properly targeted and appropriate to the local geographic and socio-economic context. Hydrological monitoring stations will be

[1] The Gram Panchayat is the lowest level institution of the formal self-governance system in India. It is roughly equivalent to a village.

established in the watersheds to continuously monitor water quality and quantity to assess the potential impact of project interventions. These stations will also lay the foundation for future water budgeting (to facilitate climate change adaptation by planning land use and agricultural investments based on the available water) and hydrological modelling at the watershed level that will enable the preparation of more holistic catchment area treatment (CAT) plans that identify the highest priority sites for future investments to ensure the greatest impact for source sustainability, carbon sequestration, and water quality. The main implementers and beneficiaries will be HPFD staff and communities, including user groups set up (or strengthened, where appropriate) under the project. The component will include a combination of technical assistance (TA), investments, and partnerships with other agencies. This support will lead to improved ecosystem management, improved forest cover (carbon sequestration), increased water quality and quantity and sediment regulation (climate resilience), reduced erosion (and thus reduced disaster risk from landslides), and improved community participation (including women, youth, and disadvantaged groups) in and benefits from SLWM that are expected to serve as a model for other states through the Lighthouse India approach.

Subcomponent 1A: Improved planning for participatory and sustainable land and water management

14. **Subcomponent 1A will strengthen landscape planning.** Specifically: (a) consultants will design and the Project Management Unit (PMU) will procure and install a network of hydrological monitoring stations at key locations (to be determined by consultant expert analysis), to be maintained by the HPFD; (b) the PMU will prepare GP-RMPs; (c) consultants will be hired to support additional diagnostic studies, designs, and assessments; and (d) the PMU will develop GP-RMPs through a participatory process led jointly by the HPFD, GPs and community user groups that will ensure the active inclusion of women and disadvantaged groups. Agriculture extension officers and social extension officers will undergo training to effectively understand and adapt the specific needs of women cultivators in the GP-RMPs. As a part of the participatory rural appraisal (PRA) exercise, the preparation of GP-RMPs will take active steps to include interventions suggested by women's federations and community-based organizations with active participation from women. This subcomponent will also include the design and implementation of a catchment monitoring and evaluation (M&E) system. These activities will increase climate mitigation and, by identifying the locations where SLWM investments will have the greatest impact on siltation and water capture, this planning exercise will also increase climate resilience at both the community and the landscape level by supporting increased water quality and quantity and reduced risk of landslides and flooding.

15. **Approval of the GP-RMPs will necessitate spot checks and verification on site.** The preparation of the GP-RMPs will be achieved through: (i) a technical consultant to design the GP-RMP structure and mapping requirements; (ii) an Information Technology (IT) consultant to design the database and Geographic Information System (GIS), including data input technology to store, collate, monitor progress and report on GP-RMP preparation, approval, and implementation; (iii) the project team of social, agricultural, and forest extension officers to undertake community mobilization and facilitate their participation in plan preparation; (iv) PMU field teams in cooperation with the beneficiaries to prepare the GP-RMPs; and finally (v) the plan will be reviewed by the District Project Officer (DPO) and approved by the PMU and the GP following on-site verification. Implementation of the GP-RMP will be monitored by the PMU/ HPFD, including: (i) updating the project database to collate, report, and monitor implementation progress; (ii) verification on site of activity completion reports; and (iii) ongoing site inspections to verify required survival rates and proper maintenance.

Subcomponent 1B: Implementation of participatory and SLWM investments as identified by the GP-RMPs

16. **This subcomponent will finance the implementation and maintenance of investments identified in the GP-RMPs, including the preparation of the technical specifications for works and equipment supply and terms of reference for consultancy services**. These investments will be implemented by GPs with technical supervision from the PMU and may include, but are not limited to, the following:

- *Soil and water conservation measures,* including vegetative measures, such as af/re-forestation, grass seeding, grass turfs, brushwood, live hedges, and spurs, as well as mechanical measures, such as check dams, drop structures, wire-crate spur structures, bunds and water harvesting, and drainage line treatments;

- *Forest management,* including tree planting and management in open and medium density forests and slopes vulnerable to soil erosion and protection of plantations; and

- *Pasture management,* including the introduction of rotational grazing, delineation of forest areas for the supply of fodder, and the introduction of voluntary systems to prevent livestock from grazing in young forest.

17. **Other investments at the project level rather than GP- or micro-catchment level would include**:

- *Development of high-quality seed stands by HPFD,* including establishment of a geo-referenced seed production system to select the best phenotypic seeds for given environmental and future climate conditions, which will allow adaption to changing climatic and vegetative zones; construction of a centralized seed center to process, treat, store, and test seed; and construction of a climate-controlled seed bank;

- *Nursery development.* Procurement of works, machinery, and equipment to produce the additional seedlings of the correct quality in the right location;

- *Forest fire prevention and suppression.* Organization of community fire protection groups; provision of locally-appropriate firefighting equipment to the HPFD offices and participating communities; and training of communities on controlled burning, and the collection and use of pine needles; and

- *Innovative approaches to silviculture will be trialed by HPFD* as simple replicated plots to determine the most appropriate and most cost-effective treatments – potential topics for research will include size and types of seedlings, plantation spacings, and the treatment of invasive species.

18. **The subcomponent will also support the establishment and financing of an operation, maintenance and investment fund (OMIF) in each of the participating GPs.** The OMIF will be established under existing GP financial management procedures to meet the operations and maintenance (O&M) responsibilities of community infrastructure related to SLWM constructed under this project and that already existed. Initial funding to the OMIF will come from community contributions with the project providing top-up funds through matching grants (MGs) to GPs. The underlying principle of the OMIF is to incentivize local revenue generation for, and investment in, O&M of GP-managed SLWM-related infrastructure through this 'matching' financing. Top-up grants will be provided once the OMIF have reached defined thresholds in terms of revenues raised and legitimate expenditures on O&M activities. Details will be provided in the Grants Manual.

Component 2: Improved Agricultural Productivity and Value Addition (US$31.38 million; US$25.10 million IBRD)

19. **This component will support interventions in downstream areas where the primary (existing or potential) water use is for irrigation in agriculture.** It will seek to augment the use of irrigation as a principle strategy for shifting from low-value cereal production to climate-resilient crop varieties and higher-value fruit and vegetable production but would do so with a focus on increasing climate resilience and water productivity to maximize the financial returns for water use. The project will leverage additional support from (i.e. seek *convergence* with) other government programs particularly those of the agriculture, horticulture, and animal husbandry departments. Key interventions include farm-level infrastructure to increase high-productivity water utilization (drip and sprinkler irrigation) – essential elements of CSA – plus the necessary community-level primary and secondary distribution systems and training and input/ equipment supply for CSA. The project will only work in downstream areas where upland interventions are also being implemented. *Convergence* with the relevant line departments and relevant World Bank-financed projects (e.g. HP Horticulture Development Project) will be ensured through the project's Executive Committee (EC). By increasing water availability, biomass, and livelihoods on existing farmland, the proposed activities will increase both climate resilience and carbon sequestration, including by reducing forest encroachment (loss) and soil erosion, and are expected to be of interest to other forested states, with outcomes showcased through the Lighthouse India approach under Component 3.

20. **A value-chain scoping exercise will identify the barriers experienced by small and marginal farmers, predominantly women, in accessing CSA technologies, post-harvest equipment and subsidies and to identify potentially viable clusters of producers based on economic geography.** The interventions will focus on: (a) improving the service delivery mechanism of on- and off-farm activities through training and capacity building of agriculture extension officers and social extension officers; (b) undertaking demonstrations of agricultural technology and conducting farmer field schools to cater to the needs of small and marginal farmers, including women; and (c) generating awareness through interactive communication campaigns. The list of sub-project investments will include a subset of activities predominantly carried out by women. These include diversification of crops to high-value vegetables, livestock-based activities for small and large ruminants, livestock mangers, and post-harvest interventions, such as maize chaffing. To incentivize uptake of technologies/ innovations, the project will calibrate the beneficiary contribution for individual women cultivators and women's groups. User groups formed to manage resources under agriculture extension services will have active participation from women, including appointing women in decision-making roles.

21. **This component will also use a MG instrument to partially finance productive assets for individual and group beneficiaries.** The exact share of beneficiary contribution will be calibrated according to the specific items (those with higher positive environmental externalities securing a lower beneficiary contribution) and for different beneficiary groups depending on their relative level of need/ access to finance. A key principle is that private goods for individual beneficiaries will, on average, require a greater beneficiary contribution. To ensure women participate in extension training and access additional technical support to develop grant proposals, female facilitators will also be hired and trained to provide extra training and support to women-only groups. It will also ensure equal access for defined disadvantaged groups within the project areas. Details will be set out in the Grants Manual.

Subcomponent 2A: Improved water productivity

22. **Subcomponent 2A will support investments in the provision of water by investing in primary and secondary distribution infrastructure at the community level and farm-level irrigation equipment.** The project will finance through a MG scheme decentralized water infrastructure assets within GPs based on robust GP-RMPs (developed under Component 1) and subordinate village-level agriculture and water management plans. This will include water harvesting, storage, and distribution infrastructure, such as (small) pond excavation, community tank renovation, roof rain-water tank installation, strengthening of traditional irrigation channels, and gravity and lift intake and distribution structures. To ensure these investments lead to increases in water productivity rather than only water availability, the project will only invest in increasing water utilization in GPs where: (i) upstream investments in source sustainability are being implemented under Component 1; and (ii) investments under Subcomponent 2B will support increased adoption of climate smart technologies and high value crop production to ensure the productivity of subsequent water use will be maximized, thereby achieving 'per drop, more crop.'

Subcomponent 2B: Adoption of Climate Smart Technologies and Diversification into High-Value Crops

23. **This component supports the adoption of CSA practices** in conjunction with increased access to irrigation for existing cropping patterns and/or diversification into high-value, climate-resilient crops. The adoption of climate-resilient crops and CSA practices that address changing rainfall patterns and temperatures, reduce CO_2 and methane emissions, and increase carbon sequestration (such as agroforestry, reduced tillage, and the system for rice intensification) will improve both climate mitigation and adaptation. The project will utilize HP's agricultural research and extension system and existing Government-backed interventions, enter into technical agreements to finance the incremental operational costs of existing delivery agencies, and hire consultancy services where complementary non-state services are required. Where knowledge of appropriate CSA practices is limited, the project will partner with the research institutions (to cover their operational costs) to strengthen the evidence base. Interventions to support high value crops, including medicinal and aromatic plants, will take a value chain perspective and will be based on the analysis of market potential. Such interventions will include consultancy services covering *inter alia* market analysis and strategies for value addition. This component will also fund essential modest "last-mile" market access investments (e.g. works contracts for the provision of footbridges and ropeways but not roads or investments requiring land acquisition). This subcomponent will utilize the MG scheme (under a second 'window') to subsidize essential productive assets to individual farmers, specifically active women farmers and women-headed households, and farmer groups.

24. **Based on the outcomes of the value chain analysis, the project will adopt a cluster-based approach where relevant.** This is to avoid fragmentation and an unsustainable scattering of project investments and to increase benefits from the economies of scale in production, processing, and marketing essential in competitive agriculture. HP benefits from extensive analytical work on potential clusters in a range of commodities and has considerable experience in such approaches (including through other World Bank-financed operations). The project will include TA support for business incubation if an appropriate cluster emerges where this potential can be realized. Prospective clusters in specific value chains can only be determined once GP-RMPs have been concluded; requisite analysis will be undertaken alongside the GP-RMPs accordingly.

Component 3: Institutional capacity building for integrated watershed management (US$3.67 million; US$2.94 million IBRD)

25. **The long-term objectives of this component are two-fold:** firstly, to support a more comprehensive and holistic approach to managing the state's water resources while recognizing competing uses within HP and in

other states; and, secondly, to facilitate better alignment of institutional mandates for integrated watershed management (IWM) and strengthen the HPFD's institutional structure and capacity for improved service delivery. In the short term, this component will focus on building the capacity of the HPFD as the key government institution responsible for managing two-thirds of the state's land area and identifying future reforms through institutional assessments. It will also produce and share knowledge on these topics through a Lighthouse India approach.

Subcomponent 3A: Improving the governance structure for integrated watershed management

26. **Through the convening power of the HPFD and its role in managing watersheds, this subcomponent will provide TA to support IWM.** The subcomponent will support an institutional assessment to: (a) identify the institutions that affect water supply, quality, use, and management and their roles, responsibilities, and mandates; (b) conduct a strengths, weaknesses, opportunities and threats analysis of the current institutional framework and highlight any overlaps and/or gaps that undermine IWM; (c) identify opportunities for institutional coordination and synergy; and (d) build consensus on the need for reform and develop the goals and vision for institutional collaboration, a time-bound action plan, and an implementation road map. The results of this assessment are expected to inform the GoHP and other state governments on the necessary reforms to relevant institutions that will result in effective interagency cooperation and, ultimately, IWM. Stronger institutions will lead to improved planning and responsiveness to climate change impacts. This subcomponent will be implemented by a consultancy company specializing in change management.

Subcomponent 3B: Institutional reform and strengthening of the Himachal Pradesh Forest Department

27. **This subcomponent building on subcomponent 3A will support the further institutional development of HPFD.** It will provide TA to conduct a functional review of forest institutions (FRFI) that will produce a vision, goal, and time-bound action plan for change that is expected to inform institutional reform in HP and other states. This subcomponent will also help develop an initial set of prioritized institutional governance reforms. These reforms may include *inter alia*: (a) the development and implementation of a comprehensive HPFD IT and knowledge strategy that integrates all relevant applications on a common geospatial platform and allows for watershed-level planning; (b) the development and implementation of a comprehensive HPFD M&E system; (c) the establishment of a centralized staff performance monitoring system; and (d) the development of regulatory and management standards for pastures. The IT and knowledge strategy and M&E system will incorporate relevant climate-related data and research, for example to track forest quality (since forest degradation is linked to increased flood risk) and to identify the most appropriate tree species and forest management practices in light of changing rainfall patterns and temperatures. Similarly, the pasture regulatory and management standards will account for the impact of changing rainfall patterns and temperatures on pasture management, for example by promoting climate-adapted species and practices, which will lead to increased carbon pools by reducing pasture degradation and increasing above- and below-ground (soil) biomass. Finally, this subcomponent will finance training and capacity-building activities based on a comprehensive training plan. The trainings will cover diverse subjects and will be designed with a climate change lens to build resilience and mitigation; for example, trainings on GP-RMP development will include guidance on how to ensure that climate change is adequately addressed in these plans, and the extension trainings will emphasize CSA practices and technologies to increase the adaptive capacity of farmers, reduce GHG emissions and enhance carbon sequestration, and improve the resilience and resource use efficiency agricultural production systems in HP. Training modules will be made available online to enable stakeholders in other states to benefit from this knowledge. The consultancy contracts required would include: (i) FRFI; (ii) development and implementation of an IT Strategy including monitoring and evaluation; and

(iii) development and delivery of new training modules. The IT Strategy will incorporate the hydrological monitoring system developed under subcomponent 1A.

Component 4: Project Management (US$9.90 million; US$7.92 million IBRD)

28. **This component will support project management,** including key staff and operational costs. The project management entity will be in the form of a PMU under the auspices of the HPFD, although, at least in the medium-term, financing will be required for staff on secondment from other Departments and externally recruited staff in areas with skillsets outside the current bureaucratic capacity, such as agribusiness. It would also support the project M&E functions, as well as grievance redress apparatus, and project communications and outreach, including the contribution to Lighthouse India through which project lessons can be shared with other states. This component will also include retroactive financing for project preparation.

C. Project Beneficiaries

29. **The project will be implemented in 428 selected GPs in 32 Development Blocks of the ten districts** of Shimla, Solan, Sirmour, Bilaspur, Hamirpur, Mandi, Kullu, Chamba, Kangra & Una. Several economically disadvantaged GPs will be included in the project area. The stakeholders are primarily engaged in agriculture and horticulture with some livestock-based activities. The transhumant groups include Gaddis and Gujjars, who are dependent on the forest for rearing their livestock.

30. **The key beneficiaries include individual farmers, including women, and farmer groups; disadvantaged groups, including the poor and scheduled populations, as well as nomadic/ transhumant/ pastoral communities; and GPs.** These stakeholders will benefit from improved access to irrigation water, climate smart extension services, and productive assets, as well as future reductions in land degradation. Women, and the community at large, will also benefit from employment opportunities in nursery and plantation activities and the development of high value agricultural value chains and Non-timber Forest Products (NTFPs). Community members will benefit from training on improved production and post-harvest practices, as well as technical and financial support to invest in sustainable value chain development. Improvements in fodder availability as a result of the Component 1 investments will particularly benefit women and STs, as they are most involved with livestock management. The project will also increase the skills and capacity of HPFD staff and other government officials.

31. **The results chain (theory of change) is presented in Figure 1 below.** The project addresses the overall problem that water sources in HP are contributing below their potential to economic growth by addressing three underlying drivers: (i) forest degradation, excessive run-off and soil erosion, and low aquifer recharge (Component 1); (ii) low livestock, land, and water productivity and limited value addition (Component 2); and (iii) limited capacity for integrated ecosystem management (Component 3). Project investments are expected to support improved management of upstream lands and increased agricultural water productivity. Long-term impacts are expected to include increased water supply, institutional reforms for IWM, reduced GHG emissions and increased resilience. Assumptions (and associated risks) include the willingness and capacity of community members to engage with the HPFD; farmer interest in new technologies; market accessibility for new crops; and the willingness and capacity of HPFD staff to integrate greater community involvement and planning into forest management. In case these assumptions are not met, the project design includes farmer outreach with additional training opportunities for female farmers; grant financing to incentivize adoption of CSA technologies and crops; and training to support HPFD staff to adopt more participatory and evidence-based methods.

D. Results Chain

Figure 1: Project Theory of Change

Problems: Limited capacity for integrated eco-system management leading to forest degradation, soil erosion, low aquifer recharge; low agricultural productivity

Activities	Outputs	Lower outcomes	Medium outcomes	Higher outcomes
TA to foster stakeholder participation	Stakeholders consultations held to ensure buy-in (A1)	Water, soil, forests, pastures resources managed according to GP-RMPs	PDO 1: Upstream watershed management improved (A6)	Improved watershed management and improved ag. water productivity lead to more sustainable use of natural resources in HP and improved farm incomes
TA and investments to develop and implement GP Resource Management Plans (GP-RMP)	GP-RMPs developed and implemented, providing specifications for soil, forest, pasture mgmt (A2)			
TAs and investments for hydrological monitoring network & Catchment Area Treatment (CAT) Plan preparation	Hydrological monitoring stations built & functioning			
	CAT Plans prepared & implemented (A3)			
TA to improve integrated watershed management	IWM institutional assessment conducted; time-bound action plan and implementation road map prepared and implemented	Institutions responsible for IWM are strengthened (A4)		
TA for forest institutions	Functional review of forest institutions produced; action plan implemented			
	Training modules developed and delivered to HPFD staff			
Installation of public irrigation water harvesting, storage, and distribution systems	Public irrigation systems installed	Area under higher efficiency irrigation increased (A5)	PDO 2: Agricultural water productivity (value per drop) increased	
Cost-sharing for HH-level equipment purchase (necessary to use irrigation systems)	HH-level irrigation systems installed			
Extension services to support climate-smart ag. (CSA) technology adoption & crop diversification (necessary to increase value of goods produced with irrigation)	Training modules developed and delivered to farmers	CSA and high-value crops adopted by farmers accessing new irrigation with project support (A7)		
Cost sharing for HH- and group-level equipment purchase (necessary to adopt CSA/high-value crops)	Agricultural inputs and technology procured and delivered to farmers/groups			

Notes/ Assumptions

1. Stakeholders are willing to participate in project; 2. Holistic GP-RMPs can be drawn up in a timely manner and employed effectively; 3. CAT Plans used effectively; 4. Strengthened institutions use GP-RMPs to improve watershed management; 5. Water productivity increase will be assured by limiting investments to those stipulated in GP-RMPs; 6. Watershed management improvements are sustained; 7. Agriculture research/ extension and cost-sharing for inputs/ equipment is sufficient to assist farmers to adopt CSA and high-value crops.

E. Rationale for Bank Involvement and Role of Partners

32. **Strategic public-sector investments in upstream water sources (forests, pastures, grasslands) and improved water use productivity in downstream agricultural lands are needed to ensure sufficient water is available for the agriculture sector to continue to grow sustainably, both in HP and in downstream states.** The project will facilitate the improved management of upstream public lands while simultaneously contributing to increased water use efficiency and increased adoption of CSA technologies on agricultural lands through training and investments in efficient irrigation infrastructure and production, post-harvest, and market access technology.

The project is designed to maximize public financing while leveraging private sector investments thereby Maximizing Finance for Development.

33. **Given the presence of existing (state and national) Government programs in agriculture and land and water management, the project explicitly seeks to leverage these rather than duplicate.** Since the project is integrated within the GoHP, the project will coordinate with other Departments through the EC to ensure convergence in the delivery of these programs in a timely manner in project areas to maximize potential synergies.

F. Lessons Learned and Reflected in the Project Design

34. **The project addresses several elements of outstanding agendas in the realm of NRM, forestry, and agriculture.** Considerable past interventions in SLWM in HP have largely delivered on their project objectives, although experience shows that considerable (institutional) effort is required to achieve the necessary outcomes. This is in part a question of scale – past interventions have been necessarily focused – whereas in other aspects additional transformation and innovation is required. Notable innovations from past interventions include the greater role of GPs in taking responsibility for and managing investments in SLWM and the development of CSA practices and their integration into existing farmer extension systems. Other innovations include the successful application for climate change financing and achievements in diversification into higher value market-oriented fruit and vegetable production, boosting HP's position as a major off-season producer serving distant Indian markets. The major challenge moving forward is to further scale-up these successes by utilizing Bank support (knowledge; not just financing) to address the specific institutional and technical constraints. Lessons from integrated basin management in similar projects elsewhere will be applied (c.f. through support for CAT plans).

35. **The project design reflects careful consideration of a range of alternatives.** In terms of instruments, HP and India has experience with development policy lending (DPL) and with results-based financing (under the Program for Results – PforR – instrument). Neither instrument was found to be relevant in this context given: (i) the focus on on-farm and GP-level investments over a broad policy reform agenda and (ii) the nature of SLWM interventions with broad and protracted land use-related outputs does not lend itself easily to a results-based framework. HP has some experience of payment for ecosystem services (PES), although this is at a higher level – e.g. hydro operators contributing to a state-managed fund to finance upstream catchment management – and there is little experience of GP- or household-level PES. The project will thus promote a PES-based rationale that explicitly links project inputs ("payments") with improved land management ("environmental services") consistent with PES logic and will seek to implement GP-level PES pilots where conditions allow.

36. **Other key lessons regarding implementation include the experience with the previous Mid-Himalayan Watershed Development Project and the ongoing HP Horticulture Project.** With regard to the former, the implementing arrangements for this project include a PMU based in the HPFD rather than a separate Society model to ensure greater capacity building of GoHP staff and increased long-term sustainability. The project also builds on: (i) the first Karnataka Watershed Development Project, which demonstrated that watershed and livelihoods interventions can create strong synergies by incentivizing community contributions to upstream soil and water conservation through downstream investments in improved production and value addition for forest and agricultural goods; and (ii) the second Karnataka Watershed Development Project, which is developing comprehensive, site-level databases for improved watershed planning and more efficient investment targeting. More broadly, the project incorporates lessons learned from these other watershed development projects in India by incorporating improved monitoring to inform the location and types of watershed development investments, increased financing, and increased community engagement in the planning and implementation of watershed

development interventions. These investments are expected to lay the foundation for future incentive-based mechanisms, such as PES, that could be used to ensure long-term sustainability. The project will also apply the extensive MG experience of these and other World Bank-financed projects in India.

37. **The project will adopt two critical operational modalities that reflect best practice with similar projects.** Since both approaches reflect significant departure from business as usual, the PMU will include necessary TA to pro-actively seek such opportunities: the use of information and communication technology (ICT) and the use of multiple delivery agents to build a service-provider industry. Although the project retains a strong public sector justification, many front-line interventions could be delivered by non-government agencies, consulting firms and/ or research institutes. As a secondary objective the project will seek to augment the range of alternative delivery agencies, especially from the private sector.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

38. **The project will be implemented by the State of HP through its HPFD.** The project will also maintain district offices to oversee project activities at the District level. The PMU and district offices will include technical specialists from a range of other departments to ensure a full complement of technical competence across the range of sectors. Where this is not feasible from existing departments additional expertise will be recruited directly into the PMU. The project will seek to leverage existing programs (e.g. Krishi Vigyan Kendra; KVK) and public sector providers, such as the extension and research systems, and technical cooperation agreements will be reached between agencies to this effect. Activities at the village level will be implemented by the GPs to promote direct community/ beneficiary participation. The proposed MG will be designed during the first year of implementation to be informed by the GP-RMPs and implemented from the second project year. The MG will be managed under a single scheme with appropriate 'windows' and distinct procedures governing the provision of grants to group assets and private assets and will be described in the Grants Manual. An EC will be chaired by the Additional Chief Secretary to *inter alia* review annual workplans and facilitate coordination across Departments.

B. Results Monitoring and Evaluation Arrangements

39. **The PMU will be responsible for establishing a comprehensive Monitoring and Evaluation (M&E) system and coordinating all M&E activities, which will be carried out by project staff, an M&E agency, and community monitoring.** Specific M&E components are: (a) program evaluation; (b) community monitoring by beneficiary communities via web-based tools and field verification; (c) Project Management Information System (PMIS) utilizing appropriate GIS/ spatial technologies for remote monitoring of schemes, project reporting, and outreach/ communication; (d) training for project staff; and (e) a Project Completion Report. TA and capacity-building activities will be implemented under Component 3B. Component 1A will include third-party monitoring, including by beneficiary communities. The Results Framework includes gender indicators, a citizen engagement indicator and applicable corporate results indicators.

C. Sustainability

40. **This project will contribute to the improved implementation of national and state-level policy and programs promoting sustainable irrigation development and CSA.** By supporting improved agricultural

production in areas downstream from these investments, the project will contribute to increased water use productivity only where water supply has been increased. Since large (above 10 MW capacity) hydropower projects are legally mandated to contribute at least 2.5 percent of total project investment costs to implement CAT plan investments, project investments are expected to improve the effectiveness of CAT plan contributions. Furthermore, project investments in improved training and capacity for community members and officials will create a sense of ownership and the human capital necessary to expand CSA and promote IWM reforms.

IV. Project Appraisal Summary

A. Technical, Economic and Financial Analysis

Technical Design of the Project

41. **The technical design includes approaches new to HP with respect to participatory site-specific planning, hydrological monitoring and modeling, and specific climate-smart water use and agriculture practices.** However, these new approaches, whilst innovative to HP, are based on tried and tested methodologies from elsewhere and will be easily managed by the HPFD and the participating beneficiaries. The project will bring in technical expertise when required. The project has been designed so that the components build on one another and ensure the necessary synergies and complementarity to help achieve the PDO and to facilitate implementation.

42. **As noted above, the project's approach to watershed development incorporates national and global experience,** including: (i) supporting the development of CAT plans to guide the selection and location of watershed investments based on improved hydrological modeling; (ii) improving the management of upstream lands to extend the life of constructed watershed interventions, such as check dams, by reducing the volume of run-off and erosion reaching these barriers; (iii) incentivizing adoption of higher efficiency irrigation practices and the adoption of higher-value crops and CSA practices on downstream irrigated lands; and (iv) promoting a more participatory approach to land use planning and decision-making involving local communities to ensure their interests are served alongside government land management objectives. The forest management and watershed investments are also based on proven, locally-relevant methodologies. Where innovative approaches are proposed based on global experience, they will be piloted in controlled conditions and compared against a baseline counterfactual before scaling up innovations proven to be successful.

Economic and Financial Analysis

43. **An economic and financial analysis (EFA) of the proposed project, based on a cost-benefit analysis, Net Present Value (NPV) analysis, and Economic Internal Rate of Return (EIRR) analysis, indicates that the project is economically viable.** The main quantifiable benefits that relate directly to the implementation of the project include: (i) increased forest cover, which will generate a sustainable flow of timber, fuelwood, and NTFPs over time; (ii) improved pasture, fodder raising, and livestock management; (iii) more efficient and productive use of water; (iv) improved yield from agriculture and allied activities and reduced costs from CSA and high value crop interventions; and (iv) increasing revenue from value addition and improved marketing of agricultural crops and NTFPs. In addition, the project will generate many indirect benefits, such as reduction in erosion and soil loss and improved generation of environmental services. Seven main agriculture commodities — maize (unirrigated), tomato, capsicum, cauliflower, beans, ginger and turmeric — were selected to represent a variety of value chains for the summer (Kharif) crop and six commodities – wheat (irrigated and unirrigated), peas, cabbage, garlic and

potatoes for the winter (Rabi) crop. The models included financial performance for scenarios with (WP) and without the project (WOP).

44. ***Economic and Financial Viability*:** The EIRR of the project over a 20-year period for the base case, excluding benefits from reduced GHG emissions, is 44 percent, with an NPV of US$ 390.80 million (INR 27,355 million). When the monetary value of potential GHG emissions is included – estimated at -1.746 million tCO_2e over 20 years – the EIRR increases to 56 percent when using the lower bound of the social value of carbon (average US$ 60 per tCO_2e) and to 60 percent when using the higher bound (average US$ 75 per tCO_2e). The financial internal rate of return of the project over 20 years for the base case, excluding benefits from reduced GHG emissions, is 44 percent, with an NPV of US$ 390 million discounted at 11 percent.

45. ***Sensitivity Analysis*:** A sensitivity analysis assessed the impact of changes in the main parameters of the project on financial outcomes. For example, a 10 percent increase in costs reduces the NPV to US$ 120.42 million (excluding GHG benefits). A 10 percent decrease in benefits reduces the NPV to US$ 99.64 million (excluding GHG benefits). A combined increase in cost by 5 percent and reduction in benefits by 5 percent reduces NPV to US$ 110.03 million. Table 1 below highlights results of the economic analysis, financial analysis, and sensitivity analysis.

Table 1: Summary of economic and financial analysis

Economic Analysis			**Financial Analysis**		
Particulars	**INR (lakh)**	**US$ (Million)**	**Particulars**	**INR (lakh)**	**US$ (Million)**
Present Value of cost @6% discounting	10,64,751.63	1,521.07	Present Value of cost @11% discounting	6,11,820.65	874.03
Present value of benefit @6% discounting	13,38,308.66	1,911.87	Present value of benefit @11% discounting	7,57,295.57	1,081.85
Cost benefit ratio	1.26		Cost benefit ratio	1.24	
NPV @6% discounting	2,73,557.03	390.80	NPV @11% discounting	1,45,474.91	207.82
EIRR	44%		FIRR	41.69%	

Greenhouse Gas Accounting

46. **The project will generate carbon benefits from the increased GHG sequestration and reduced emissions expected to arise from project activities,** which will: (i) increase forest cover; (ii) reduce grassland (pasture) degradation; (iii) reduce the area burnt by forest fires; and (iv) improve the agricultural GHG footprint. The *ex-ante* estimation of the GHG balance for the HP project is shown to be negative, leading to no net emissions and actually leading to net carbon sequestration. The source of GHG is due to the application of fertilizer, pesticide, and compost. The results indicate a negative GHG balance of -1,745,884 tCO_2e over 20 years. The annual negative GHG balance is estimated to be -87,294 tCO_2e/year for the total project. The net GHG benefit per hectare for the project area is estimated to be 0.6 tCO_2/ha/year. The negative GHG balance estimated using EX-ACT shows that the project interventions will lead to net CO_2 sequestration.

B. Fiduciary

Financial Management

47. **The financial management (FM) arrangements for the project are fully reliant on 'country systems'.** Key design features include use of GoHP's Integrated Online Treasury Information System (HP OLTIS) and the Bank's simplified disbursement policies to mainstream the project's FM arrangement within the state's own FM framework. The FM responsibilities for the project will be vested with the PMU established within HPFD. The FM and accountability arrangements are described below:

- *Planning and budgeting.* PMU will prepare a consolidated annual work program (AWP) for the project based on inputs from DPOs. This AWP will be reflected in the allocations proposed under the budget heads created specifically for the project in HPFD's annual demand for grants;

- *Flow of funds.* World Bank funds will be provided to GoI and made available to the GoHP in accordance with standard arrangements between the GoI and the states. Within the state, funds will be routed through GoHP's budget and will be provided to HPFD, which will allocate budgets in the state treasury system as per approved AWP to the Chief Project Director for further distribution to the DPOs;

- *Internal control, rules, and regulations*. The internal control framework and administrative procedures applicable to the project are laid out in the HP Financial Rules 2009 and Himachal Pradesh Forest Manual 2013. Further, project-specific FM arrangements will be documented in the Project Implementation Plan (PIP). The approval of this document by the Bank will be a loan disbursement condition;

- *Accounting and financial reporting*. Project accounts will be maintained on cash basis. Payment for all expenses will be made electronically from the state treasury system;

- *External audit*. The Controller and Auditor General (CAG) will be the external auditor for the project. The audit report will be submitted by the PMU to the World Bank within nine months from the close of the financial year; and

- *Disbursement arrangements.* The PMU will prepare interim unaudited financial reports (IUFRs) from the accounting records maintained in the state treasury system for submission to the World Bank within 45 days from the end of each calendar quarter. Disbursements by the Bank will be made based on these IUFRs. Under the retroactive financing provision, project-related expenditure incurred up to one year before the expected date of signing of the loan Agreement, subject to a maximum amount of US$16 million, can be claimed.

Procurement

48. **All goods, works, consulting and non-consulting services to be financed by the Loan will be procured in accordance with the World Bank's Procurement Regulations for IPF Borrowers** (dated July 2016; revised November 2017 and August 2018), and the provisions of the Loan Agreement. If there is conflict between government decrees, rules, and regulations and the IBRD Procurement Regulations, then the IBRD's Procurement Regulations shall prevail. The project will be subject to World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines"), dated October 15, 2006 and revised in January 2011 and as of July 1, 2016. The project will use the online tool Systematic Tracking of Exchanges in Procurement (STEP) to prepare, clear, and update its procurement plan and

conduct all procurement transactions. Unless otherwise agreed with the IBRD, the World Bank's Standard Procurement Documents, Requests for Proposals, and Forms of Consultant Contract will be used.

49. **Procurement under the Project will be carried out at the central level by the PMU, at the District level by the 10 district project offices, and by 428 participating GPs at the village level** to promote direct community/ beneficiary participation. Officials of the PMU have prior experience of implementing a World Bank-financed project and have also undergone training in STEP. To meet the readiness requirements, the project has already initiated procurements of a few small-value goods and seasonal, demand-driven nursery works. The procurement profile of goods includes *inter alia*, supply and installation of water monitoring systems, satellite imagery, machinery and equipment for nursery development, fire-fighting equipment, IT equipment, etc. The procurement profile of minor works comprises of, amongst others, small pond excavation, community tank renovation, roof rain-water tank installation, strengthening of traditional irrigation channels, and gravity and lift intake and distribution structures, footbridges, ropeways, nursery works, etc. The procurement profile of consultancies includes PMIS, M&E, internal audit, GP-RMP preparation, non-Governmental organizations (NGOs) to mobilize communities, consultancy for capacity building of farmer/ producer groups, consultancy for CAT plan preparation, engineering design consultants to design monitoring stations, development and implementation of IT-strategy, development and delivery of new training modules required for changing role of the HPFD, developing portal for Integrated Financial Management Information System (IFMIS), need-based diagnostic studies and assessments, and individual exerts, etc.

50. **The project includes several features of a decentralized, demand-driven project, and activities to be taken up at the community level by selected beneficiaries shall be as per the GP-RMP approved by the PMU and GP.** The threshold of procurement activities at community level is expected not to exceed the Request for Quotation (RFQ) threshold. Community-level procurement shall follow Community-Driven Development (CDD) arrangements as per the World Bank's Procurement Regulations and as outlined in the PIP. Given other on-going government programs, the activities to be funded following the PIP shall be identified upfront to avoid double-dipping and will require close monitoring and oversight.

51. **Project Procurement Strategy for Development (PPSD) and Procurement Plan.** According to the requirement of the World Bank's Procurement Regulations, a PPSD has been developed, based on which the Procurement Plan for the first 18 months has been prepared. The PPSD describes how procurement in this project will support the PDO and deliver value for money under a risk-based approach. It provides adequate supporting market analysis for the selection methods detailed in the procurement plan. The procurement plan specifies for each contract: (i) a description of the activities/contracts; (ii) selection methods to be applied; (iii) estimated cost; (iv) time schedules; (v) IBRD review requirements; and (vi) any other relevant procurement information. The PMU shall submit to the IBRD, for its review and approval, any updates of the procurement plan approved by the IBRD. The project will use STEP system for all its procurement activities.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

52. **ESS1: Assessment and Management of Environment and Social Risks and Impacts.** The project will undertake measures to improve the state of water resources in HP towards ensuring sustainability and climate resilience in the agriculture sector. It will achieve this through interventions across the areas of natural resource management, forestry, and agriculture. Following the World Bank's Environmental and Social Framework (ESF), and specifically the Environment and Social Standards (ESS), HPFD has undertaken an Environment, and Social Assessment (ESA) study to identify, assess and mitigate the environmental and social risks and impacts related with the project interventions. The ESA involved desk review of relevant environment and social studies, datasets, and assessments carried out under the earlier World Bank-supported projects on watershed development, hydropower, roads, and water sector operations in the state, as well as site visits and stakeholder consultations in 10 project districts.

53. **The environmental risk rating of the project is 'Moderate'.** Overall, the impacts of the project-financed activities on forest cover and quality, water and sediment regulation, water use efficiency and carbon sequestration are expected to be positive keeping in view the proposed activities envisaged at this stage of the project. It is thus understood that "no adverse impacts to critical habitats are expected" because activities will be outside critical natural habitats or any activities that would impact on critical habitats will not be financed. No adverse impacts to critical habitats or cultural heritage are expected.

54. **The ESA covers the potential for manageable social risks and impacts** that come from: (i) small scale infrastructure related to soil and water conservation; water harvesting, storage, and distribution; and market access; (ii) potential need for temporary restrictions on grazing, pasture, and nursery areas; and (iii) requirements for voluntary land donation. Another potential social risk is the exclusion of disadvantaged and vulnerable groups, such as small and marginal farmers, nomadic tribes and transhumants, and scheduled castes and scheduled tribes, as well as women, from project-supported plans, investments, and benefits. The potential for local disputes/ conflicts on sharing of water, pastures, and common resources also exists. Given the localized scope and scale, and overall predictability and manageability of potential social risks and impacts, coupled with the adequate capacity of HPFD to implement the risk mitigation actions, the social risk profile is moderate.

55. **Based on the ESA, HPFD has prepared an Environment & Social Management Framework (ESMF) that lays down practical and risk-appropriate measures to screen, mitigate, and minimize any environment and social risks and potential impacts.** The ESMF applies to all project components and interventions, and includes Labor Management Procedures (LMP), Community Health and Safety Guidelines, Resettlement Policy Framework (RPF), Indigenous Peoples Planning Framework (or Tribal Development Framework: TDF), Gender Action Plan (GAP), Stakeholder Engagement Plan (SEP), Integrated Pest and Nutrient Management Plan (IPNMP) and Biodiversity Management Plan, as well as sector-specific Environment and Social Management Plans (ESMPs). An Environment and Social Commitment Plan (ESCP) has been prepared and agreed with the HPFD. The ESMF also includes suitable implementation processes and arrangements for screening, as well as implementation, supervision, and monitoring of the various plans, frameworks, and the ESMPs. Implementation arrangements at the state, district, and block level have been agreed. These include appointment of Social and Environment Specialists and supporting consultants at state level PMU, as well as Experts at DPO and Assistant Project Officer (APO) levels, including social, forestry, and agriculture extension staff at the field offices. The PMU environmental and social specialists will hold the overall responsibility for implementing the ESMF, ESMPs, and the ESCP through their field staff and reporting on it. Along with regular bi-annual reporting on ESMF implementation, an

Environment and Social Audit/ Review will be conducted in the third and fifth year of project implementation. ESMF implementation will be monitored through indicators on the number of project experts trained on the ESF, number of sector-specific ESMPs implemented in GPs, number of grievances received and resolved, area-specific tribal development and mitigation plans prepared, and the number of stakeholder engagement events.

56. **HPFD has basic capacity to manage and mitigate the environment and social risks and impacts under this project.** However, in light of the newer requirements on stakeholder engagement, labor management, community health and safety, and critical habitats, the ESMF includes measures to build the implementing agency's capacity, as well as the associated line departments, focusing on implementation, monitoring, and reporting of the ESMF and ESS-related Plans, as well as sector-specific ESMPs. This will be done through training, exposure visits, customized training materials/ guidelines, and learning events. The focus of the capacity building measures will be on project extension staff based in the blocks, including social, forestry, and agriculture extension officers. The state-level Environment and Social expert in the PMU will guide the Field-level staff on implementation of the ESMF and build their capacity through trainings and capacity building that will be designed based on an ESF Training Calendar. The ESMF also has made provisions for adequately qualified environmental and social experts, as well as resources for engaging specialist consultants/ agencies.

57. **The project would ensure targeting and inclusion of the key vulnerable groups, especially the landless, agricultural laborers, nomadic tribes, and women-headed households from SC/ ST households, within the planning and implementation processes and community institutions.** Such vulnerable households will be identified and targeted in the village planning exercise, as well as in beneficiary selection for individual and group assets, formation of beneficiary groups, livelihood support interventions, dedicated consultations and identification of special measures for such vulnerable households. Through the GAP, Women farmers/ land owners, workers, women-headed households, and community leaders will be systematically identified and included in the GP-RMPs, beneficiary group leadership, training programs, subproject investment planning, and beneficiary lists. The existing cadre of largely women social mobilisers will be provided additional training to implement dedicated interventions for women and special vulnerable groups. Convergence with existing state-level schemes for skill and enterprise development and financial inclusion will be supported. Special pilot interventions in partnership with resource agencies will be explored.

58. **ESS2 Labor and Working Conditions:** Infrastructure and civil works related to soil and water conservation, water harvesting and distribution, plantations, pasture and nursery development, and market access will involve large numbers of small-scale contracts executed through local contractors and mostly local labor. More than 90 percent of labor will be local men from neighboring areas, with a small share coming from other states and Nepal. No labor camps, as well as community workers, are anticipated. Risk for gender-based violence, child/ bonded labor, and hazardous work and/ or accidents is assessed as low. To address any potential labor risks and impacts, an LMP proportional to the project risks has been prepared. The LMP has specific provisions on working terms and conditions, occupational health and safety, child/ forced labor, and gender-based violence, as well as a labor-focused grievance redress mechanism.

59. **ESS3 Resource Efficiency and Pollution Prevention and Management:** Risks are anticipated from pest management, fertilizer use, and the generation of different types of waste. An IPNMP has been prepared to promote safe, effective, and environmentally-sound pest management in agricultural/ horticultural interventions, to promote use of biological control methods and reduce synthetic chemical pesticides, and to increase capacity on addressing these issues. It includes guidance on the proper storage, handling, and disposal of pesticides. To address resource efficiency and pollution management across other interventions, such as infrastructure, storage,

and processing, an ESMP will provide necessary site-specific guidance to mitigate the potential environmental and social impacts.

60. **ESS4 Community Health and Safety:** No significant impacts on community health and safety are anticipated mainly due to the small-sized civil works that do not involve transport, heavy equipment, deep excavation, dams, or hazardous materials. The ESMF includes community health and safety guidelines that provide for specific prevention and mitigation measures related to design and construction, labor, water sustainability, health, community safety, and general work site-related hazards.

61. **ESS5 Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement.** Project interventions will not require acquisition of private lands or cause any involuntary resettlement or physical relocation. Such activities have been put under the negative list. However, investments on soil and water conservation, water harvesting, storage/ distribution systems, and market infrastructure will require small parcels of government land or private land through transfer or voluntary land donation. Investments in plantations, common lands, and fodder plots may involve temporary, community adopted/ regulated restrictions that may adversely affect some households. To mitigate and manage any small-scale adverse impacts arising either from voluntary land donation and/ or use restrictions, an RPF has been prepared in line with the requirements of ESS5. The RPF includes screening for adverse impacts, guidelines for voluntary land donation and documentation, and provision for community-planned mitigation measures, when needed.

62. **ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources:** Potential risks to biodiversity and ecosystem services could arise from unmanaged chemical pesticide and fertilizer use and agricultural run-off, use of non-native varieties, habitat and land-use conversion, and the unsustainable harvesting of NTFPs. A Biodiversity Management Plan has been prepared with key strategies for biodiversity conservation, and the screening and eligibility checklists for interventions have provisions to ensure that the following activities will not be supported under the project: those with any adverse or irreversible impacts to critical and natural habitats, those that could cause forest fires, those that involve the felling of trees without a permit, and those not in consonance with existing forest working plans or CAT plans. A separate IPNMP will address risks from pesticide and fertilizer use.

63. **ESS7 Indigenous Peoples:** Indigenous Peoples (IP) (or STs) are dispersed in varying numbers across the ten project districts and the identified Gram Panchayats, though they are largely concentrated around Chamba and Kangra. Officially notified indigenous peoples' areas (*Schedule V areas*) with significant tribal populations are not part of the project. The ESA involved field visits to these tribal areas and consultations with tribal communities. Focused consultations were also held with the transhumant tribal communities, mainly *Gaddis* and *Gujjars*. Project interventions will not cause any adverse impacts on the lands, livelihoods, resources, and cultural properties of IPs. An Indigenous Peoples Planning Framework (IPPF) or TDF, has been prepared that provides for specific measures to ensure socially- and culturally- compatible project interventions that enjoy broad community support in the tribal villages. These measures include: (i) screening and documentation of, and focused consultations with, tribal households during GP-RMP planning process; (ii) targeting and tracking of tribal households in beneficiary lists for common assets and individual benefits; (iii) use of local tribal language in information dissemination; and (iv) capacity building and *convergence* with other government schemes targeting tribal areas The livestock interventions will, in particular, provide project benefits to the transhumant nomadic tribes that are traditionally dependent on grazing and common pastures. The TDF envisages preparation and implementation of area-focused tribal development plans (TDPs) that would include additional community-identified interventions for tribal communities.

64. **ESS8 Cultural Heritage:** The Project areas are likely to have several pilgrimage sites and places of religious prominence, sacred groves, and sacred water sources, and there is a risk of impacts on cultural heritage. The ESMF includes suitable screening and chance find procedures that apply to the preparation and implementation of the GP-RMPs from a physical cultural resources perspective.

65. **ESS10 Stakeholder Engagement**. As part of the ESA, the HPFD has undertaken stakeholder consultations in ten project districts, focusing on the primary stakeholders and main beneficiaries of the project that include farmers, women's groups, and GP leaders, as well as disadvantaged and vulnerable groups, such as marginal farmers, landless households and agricultural laborers, SC and ST households, and traditional pastoralists and transhumants. Consultations saw good participation from men and women residents, including disadvantaged and vulnerable groups. Special consultations were also held in economically disadvantaged GPs, tribal villages, and transhumant habitations, along with elected leaders and officials of the GPs and the line agencies. The outcome of the consultations has been incorporated in the project design through provision for community tanks, fodder plots, water conservation and distribution measures, and promotion of climate-resilient agriculture and improved livestock rearing practices. The needs of transhumants are being addressed through livestock interventions. The development priorities of vulnerable households will be met through their systematic identification and inclusion in the GP-RMP process and beneficiary lists and easier beneficiary contribution norms, while their engagement needs will be met through special consultations, focus groups, and facilitation by social mobilisers. The SEP includes multiple channels of communication and engagement with project stakeholders, including information campaigns, stakeholder meetings, review meetings, web disclosure, and beneficiary feedback mechanisms throughout the life of the project. This will be done through print, audiovisual, telephone, and a website, as well as periodic surveys and consultations. The SEP also includes establishment of an accessible and inclusive grievance redress mechanism that would be rolled out in project villages.

66. **Gender**: **Women are predominantly engaged in agriculture and post-harvest activities, driven by male out-migration.** Almost 90 percent of the tasks related to agriculture and off-farm activities in Himachal are carried out by women. Dwindling agriculture productivity, low irrigation levels, and its impact on agri-based livelihoods are likely to impact women cultivators more prominently as compared to men. Further, women (small and marginal) farmers in the state also face barriers in accessing post-harvest equipment, demonstrations on agriculture technology, and micro-irrigation interventions. To address these gaps, the project will: (a) actively include interventions put forth by women's federations in GP-RMPs; (b) improve the service delivery mechanism of on-farm and off-farm activities for women cultivators through training and capacity building of agriculture extension officers; (c) subsidize the beneficiary contribution for individual women cultivators, women-headed households and women's groups for specific activities identified under sub-project investments; (d) prioritize women-headed households in provision of micro-irrigation facilities and (e) appoint women as treasures in users' groups created to manage resources under agriculture extension services.

V. GRIEVANCE REDRESS SERVICES

67. **Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS).** The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project-affected communities and individuals may submit their complaint to the WB's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns

have been brought directly to the World Bank's attention and World Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service, please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

68. **The overall project risk is assessed as Moderate**.

69. **Institutional Capacity for Implementation and Sustainability risk is rated Substantial.** Past World Bank investments in watershed development in HP have been implemented through a quasi-independent Society with representation from all relevant line departments but with budget and staffing largely reliant upon World Bank finance. This project will instead invest directly in building the capacity, tools, and systems of the HPFD to ensure the long-term sustainability of its support to IWM. Through Components 1 and 2, the project will support more sustainable forest and land management practices, and Component 3 will identify opportunities for increased cooperation among state departments and with local communities through an IWM institutional assessment.

70. **Fiduciary risks are rated as Moderate.** Given that the implementing agency no longer lies outside the state treasury system, the overall FM risk is rated to be Moderate. The key risk mitigation measures include: (i) providing regular trainings in accounting and internal controls; (ii) designing financial management guidelines for the OMIF and matching grants; and (iii) inclusion of transparency and accountability mechanisms for project investments. Procurement under the project will be implemented by the PMU of the HPFD, ten district project offices, and 428 participating GPs. The 2019 procurement risk assessment of PMU and district project offices – in conjunction with the PPSD – has been carried out and is available in the World Bank's Procurement Risk Assessment Management System (PRAMS). The current risk is assessed as *Moderate*. HPFD staff have prior experience of implementing the HP Mid-Himalayan Watershed Development Project (HPMHWDP) that had a project life of nine years and ended in March 2017. Past procurement performance of HPMHWDP has been rated as Satisfactory. However, the earlier project was governed by the Procurement Guidelines and the current project will be governed by the Procurement Regulations for Borrowers under the Procurement Framework (PF). Application of the IBRD's procurement procedures under the PF will require participation of PMU, district staff, and identified GPs in training on the PF. The other risks identified include: limited capacity and inefficiencies resulting in delays in procurement and contract management processes, risks of non-compliance with agreed procurement arrangements due to lack of clarity on which rules apply (GOHP/ Procurement Guidelines/ Procurement Regulations), and coordination risks with other line departments. Additionally, for procurement at GP level, although the amount per transaction is expected to be small and subprojects scattered, the volume of transactions poses a risk in terms of monitoring and supervision. Mitigation measures are available in Annex 1.

71. **Environmental and social risks are assessed as Moderate.** Given that most environment and social impacts are going to be small-scale, localized, reversible, temporary, and mitigatable in scope and nature, and the borrower has the adequate institutional experience, technical expertise, and capacity to mitigate and manage these risks and impacts, the risk profile is assessed as Moderate.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: India

Integrated Project for Source Sustainability and Climate Resilient Rain-fed Agriculture in Himachal Pradesh

Project Development Objectives(s)

To improve upstream watershed management and increase agricultural water productivity in selected Gram Panchayats in Himachal Pradesh.

Project Development Objective Indicators

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
To improve upstream watershed management in selected Gram Panchayats (GPs) in Himachal Pradesh.							
Land area under sustainable landscape management practices (CRI, Hectare(Ha))		0.00	5,000.00	10,000.00	10,000.00	11,000.00	12,000.00
Area managed for improved soil (Hectare(Ha))		0.00	0.00	200.00	500.00	1,000.00	1,200.00
Number of reforms recommended by the institutional assessments that are implemented (Number)		0.00	0.00	0.00	1.00	3.00	5.00
To increase agricultural water productivity in selected Gram Panchayats (GPs) in Himachal Pradesh.							
New farm area brought under higher efficiency irrigation		0.00	0.00	50.00	100.00	150.00	200.00

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
through project support in targeted GPs (Hectare(Ha))							
Share of participating farmers adopting climate smart agriculture practices (Percentage)		0.00	0.00	15.00	30.00	40.00	50.00
Share of participating farmers adopting climate smart practices that are female (Percentage)		0.00	0.00	10.00	15.00	20.00	30.00
Share of participating farmers who give a rating of “Satisfied” or above on process and realized benefits of project interventions (Percentage)		0.00	0.00	30.00	50.00	70.00	75.00
Share of participating female farmers who give a rating of “Satisfied” or above on process and realized benefits of project interventions (Percentage)		0.00	0.00	30.00	50.00	70.00	75.00

Intermediate Results Indicators by Components

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Component 1. Sustainable Land and Water Resource Management							

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Survival rate of seedlings planted with project support (Percentage)		0.00	60.00	65.00	70.00	80.00	80.00
Percentage of women signatories engaged in approving GP-RMPs (Percentage)		0.00	20.00	30.00	30.00	30.00	30.00
Component 2. Improved Agricultural Productivity and Value Addition							
Farmers reached with agricultural assets or services (CRI, Number)		0.00	0.00	8,000.00	12,000.00	18,000.00	20,000.00
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	0.00	1,000.00	3,000.00	4,280.00	4,280.00
Farmers reached with agricultural extension or training – Male (Number)		0.00	0.00	0.00	2,000.00	5,000.00	10,000.00
Farmers reached with agricultural extension or training – Female (Number)		0.00	0.00	0.00	1,000.00	2,000.00	3,000.00
Farmers adopting improved agricultural technology (CRI, Number)		0.00	0.00	1,000.00	3,000.00	5,000.00	10,000.00
Farmers adopting improved agricultural technology - Female (CRI, Number)		0.00	0.00	300.00	1,000.00	2,000.00	3,000.00
Farmers adopting improved agricultural technology - male (CRI, Number)		0.00	0.00	700.00	2,000.00	5,000.00	7,000.00

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Area provided with new/improved irrigation or drainage services (CRI, Hectare(Ha))		0.00	0.00	500.00	1,000.00	1,500.00	1,500.00
Area provided with new irrigation or drainage services (CRI, Hectare(Ha))		0.00	0.00	500.00	1,000.00	1,300.00	1,300.00
Area provided with improved irrigation or drainage services (CRI, Hectare(Ha))		0.00	0.00	50.00	100.00	150.00	200.00
Share of user groups for agriculture extension services with female treasurers (Percentage)		0.00	0.00	0.00	10.00	20.00	30.00
Component 3. Institutional capacity building for integrated watershed management							
Technical staff of participating line departments trained on integrated watershed management (Number)		0.00	50.00	100.00	150.00	300.00	400.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Land area under sustainable landscape management practices	The indicator measures, in hectares, the land area for	Annual	Project MIS	Program evaluation for baseline, year 3 and	M&E Technical Support Agency for baseline,

	which new and/or improved sustainable landscape management practices have been introduced. Land is the terrestrial biologically productive system comprising soil, vegetation, and the associated ecological and hydrological processes; Adoption refers to change of practice or change in the use of a technology promoted or introduced by the project; Sustainable landscape management (SLM) practices refers to a combination of at least two technologies and approaches to increase land quality and restore degraded lands for example, agronomic, vegetative, structural, and management measures that, applied as a combination, increase the connectivity between protected areas, forest land, rangeland, and agriculture land.			year 5. Project data /process monitoring for other years.	midline and endline and process monitoring; PMU for project data.

Area managed for improved soil	This is a supplemental indicator that will measure the area under all soil conservation investments, including physical investments (check dams, contour bunds, etc.) and improved farming practices that increase soil quality and/or reduce erosion.	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data for other years	M&E Technical Support Agency for baseline, midline and endline; PMU for project data
Number of reforms recommended by the institutional assessments that are implemented	This indicator will measure progress towards institutional and policy reform based on the completion of reforms identified in the Forest Department Functional Review and the Integrated Watershed Management Institutional Review. These reforms may include inter alia the (a) development and implementation of a comprehensive HPFD IT and knowledge strategy that integrates all relevant applications on a common geospatial platform and allows for watershed-level planning; (b) development and implementation of a	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data for other years	M&E Technical Support Agency for midline and endline; PMU for project data

	comprehensive HPFD M&E system; (c) establishment of a centralized staff performance monitoring system; and (d) development of regulatory and management standards for pastures.				
New farm area brought under higher efficiency irrigation through project support in targeted GPs	This is an outcome-level PDO indicator that will measure the new farm area brought under higher efficiency irrigation systems in the GPs targeted by the project. Higher efficiency irrigation systems include drip, sprinkler, and other water storage, distribution, and delivery systems with efficiencies higher than traditional flood irrigation. This indicator measures the short-term (2 years) behavior-change outcome of greater adoption of higher efficiency irrigation systems, which will be influenced by project investments in improved extension and partial funding for group and	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data

	household-level water infrastructure. In the medium term (by end of project, EOP), the combined adoption of these improved irrigation systems and higher-value crops is expected to lead to improved agricultural water productivity, and in the longer-term (beyond EOP) these outcomes are expected to lead to improved farmer incomes and greater climate resilience.				
Share of participating farmers adopting climate smart agriculture practices	This is a medium-term outcome-level indicator that will measure behavior change by farmers project participants in terms of sufficient adoption of recommended CSA practices. This is driven by project investments in improved extension and access to finance for inputs required to adopt CSA technologies. "Project participants" is defined as all farmers that are provided	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data.

	with any Component 2 activity, including trainings, demonstrations, inputs, marketing, and grants. In the longer-term, it is expected that adoption of CSA practices will lead to increased agricultural water productivity, increased carbon sequestration, and increased climate resilience.				
Share of participating farmers adopting climate smart practices that are female	This indicator will measure the closure of a key gender gap related to technology adoption.	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data
Share of participating farmers who give a rating of “Satisfied” or above on process and realized benefits of project interventions	This is a citizen engagement indicator to measure beneficiaries' satisfaction with the project's interventions.	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data
Share of participating female farmers who give a rating of “Satisfied” or above on process and realized benefits of project interventions	This indicator will measure the level of satisfaction with the project of female beneficiaries.	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for

					project data

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Survival rate of seedlings planted with project support	Survival rate of seedlings relates to the PDO objective to improve management of upstream forests and pasture areas in accordance with resource management plans because good seedling survival is a prerequisite for successful plantations. This is an outcome-level indicator that stems from project investments in improved nursery development, training, and grazing/fire management in plantations under Component 1 and capacity building for the HPFD and communities under Component 3. This indicator measures a short-term outcome directly attributable to the project	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data for other years	M&E Technical Support Agency for baseline, midline and endline; PMU for project data

	that will lead to longer-term project impacts, including improved forest cover and carbon sequestration.				
Percentage of women signatories engaged in approving GP-RMPs	This indicator will measure the closure of a gender gap related to women's roles as planners and decision-makers related to natural resources in their communities. Percentage of women signatories will be monitored for every targeted GP. "GP-RMP" refers to the Gram Panchayat Resource Management Plan, which will be the primary planning process used to inform project investments.	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Farmers reached with agricultural assets or services	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data

	non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business				

	(disaggregated by men and women) targeted by the project.				
Farmers reached with agricultural assets or services - Female		Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Farmers reached with agricultural extension or training – Male	This is a supplemental indicator that will track the number of participating male farmers that receive extension services and/or training by the project.	Annual	Project MIS	Program evaluation in years 3 and 5. Project data/process monitoring in others.	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Farmers reached with agricultural extension or training – Female	This is a supplemental indicator that will track the number of participating female farmers that receive extension services and/or training by the project.	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Farmers adopting improved agricultural technology	This indicator measures the number of farmers (of agricultural products) who have adopted an improved agricultural technology promoted by operations supported by the World Bank. NB: "Agriculture" or	Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data

	"Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber and non-timber forest products. Adoption refers to a change of practice or change in use of a technology that was introduced or promoted by the project. Technology includes a change in practices compared to currently used practices or technologies (seed preparation, planting time, feeding schedule, feeding ingredients, postharvest storage/ processing, etc.). If the project introduces or promotes a technology package in which the benefit depends on the application of the entire package (e.g., a combination of inputs such as a new variety and advice on agronomic practices such as soil preparation, changes in seeding time, fertilizer schedule, plant protection,				

	etc.), this counts as one technology. Farmers are people engaged in farming of agricultural products or members of an agriculture related business (disaggregated by men and women) targeted by the project.				
Farmers adopting improved agricultural technology - Female		Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data
Farmers adopting improved agricultural technology - male		Annual	Project MIS	Program evaluation for baseline, year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for baseline, midline and endline and process monitoring; PMU for project data
Area provided with new/improved irrigation or drainage services	This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data

	(ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).				
Area provided with new irrigation or drainage services	Measures in hectares the total area of land provided with new or improved irrigation or drainage services in operations supported by the World Bank.	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Area provided with improved irrigation or drainage services	Measures in hectares the total area of land provided with new or improved irrigation or drainage services in operations supported by the World Bank.	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Share of user groups for agriculture extension services with female treasurers	This is a gender indicator to track the closure of a key gender gap related to women's leadership.	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data
Technical staff of participating line departments trained on integrated watershed management	This is an output-level indicator measuring the number of technical staff of line departments participating in the project (including project staff) that have been trained by the	Annual	Project MIS	Program evaluation for year 3 and year 5. Project data/process monitoring for other years	M&E Technical Support Agency for midline and endline and process monitoring; PMU for project data

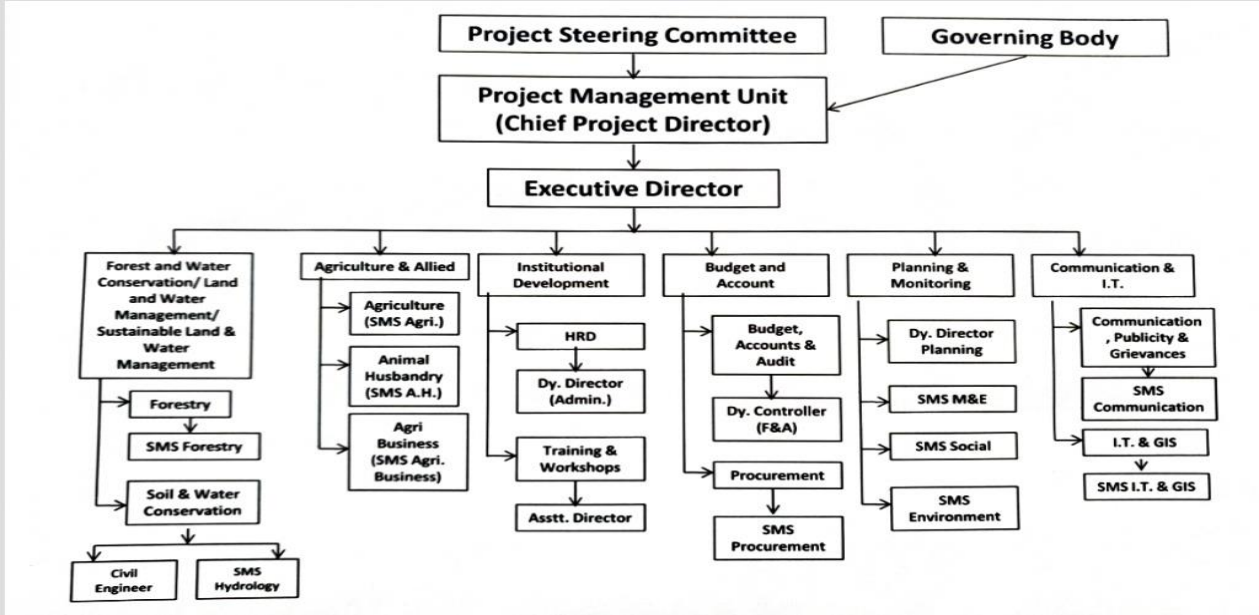
	project. Each person that has participated in any training supported by the project will be counted only once.				

ANNEX 1: Implementation Arrangements and Support Plan

1. **The project will be implemented by a dedicated PMU legally constituted under the HPFD.** A project EC will be established chaired by the Additional Chief Secretary and will include Secretaries from key line departments. The EC will include officials from the project and key line departments, as well as representatives from local government. The EC will provide overall guidance and the authorizing environment to the project. Key issues of coordination and convergence (see below) will be addressed by the EC, as well as approval of workplans and other major strategic decisions. The PMU will undertake overall planning and implementation of the project. The PMU consists of a Chief Project Director assisted by an Executive Director and six directors of departments (three technical and three administrative), as well as other senior staff, including social and environmental specialists, community engagement/ social extension experts, and GIS experts. Specific details of their roles and responsibilities will be articulated in the PIP; Figure 2 provides an organogram of the project implementation structure.

2. **The project will include DPOs to provide direct support to the District-level project offices which are responsible for district-level implementation.** DPOs will be responsible for implementation, supported by an assistant, and a small technical staff, including a district-level monitoring officer. DPOs will be accountable for all activities at district and GP level.

Figure 2: Project Implementation Organogram



Convergence and Alignment with Existing Programs

3. **The project will explicitly seek convergence with existing national and state-level interventions that support similar objectives to the PDO.** This will be a particular focus of the EC. Operationally, at the state level, the project will coordinate with Administrative Secretaries, heads of departments of line departments, and project directors of other externally-funded projects, as well as other government programs (e.g., the state Rural

Livelihoods Mission to ensure the active contribution of vulnerable groups in the preparation of GP-RMPs under Component 1 and the KVKs to implement research and extension activities under Component 2). At the district level, the project will coordinate with the Deputy Commissioner (the senior-most civil servant at the District level), District heads of line departments, and the *zila parishad* (i.e. the District councils).

Financial Management

4. **The FM responsibilities for the project will be vested with the PMU established within HPFD.** The PMU has the requisite capacity for implementing World Bank-funded operations. The FM arrangements for the project are fully reliant on 'use of country systems'. With the recent integration of HPFD within the state treasury system for fund disbursement and expenditure control, the HP OLTIS will be relied on for providing the necessary fiduciary assurance under the project. The overall FM risk is accordingly assessed as **Moderate**.

5. **HP has a long-standing engagement with the World Bank,** having implemented World Bank-financed projects in several sectors, such as watershed management, public financial management, and infrastructure development (roads). Lessons learnt from projects implemented in the past and those under implementation in the state indicate that it is advisable to use existing state arrangements for flow of funds and accounting, since staff are familiar with these. Also, the use of 'ring fenced arrangements', i.e. the use of commercial banking arrangements, often requires substantial and intensive inputs in capacity support, which is difficult to sustain.

6. **As part of project preparation, a FM assessment was carried out for the HPFD,** which included collection and analysis of data, as well as review and discussions on implementation arrangements. The institutional arrangements have been finalized based on several factors, such as sustainability and accountability, and the FM arrangements have been designed to mirror the same.

7. **The budget process for HPFD is elaborated in the Forest Manual Volume II, 2013 (Budget and Accounts).** The Department's budget estimates for the ensuing financial year, included in the annual budget tabled in the state legislature, are prepared as per timelines specified in the budget circular issued every year in end-August by the state Finance Department. However, district-level plans and budget estimates are prepared and approved only after the start of the new financial year, i.e. after the budget has been passed for the Department by the State Legislature. This bottom-up budgeting process is usually completed in May and for FY 2019-20 was done online through the Department's own MIS software – the integrated forest management system (IFMS).

8. **The state government has created separate account heads in the budget for the project.** However, to allow fund flows and expenditure recording to be aligned with the project components, additional account heads will be opened for the project for FY 2020-21. Also, the PMU will review the annual work plans/ budgets of all the participating districts under the project and prepare a consolidated AWP for the project at the time of finalization of the Department's aggregate budget, i.e. before start of the new financial year. This exercise should give due consideration to the funding proportion of the state government and the IBRD for the budget year. The consolidated AWP-cum-Budget will be submitted by the PMU to the HPFD for its approval before onward submission to the state Finance Department.

9. **Flow of funds.** IBRD funds will be provided to the GoI and made available to the GoHP in accordance with standard arrangements between the GoI and the states. Budgeted funds (IBRD and counterpart share) for the project will be routed through the GoHP's state budget and will be provided to the Principal Chief Conservator of

Forests (PCCF). For the project, the PCCF will allocate budgets as per approved AWP to the Chief Project Director for further distribution to the DPOs of the participating districts. The DPOs, as the drawing and disbursing officers of the Department, will be responsible for verifying and approving OMIF grants and matching grants under Component 2.

10. **Internal control, rules, and regulations.** The GoHP's internal control framework, administrative procedures, and Department-specific guidelines applicable to the project transactions are laid out in the HP Financial Rules 2009 and Himachal Pradesh Forest Manual 2013. Further, project-specific internal control arrangements will be documented in the PIP and Grants Manual, which will specifically detail the applicable accountability framework for the OMIF and matching grants disbursed under the project. Such a framework will include, inter alia, (1) provision of social audits; (2) mandatory disclosure of grant amounts at the GP, district office, and Deputy Commissioner's Office; and (3) appointment of an independent verification agency to check utilization of grants on an annual basis using a sampling methodology. The issuance of the Grants Manual, which has been reviewed and approved by the IBRD, will be a disbursement condition under the project.

11. **Accounting and financial reporting.** Project accounts will be maintained on a cash basis as per Government of India systems and in line with Himachal Pradesh Financial Rules, 2009. As per the existing state financial framework, payment for all expenses will be made electronically from the state treasury system (HP OLTIS) post submission of vouchers by the DPOs. No payments, including as grants, will be done in cash.

12. **The PMU will prepare unaudited interim financial reports** (IFRs) from the accounting records maintained in the state treasury system. The IFRs will be submitted to the World Bank within 45 days from the end of each calendar quarter.

13. **External audit.** The CAG, through the offices of the Auditor General in Shimla, will be the external auditor for the project. The scope of audit will be as per the terms of reference agreed with the office of the CAG. The audit report for the project will be submitted by the PMU to the IBRD within nine months from the close of the financial year. The audit report for the expenditures incurred under the retroactive financing provision will be combined with the first-year audit report.

14. **Public disclosure.** The annual audited project financial statements and the audit report will be disclosed on the website of the HPFD and the IBRD.

15. **Financial Management Manual.** The arrangements described above will be documented in the PIP. The fund flow, accounting and reporting, disbursement, and audit arrangements for each of the project components and for the project as a whole will be detailed in this document.

16. **Staffing and training.** To ease the transition to state treasury system, the team responsible for maintaining accounts in the district project office will be supported by one additional resource person (office assistant/ computer operator/ data entry operator), who will be hired on a contractual basis ensuring his/ her continuity throughout the project period. Also, the PMU will ensure all necessary staff in district project offices are provided training on using the state treasury system for making payments.

Disbursements

17. **Disbursement schedule.** Loan funds will be disbursed under the following category/-ies subject to the allocated amount and the disbursement percentage as indicated in Table 2 below.

Table 2: Disbursement Schedule

Category	Amount of the Loan Allocated (Expressed in US$)	Percentage of Expenditures to be Financed (Inclusive of Taxes)
(1) Gods, works, non-consulting services, Training and workshops, and Operating Costs for the Project	73,372,000	80%
(2) Matching Grants for individuals and groups under Component 2 of the Project, and for the OMIF under Component 1.B(c) of the Project	6,428,000	100%
(3) Front-end Fee	200,000	Amount payable pursuant to Section 2.03 of this Agreement in accordance with Section 2.07(b) of the General Conditions
(4) Interest Rate Cap or Interest Rate Collar premium	0	Amount due pursuant to Section 4.05(c) of the General Conditions
Total Amount	**80,000,000**	

18. **Retroactive financing.** GoHP will seek retroactive financing, not exceeding 20 percent of the IBRD financing (i.e. US$16 million), for project-related work undertaken by the borrower during project preparation, in advance of effectiveness. This will be eligible for financing subject to compliance with the IBRD's procurement procedures. Expenditures incurred up to one year before the expected date of signing of the Loan Agreement. For retroactive financing, the PMU will submit a separate stand-alone unaudited IFR certifying the actual expenditure incurred.

Procurement

19. **General Procurement Objectives and Applicable Procurement Rules.** The procurement of goods, works, consulting and non-consulting services to be financed by the Loan will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers (dated July 2016; revised November 2017 and August 2018), and the provisions of the Loan Agreement. If there is a conflict between government decrees, rules, and regulations and the World Bank's Procurement Regulations, then the World Bank's Procurement Regulations shall prevail. The project will be subject to World Bank *Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines")*, dated October 15, 2006 and revised in January 2011 and as of July 1, 2016. The project will use the online STEP tool to prepare, clear, and update its procurement plan; for monitoring procurement activities; and for communication between the Borrower and the IBRD. Unless otherwise agreed with the IBRD, the World Bank's Standard Procurement Documents, Requests for Proposals, and Forms of Consultant Contract will be used. Procurement under national procedures will be carried out based on National Procurement Procedures (NPP) conditions agreed with the Government of India. Procurement estimated at INR 5 Lakhs and above will be submitted through government eProcurement systems provided by the National Informatics Centre (NIC), which have been assessed and deemed acceptable by the IBRD against Multilateral Development Bank requirements.

20. **The project includes several features of a decentralized, demand-driven project**, and activities to be taken up at the community level by selected beneficiaries shall be as per the GP-RMP approved by the PMU of

the HPFD and shall include the matching grant scheme. The threshold of procurement activities at community level is expected not to exceed the RFQ threshold. Community-level procurement shall follow Community-Driven arrangements as per the World Bank's Procurement Regulations and as outlined in the Grants Manual currently under preparation. Given other on-going government programs, the activities to be funded following the Grants Manual shall be identified upfront to avoid double-dipping and will require very close monitoring and oversight.

Specific Procurement Objectives

21. **The procuring entities under the project (PMU, HPFD and DPOs) will endeavor to monitor procurement progress through the below objectives:** (i) to achieve the PDO together with Value for Money, Transparency, and Integrity; (ii) ensure economy by maximizing the participation of bidders and timely operationalization of the assets created; (iii) efficient selection of the suppliers/ contractors, resulting in fair sharing of risks and thereby enhancing quality of deliverables; (iv) to achieve effective time adherence and minimize cost variations through efficient and effective contract management; (v) ensure timely and efficient availability of material/ goods/ works/ non-consulting services and consultants, and training, in line with the Procurement Plan within budget and on time, and in compliance with the Procurement Regulation for IPF Borrowers of the World Bank; and (vi) effective and efficient handling of procurement-related complaints and disclosure of procurement information.

Procurement Result Indicators

22. **The result indicators used to measure the above objectives are:** (i) percentage of PMU and DPO procurements that adhere to estimated costs with less than $\pm$ 10 percent variance; (ii) percentage adherence to procurement cycle time (procurement cycle time is time taken from the date of invitation of bids/ RFQ to the date of contract award); (iii) percentage purchase orders/contracts with adherence to stipulated payment terms; (iv) disclosure of procurement information, including but not limited to opportunities/formats and checklists/ contract award notices/procurement post review reports, complaint handling mechanism, etc., on the project website; and (v) procuring entities have received at least one training in procurement as the first step to build procurement capacity.

23. **Summary from PPSD.** The project has prepared its Procurement Strategy document, which has involved supply market analysis to facilitate a satisfactory procurement outcome. As per its PPSD, the project's total value is US$100 million of which procurement spend is approximately US$80 million. Based on the need assessment, the project has decided to use the Government e-Marketplace (GeM)[2] for procurement of Goods and Non-Consulting Services up to US $100,000.

24. **Based on the draft PPSD, a draft procurement plan has been prepared** to set out the selection methods to be followed by the Borrower during project implementation in the procurement of goods, works, non-consulting and consulting services financed by the IBRD. The procurement profile under the project is likely to include, but not be limited to, the following levels articulated in Table 3 below.

[2] *https://gem.gov.in/*

Table 3:

Procurement Level	Category	Description	Approximate Estimated Cost/Duration of contract/ Section Methods and Market Approach Options
PMU *[Approximately 6.68 percent of value of procurement]*	Minor Civil Works	Extension, refurbishment and repair of office buildings, etc.	US$ Million:1.04 Duration: 6-9 months RFB/RFQ
	Goods and Non-Consulting Services	Purchase of IT Equipment such laptops, computers, printers, etc. Printing services for IEC, office vehicles, office furniture, etc.	US$ Million: 2.43 Duration: 6-9months RFB/RFQ/GeM
	Consultancy Services	Consultancy services for baseline survey, internal audit, MIS, M&E, GP-RMP preparation, consultancy for capacity building of producer groups, consultancy for CAT plan preparation, engineering design consultants to design monitoring stations, development and implementation of IT-strategy, development and delivery of new training modules required for changing role of the HP Forest department, developing portal for Integrated Financial Management Information System [IFMIS], need based diagnostic studies and assessments, and individual exerts, etc.	US$ Million: 2.0 Duration: 4-9months RFP
DPOs *[Approximately 66.26 percent of value of procurement]*	Goods and Non-Consulting Services	Procurement of barbed wire, U/Staple, tools, gunny bags, vermicompost/farmyard manure, sand, seeds, wooden posts/poles, seedlings, grass tufts, sign boards/handprints, seed testing instruments, medicines, supplements, sprinklers, seedlings, etc.	US$ Million: 7.15 Duration: 3-6 months RFB/RFQ/GeM
	Minor Civil Works	Procurement of works for construction of water storage tanks, water channels, vermicompost pits, livestock mangers, foot bridges, water lifting pumps, GI pipes, accessories, installation of ropeways, ponds, check dams, sub-surface dykes, sump wells, etc., and labor contracts for preparing land for nursery, preparing nursery beds, water tank, works of filling gunny bags, sowing of seeds, preparing temporary nursery sheds, watering, hoeing, weeding, fencing, bush cutting, pit digging, planting seedlings, preparing contour trenches, planting grass tufts, drainage line treatment works, fire management works, allowances and incentives for fire management, spring development, eradication of exotic weed, lantana, etc.	US$ Million: 47.12 Duration: 3-6 months RFB/RFQ
GP Level User Groups *[Approximately 21.82 percent of value of procurement]*	Goods and Non-Consulting Services and minor works	Procurement of equipment related to modest agricultural infrastructure investments including irrigation tanks, secondary irrigation canals, power tillers and accessories, seed, fertilizers, pesticide, livestock - Small and large ruminants, agri-tools and implements, equipment, farm machinery, e.g., power tiller, chaff cutters, pipes, tarpaulins, male buffalo [for breeding purposes], goat, agricultural inputs including quality seeds and fertilizer, sprinkler/drip irrigation kits; etc.	US$ Million: 17.86 Duration: 2-3 months RFQ
Individual Beneficiary *[Approximately 5.24 percent of value of procurement]*	Goods and Non-Consulting Services	Fodder manger, chaff cutter, handheld agriculture tools, sprayers, sprinkler/drip irrigation kits, seeds, fertilizers, pesticide, livestock - small and large ruminants, agri-tools and implements, equipment, farm machinery, e.g., power tiller, chaff cutters, pipes, tarpaulins, etc.	US$ Million: 4.28 Duration: 1-2 months RFQ

Procurement and Contract Approaches

Table 4:

Attribute	Selected Arrangement
Best and Final Offer (BAFO)	No
Negotiations	No

25. **Procurement Spend under the Project is approximately 80 percent of the total project cost**, as per the cost tables prepared by the Project, as articulated in Table 5 below:

Table 5:

	Description of Spend	PMU Level Spend (INR Lakhs)	DPO Level Spend (INR Lakhs)	Beneficiary Level [GP + Individual] Level Spend (INR Lakhs)	Total Spend (INR Lakhs)	Spend as a percentage of Total Project Cost (percent)
1	Goods	1,396.65	4,960.90	14,725.00	2,1082.55	30.12
2	Minor Civil Works	730.00	32,986.91	-	33,716.91	48.17
3	Consultancy Services	1,402.83	0.00	-	1,402.83	2.00
4	Non-Consultancy Services	306.54	43.71	775.00	1,125.25	1.61
5	Capacity Building initiative/Trainings	1,092.02	0.00	-	1,092.02	1.56
6	Operational Costs like Salaries, AMCs, etc.	8,715.92	0.00	-	8,715.92	12.45
7	Miscellaneous	1,237.68	1,626.86	-	2,864.54	4.09
	Total Spend	**14,881.64**	**39,618.38**	**15,500.00**	**70,000.02**	**100**
Total project cost (INR Lakhs) : 70,000.00 approximately **Procurement as a Value and percent of Total Project Cost (sum of S. Nos. 1, 2, 3 and 4)**					**57,327.54 Equivalent to US$[3] 81.89 Million**	**81.90**

26. **Client Capability Assessment.** The Project will be implemented, monitored, and coordinated under the overall guidance and oversight of the PMU, HPFD, headed by a Chief Project Director. Procurement and contract management will be carried out at PMU, district, and GP levels. The PMU is fully functional with core staff in place deputed from various line departments, including procurement. The procurement staff (one) at the PMU is from Treasury and Accounts Office, Finance Division of GoHP, with about 10-12 years of past experience of dealing with Government-funded procurement. At the District Level, ten DPOs (one per District) will be the procuring entities implementing project procurement activities. The DPO with the support of an accounts assistant will be responsible to support the GPs in carrying out their procurements, as well as for district-level procurements envisaged under the project. At sub-district level, there are 26 APO who will monitor and implement the project in 428 GPs. The APO with the assistance of two Social Extension and two Forest Extension officers will be mainly responsible for contract monitoring and supervision at GP level. At the GP level, procurement will be carried out at village level by beneficiaries, supported by DPOs.

27. **HPFD staff have prior experience of implementing the HPMHWDP.** The past procurement performance of the HPMHWDP has been rated as Satisfactory. However, the earlier project was governed by the Procurement

[3] 1 US$ = INR 70.00 approximately

Guidelines, whereas, the current project will be governed by the Procurement Regulations for IPF Borrowers (dated July 2016; revised November 2017 and August 2018) under the PF. Risks identified primarily include limited capacity and inefficiencies resulting in delays in procurement and contract management, risks of non-compliance with agreed procurement arrangements due to lack of clarity on which rules apply (GOHP/ Procurement Guidelines/ Procurement Regulations), and coordination risks with other line departments. Procurement capacity at community level may result in implementation delays and fiduciary non-compliance, hence, capacity enhancement and regular oversight are necessary.

28. **Mitigation measures agreed with the client include providing training in the World Bank's PF and providing fiduciary training to GPs prior to implementation of their approved GP-RMPs/ MGs/ OMIF.** Further, although procurement at community level is not likely to exceed the RFQ threshold, it will be in accordance with CDD arrangements provided in the World Bank's Procurement Regulations and shall be governed by procedures outlined in the GM currently under preparation as part of the PIP by the Project. GPs at various locations will be aided by standard specifications and the Bureau of Indian Standards, and preparation of a rate bank of commonly-procured items for GPs in common locations will mitigate the risk of price variance in the procurement of the same item at different locations. Timely disclosure of procurement and contract award information and timely audits will also bring in transparency and accountability. Other mitigation measures include the inclusion of a procurement chapter in the PIP to guide the project in procurement implementation and the IFMIS being developed under the project, which will provide monthly reports on physical and financial progress. Geo-tagging of community sub-investments will enhance transparency. The terms of reference (ToR) for internal audit will include review of procurement on a sample basis.

29. **Procurement Capacity Building.** It is recommended that key procurement staff of the PMU and district offices be sent to the Indian Institute of Management (IIM), Lucknow or the Administrative Staff College of India (ASCI), Hyderabad from time to time to attend procurement training on World Bank Procurement Framework applicable to the project. The project can also avail of the free Massive Open Online Course on public procurement [*www.procurementlearning.org*] offered by the World Bank to build their capacity.

30. **Procurement Planning**. For each contract to be financed by the Loan, the different procurement methods or consultant selection methods to be used, the need for pre-qualification, estimated costs, prior review requirements, and time frame will be reflected in the Procurement Plan to be agreed between the Borrower and the IBRD team. The Procurement Plan will be uploaded in STEP by the PMU/ DPOs, and the approved procurement plan will be disclosed on the project website and IBRD's external website. The procurement plan for the first 18 months of project implementation will be submitted to the IBRD through STEP and will lay out the appropriate, fit-for-purpose market approach and selection methods for procurement of goods, works, non-consulting, and consulting services financed by the IBRD. The procurement plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

31. **Systematic Tracking of Exchanges in Procurement**. The project will implement STEP, a World Bank procurement planning and tracking system, which will provide data on procurement activities and establish meaningful and measurable benchmarks. Training on STEP has already been provided to PMU staff nominated in the past. The Bank will also arrange STEP training for district officials who will be involved in the procurement transactions under the project.

32. **Operating costs** are defined in the Appendix to the Legal Agreement pertaining to this project and may include, amongst others, cost of operation, rent and maintenance of offices, utilities, communication costs, incremental staff salaries (including government staff on deputation to the Project), training and travel allowances of project beneficiaries and project staff related to project implementation, coordination, and monitoring, but excluding the salaries of civil servants of the Borrower. The day to day operation costs related to vehicle hiring would also be supported. These items are to be procured using the Borrower's national procurement and administrative procedures, acceptable to the IBRD.

33. **eProcurement.** Currently, the HPFD is using an e-procurement system for its procurement. However, the PMU will be carrying out procurement using eProcurement for the first time in the project. The project shall build the capacity for eProcurement and shall make use of the GoI's NIC platform assessed by the IBRD against Multilateral Development Bank requirements for procurement of goods, works, consultancy, and non-consultancy services estimated at INR5 Lakhs and above.

34. **Advance Contracting with Retroactive Financing**. For effective project implementation and effective start-up, the project has initiated advance contracting of goods, services, and critical consultancies, which forms approximately 1.23 percent of the IBRD financing of US$80 million. These include procurement of vehicles, IT equipment and accessories (laptop/ printers/ GPS devices, printers, photocopiers), goods and services for nursery development that is both demand-driven and seasonal in nature, critical consultancies for preparation of the ESF, preparation of the PIP, etc. Payments made by the HPFD/ PMU during the 12 months prior to the Loan signing date for these contracts following World Bank procurement procedures shall be eligible for retroactive financing.

35. **Record Keeping**. All records pertaining to award of tenders/ selection of consultants, including tender notification/ advertisement, registers pertaining to sale and receipt of bids, bid/ proposal opening minutes, bid /technical and financial evaluation reports and all correspondence pertaining to bid evaluation, communication sent to/ shared with the IBRD in the process, bid securities, and approval of invitation/ evaluation of bids/ proposals will be maintained by the Procurement Cell of the PMU and at district level.

36. **Contract Management.** The procurement unit under the PMU of the HPFD will be responsible for overall procurement and contract management under the project. The procurement officials in the PMU and district offices aided by identified thematic area experts will monitor and supervise overall procurement implementation to ensure that the intended benefits and outcomes of contracts under the project are achieved on time, within the estimated budget, adhering to health and safety requirements, avoiding and managing complaints and disputes that may arise effectively and fairly, and ensuring that timely payments are made to suppliers/ vendors/ contractors/ consultants contracted under the project.

37. **Complaint Handling Mechanism.** A complaint handling mechanism to address procurement-related complaints under the Project will be developed and implemented by the PMU/ DPOs to the satisfaction of the IBRD. Upon receipt of complaints, immediate action will be initiated to acknowledge the complaint and to redress it within a reasonable timeframe. All complaints will be addressed at levels higher than the level at which the procurement process was undertaken, or the decision was taken. Any complaint received will also be forwarded to the IBRD for information, and the IBRD will be kept informed after the complaint is redressed.

38. **Procurement Thresholds and Prior Review Thresholds.** Table 6 below describes various procurement methods to be used for activities financed by the Loan.

Table 6: Procurement Thresholds

Procurement approach and method	Thresholds (US$ equivalent)
Open International (Goods, IT, and Non-consulting services) – Request for Bids (RFB)	>10 million
Open National (Goods, IT, and Non-consulting services) – Request for Bids (RFB)	>100,000 and up to 10 million
National Request for Quotation (RFQ) – (Goods/Works)	Up to 100,000
Open International (Works) – Request for Bids (RFB)	>40 million
Open National (Works) - Request for Bids (RFB)	>100,000 and up to 40 million
Direct Selection	With prior agreement, based on justification
Framework Agreement	For Goods/Works/Non-consulting services: According to paragraphs 6.57-6.59 of Section VI of the Regulations For Consulting services: According to paragraph 7.33 of Section VII of the Regulations
Force Account	In accordance with paragraphs 6.54 and 6.55 of Section VI of the Procurement Regulations, and with prior agreement in Procurement plan with the Bank
Consulting Services (Firms)	CQS : As per requirements of paragraphs 7.11 and 7.12 of Section VII of the Regulations LCS, FBS: in justified cases QCBS, QBS: in all other packages
Shortlist of National Consultants	Up to 800,000

39. **Procurement prior-review thresholds**[4]**.** Based on the current procurement risk rating of 'Moderate', the IBRD will prior review the following contracts:

(a) Works (including turnkey, supply, and installation of plant and equipment and PPP): All contracts more than US$15 million equivalent

(b) Goods and Information Technology: All contracts > US$4 million equivalent

(c) Non-consulting Services: All contracts > US$4 million equivalent

(d) Consulting Services: Firms: All contracts >US$2 million equivalent

(e) Consulting Services: Individuals: All contracts > US$400,000 equivalent

(f) Direct Selection: The justification of Direct Selection for all contracts

40. **The above thresholds are for the initial 18-month implementation period. Based on the procurement performance of the project, these thresholds may be subsequently modified.** Even for large-value post review cases, the inputs of the IBRD on technical specifications will be obtained by the project. Irrespective of the thresholds, Terms of Reference shall be prior reviewed by IBRD. The prior review thresholds will also be indicated

[4] *Determination of whether a contract meets the prior review threshold is based on : (i) the total value of the contract, including all taxes and duties payable under the contract; (ii) a contract whose cost estimate was below the IBRD's prior review threshold is subject to prior review if the price of the lowest evaluated responsive bid (or, in the case of consulting services, the financial offer of the selected firm) exceeds such threshold at the bid evaluation stage; and (iii) in the case of a slice and package arrangement, the prior review threshold is determined based on the aggregate value of individual contracts to be awarded under such arrangement.*

in the Procurement Plan. The Procurement Plan will be subsequently updated annually (or at any other time if required) and will reflect any change in the prior review thresholds. The details of NPP are outlined in the Procurement Plan.

41. **Prior review contracts.** In the case of contracts subject to prior review, PMU, HPFD and DPOs will seek the IBRD's no objection before granting/ agreeing to: (a) an extension of the stipulated time for performance of a contract that either increases the contract price or has an impact on the planned completion of the project; (b) any substantial modification of the scope of works, goods, IT system; non-consulting services; or consulting services and other significant changes to the terms and conditions of the contract; (c) any variation order or amendment (except in cases of extreme urgency) that, singly or combined with all variation orders or amendments previously issued, increases the original contract amount by more than 15 percent; and (d) the proposed termination of the contract. Complaints received in all prior review cases shall be sent to IBRD for review, and the response to the complaint in such cases shall be cleared with the IBRD. Complaints with allegations of fraud and corruption shall be shared with the IBRD, irrespective of the thresholds.

42. **Disclosure of procurement information.** The following documents shall be disclosed on the project/ state websites: (a) Procurement Plan and its updates; (b) an invitation for bids for procurement of Works, Goods, IT system procurement, and non-consulting services; (c) request for expression of interest for selection/ hiring of consulting services; (d) contract awards of Works, Goods, IT system procurement, and non-consulting services procured following international and national procedures; (e) a list of contracts/ purchase orders placed following RFQ procedures on a quarterly basis; (f) a list of contracts following direct contracting on a quarterly basis; (g) an annual financial and physical progress report of all contracts; and (h) an action taken report on the complaints received on a quarterly basis.

43. **The following details shall be sent to the World Bank for publishing on the United Nations Development Business and the IBRD external website:** (a) Specific Procurement Notice (i.e., invitation for bids) for procurement of Works, Goods, IT system procurement, and non-consulting services using open international procedures; (b) Requests for Expression of Interests above US$800,000; (c) contract award details of all procurement of Works, Goods, IT system procurement, and non-consulting services using open international procedure; and (d) a list of contracts/ purchase orders placed following direct contracting procedures on a quarterly basis. Further, the implementing agency will also publish on their websites any information required under the provisions of '*suo moto*' disclosure as specified by the Right to Information Act.

44. **National Procurement Procedure Conditions.** National competition for the procurement of Works, Goods, IT system procurement, and non-consulting services according to the established thresholds will be conducted in accordance with paragraphs 5.3–5.5 of Section V of the Regulations and the following provisions:

I. Only the model bidding documents for National Competitive Procurement (NCP) agreed with the Government of India Task Force (and as amended for time to time), shall be used for bidding.
II. Invitations to bid shall be advertised on a widely used website or electronic portal with free open access at least 30 days prior to the deadline for the submission of bids, unless otherwise agreed in the approved procurement plan.
III. No special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders, state-owned enterprises, small-scale enterprises, or enterprises from any given state.

IV. Except with the prior concurrence of the IBRD, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder.
V. The Government e-Marketplace set-up by Ministry of Commerce, Government of India will be acceptable for procurement under RFQ method.
VI. At the Borrower's request, the IBRD may agree to the Borrower's use, in whole or in part, of its electronic procurement system, provided that the IBRD is satisfied with the adequacy of such system.
VII. Procurement will be open to eligible firms from any country. This eligibility shall be as defined under Section III of the Procurement Regulations. Accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the IBRD for reasons other than those provided in Section III of the Procurement Regulations.
VIII. The request for bids/ request for proposals document shall require that Bidders/ Proposers submitting Bids/ Proposals include a signed acceptance in the bid, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including without limitation the IBRD's right to sanction and the IBRD's inspection and audit rights.
IX. The Borrower shall use an effective complaints mechanism for handling procurement-related complaints in a timely manner.
X. Procurement Documents will include provisions, as agreed with the IBRD, intended to adequately mitigate against environmental, social (including sexual exploitation and abuse and gender-based violence), health, and safety ("ESHS") risks and impacts.

45. **Oversight and Monitoring by the IBRD.** All contracts not covered under prior review by the IBRD will be subject to post review during implementation support missions and/or special post review missions, including missions by consultants hired by the IBRD. The IBRD may conduct, at any time, Independent Procurement Reviews (IPRs) of all the contracts financed under the loan. High risk procurements, if any, will be identified for increased procurement and contract management support and indicated in the procurement plan. The IBRD team will provide additional due diligence and independent review of the contract performance of such identified procurements.

46. **Procurement Review by the PMU, HPFD.** Independent procurement post review (PPR) with reporting requirements and agreed with the IBRD (as per Paragraph 4 of Annex II of the Procurement Regulations) will be undertaken for the project for PMU's own internal due diligence. The PMU will hire PPR consultants as per ToRs and reporting requirements agreed with the IBRD to conduct semi-annual PPRs of the PMU and DPOs.

47. **Frequency of procurement supervision**. The IBRD will normally carry out implementation support missions, including review and support on procurement, on a semi-annual basis. Mission frequency may be increased or decreased based on the procurement performance of the project.

Environment and Social Standards

48. **This is the first IBRD project in HP under the new ESS.** Although the project is rated as Moderate risk for ESF, implementation support will focus on the application of the new standards and in particular the regular monitoring and revision as necessary of the ESCP.

Monitoring and Evaluation

49. **The PMU will have overall responsibility for the M&E system, with support from the DPOs and field officers and an M&E Technical Support Agency (TSA)**. The PMU will be responsible for reporting the status of all Results Framework and allied Key Performance Indicators to the IBRD as part of regular implementation support missions and for reviewing and taking decisions to improve project implementation based on continuous process monitoring and citizen feedback. The DPOs will be responsible for overseeing the process monitoring data collection and citizen engagement feedback and for ensuring that project data are entered into the PMIS by project field staff. The PMIS will build on the previous HPMHWDP MIS and other HPFD databases to the extent possible and will be compatible with the HPFD IT system.

50. **To address M&E capacity limitations identified in the previous HPMHWDP and current PMU, the PMU will hire a qualified M&E TSA or agencies (under Component 3B) to provide TA to the program evaluation, process monitoring, community monitoring, MIS development, and training of project staff, as detailed below:**

a. **Program Evaluation:** Take complete responsibility to document detailed requirements (including measurement of Results Framework and other selected indicators); study design and analysis methodology; sampling plan, including sample size and identification of treatment and if applicable comparison units; questionnaire development for the midline and endline surveys; define quality control mechanisms for data collection; prepare a terms of reference and support the PMU in procuring additional data collection agencies for the surveys; monitor the data collection agencies for high quality and correctness; and submit midline and endline evaluation reports. It is expected that the agency will work in cooperation with the IBRD, particularly for the review of technical methods, alignment to evaluation requirements, and to achieve the highest quality standards of the evaluation due to the technical complexity of this evaluation and because of its criticality as an input into the final evaluation of this project. Given the scarcity of capable M&E agencies available in the market, suitable quality-based procurement methods are recommended.

b. **Process Monitoring:** Take responsibility for conducting quarterly process monitoring reviews to provide correct, useful, and actionable feedback and recommendations for the PMU and DPOs. This includes identifying the scope of each round in discussion with the PMU, preparing a sampling plan and questionnaires for different stakeholder types, deploying field teams to collect the data, and preparing reports and presentations to the PMU aligned to IBRD review missions for joint learning and action. The agency will train 1-2 community members per GP to be part of the process monitoring team and conduct social audits through the Gram Sabha during the project and beyond.

c. **Community Scorecards:** Prepare forms, protocols, a mobile-based software application and back-end server for citizen engagement feedback (community monitoring).

d. **PMIS Development:** Identify PMIS needs and design and implement a simple IT-based project MIS based on the identified needs. The M&E TSA will work closely with the PMU to identify the PMIS requirements and user testing of a web-based PMIS software application that incorporates community monitoring data and basic GIS mapping to geo-locate project investments and monitor implementation and other data, such as vegetative cover, moisture, and water sources for irrigation schemes, to inform the project's M&E.

e. **Training of Project Staff:** Train PMU staff and DPOs on good M&E practice, the project's detailed theory of change, and the project's M&E system, including their respective roles and responsibilities.

f. **Project Completion Report:** This is a mandatory documentation of the PMU's self-assessment on the project's relevance, effectiveness, impact, sustainability, efficiency and learnings to inform the project's Implementation Completion Report.

Implementation Support

51. **The World Bank team will provide intensive implementation support throughout the project period, with a particular focus on the initial implementation phase to ensure rapid start-up.** As a joint project of the Agriculture and Food and Environment, Natural Resources, and Blue Economy Global Practices (formally mapped to the former reflected in the accountable task team leader), the project will benefit from combined technical implementation support from agriculture, with an emphasis on CSA and agribusiness, and environment, with a focus on land and forest management and SLWM more broadly. The core IBRD team includes seasoned staff from Headquarters and within the Asia sub-region and from the New Delhi office. This reflects the importance of a mix of skills and proximity to the client, especially during the early phases of project implementation. Regular technical missions will be fielded on an as-needed basis (in addition to the bi-annual implementation support missions) to ensure smooth implementation. The IBRD team will also continue to liaise closely with other project teams in HP (especially the HP Horticulture project) and managing similar SLWM-focused operations to ensure regular and continuous lesson-learning across the portfolio.

ANNEX 2: Economic and Financial Analysis

1. The project supports the development of land-based resource management in the upper catchments of targeted micro-watersheds to enhance agriculture and water productivity in 428 GPs. The EFA follows the resource linkage approach in up-stream and down-stream villages that the project is adopting to achieve the PDO. Project interventions will be planned and executed through preparation of GP-RMPs. Component 1 related to source sustainability will be implemented by the PMU and district offices of HPFD while Component 2 (Improved Agriculture Production and Value Addition) will be implemented through communities.

2. **Data:** The data used for the EFA include (i) crop productivity and area under different crops in target GPs from GoHP sources; (ii) current market prices and wholesale price index for agriculture commodities for future estimates; (iii) area to be treated under Components 1 and 2 and use of cost norm and schedule of rates of HPFD for forestry operations, soil and water conservation measures, and community-based civil works; (iv) current salary structure of the HP NRM Society for hired professionals and government pay-scales for technical staff on deputation from the GoHP; and (iv) approved cost norms for training and capacity building, etc. The project EFA has used with and without project scenarios for estimating additional costs and benefits. In addition, data for crop budgets were provided by the GoHP. All the production budgets are based on 2019-20 prices. Salaries are adjusted for a 3 percent annual increment, and the costs of works are adjusted for a 9 percent annual increment based on the data provided for the last six years by the HPFD. For the purpose of economic analysis, transfer payments have been reduced from the costs. The average increment of biomass accumulation is 8 m^3/ha/year for forests and 3 m^3 for grass in forest areas. Average annual GHG reduction is estimated to be 87294 tCO_2e. The incremental cost of production is INR 20,000 in existing agricultural lands and INR 140,000 for new agricultural added as a result of project interventions. The price of fuelwood in the local market is INR 2,000 per m^3, and the price of timber is INR 25,000 per m^3. The price of grass in INR 5,000 per MT.

3. **Beneficiaries**. The direct project beneficiaries are small producers (farming households) of the selected GPs, NTFP collectors, agri-entrepreneurs, and private sector agribusinesses. The project will impact 74,273 ha of farmland in kharif and 62,715 ha in rabi, with additional coverage of 9,460 ha and 11,964 ha in kharif and rabi, respectively. The estimation of the direct beneficiaries is 74,000 producers (average farm size of 1 ha.). At an average family size of 5.4, approximately 400,000 people are expected to benefit from the project over a 5-year project period. In addition, it is estimated that an additional 10 percent of direct beneficiaries, amounting to 7,500 households would also benefit indirectly through backward and forward linkages that are created due to increased business. The main project benefits are increased biomass (forests) and agriculture production, increased farmer incomes, increased business for agri-entrepreneurs, and reduction of GHG emissions, as well as increased food production in the state and incremental income to the national economy. Employment generation is also a benefit of the project, which includes labor use in forestry operations, crop cultivation, processing, and marketing.

4. Table 7 below summarizes the cropping pattern for various commodities.

Table 7

Intervention	Without project					With Project			Net value change	Net Change in ha.
	Start Area (Ha.)	Production (Qtl /ha.)	Price (Rs/ qtl)	Pre-proj Total Value INR lakh	With Project Area (ha.)	Production (Qtl/ ha.)	Base Price	Post proj average. Value		
Kharif Crops										
Maize Unirrigated	55743.00	20.00	1500.00	16722.90	55743.00	21.00	1500.00	17559.05	836.14	0.00
Tomato	3625.00	200.00	1500.00	10875.00	7425.00	220.00	1500.00	24502.50	13627.50	3800.00
Capsicum	2700.00	200.00	2000.00	10800.00	5575.00	220.00	2000.00	24530.00	13730.00	2875.00
Cauliflower	1100.00	300.00	2100.00	6930.00	2230.00	330.00	2100.00	15453.90	8523.90	1130.00
Beans	1050.00	100.00	1700.00	1785.00	2220.00	110.00	1700.00	4151.40	2366.40	1170.00
Ginger	320.00	100.00	3600.00	1152.00	560.00	110.00	3600.00	2217.60	1065.60	240.00
Turmeric	275.00	100.00	5700.00	1567.50	520.00	110.00	5700.00	3260.40	1692.90	245.00
	64813.00				74273.00				41842.45	9460.00
Rabi Crops										
Wheat Irrigated	9632.20	25.00	1500.00	3612.08	10788.06	26.88	1500.00	4348.94	736.86	1155.86
Wheat Unirrigated	38528.80	10.00	1500.00	5779.32	43152.26	10.50	1500.00	6796.48	1017.16	4623.46
Peas	1360.00	100.00	2000.00	2720.00	4700.00	110.00	2000.00	10340.00	7620.00	3340.00
Cabbage	455.00	300.00	1500.00	2047.50	1400.00	330.00	1500.00	6930.00	4882.50	945.00
Garlic	325.00	100.00	4000.00	1300.00	1100.00	110.00	4000.00	4840.00	3540.00	775.00
Potato	450.00	100.00	1500.00	675.00	1575.00	110.00	1500.00	2598.75	1923.75	1125.00
	50751.00				62715.32				19720.27	11964.32

5. It is estimated that the area under vegetables will increase by 10 percent and under wheat by 8 percent. The productivity of wheat (irrigated) will increase by 12 percent, wheat (unirrigated) by 5 percent, maize (irrigated) by 10 percent and maize (un-irrigated) by 5 percent. A summary of the economic analysis of the project without the GHG benefit is given below in Table 8:

Table 8

Particulars	INR (lakh)	US$ (Million)
Present Value of cost @6percent	10,64,751.63	1,521.07
Present value of benefit @6percent	13,38,308.66	1,911.87
Cost benefit ratio	1.26	
NPV @6percent	2,73,557.03	**390.80**
EIRR	44percent	

The project's economic analysis with GHG benefit at US$60 per tCO_2e is presented in Table 9:

Table 9

Particulars	INR (lakh)	US$ (Million)
Present Value of cost @6percent	10,64,751.63	1,521.07
Present value of benefit @6percent	13,76,902.56	1,967.00
Cost benefit ratio	1.29	
NPV @6percent	3,12,150.93	**445.93**
EIRR	56percent	

The project's economic analysis with GHG benefit at US$75 per tCO_2e is presented in Table 10:

Table 10

Particulars	INR (lakh)	US$ (Million)
Present Value of cost @6percent	10,64,751.63	1,521.07
Present value of benefit @6percent	13,86,551.04	1,980.79
Cost benefit ratio	1.30	
NPV @6percent	3,21,799.41	**459.71**
EIRR	60percent	

6. **Financial Analysis (FA)**. The FA assesses the financial viability of production and commercial activities against investment in agriculture value chains. It does not take into account the benefits from GHG emission reductions, as the actual realizable value in the national market is zero. The output of the financial viability analysis is presented in Table 11 below.

Table 11

Particulars	INR lakh	US$ (Million)
Present Value of cost @ 11 percent discounting	₹ 6,11,820.65	874.03
Present value of benefit @ 11 percent discounting	₹ 7,57,295.57	1,081.85
Cost benefit ratio	1.24	
NPV @ 11 percent discounting	145474.91	207.82
FIRR	41.69percent	

7. **Sensitivity Analysis.** The results of the sensitivity analysis are presented in Table 12 below.

Table 12

Increase In cost	NPV at 11 percent	Decrease in benefits		
		0 percent	5 percent	10 percent
	0 percent	207.82	153.73	99.64
	5 percent	164.12	110.03	55.93
	10 percent	120.42	66.33	12.23

ANNEX 3: GHG Balance Accounting for HP Project using EX-ACT

Mandate

1. The World Bank Environment Strategy (2012), adopted a corporate mandate to account for the GHG emissions for investment lending. The quantification of GHG emissions and removals (sequestration) is an important step in managing and ultimately reducing emissions (or creating carbon sinks), as it provides an understanding of the project's GHG mitigation potential. Further, the Paris Agreement also mandates reporting of assumptions and methodological approaches, including those used for estimating and accounting for anthropogenic GHG to achieve the goals of Article 2.

Accounting methodology

2. The World Bank has adopted the Ex-Ante Carbon-balance Tool (EX-ACT), developed by FAO in 2010, to estimate the impact of agricultural investment lending on GHG emissions and carbon sequestration in the project area. EX-ACT is a land-based appraisal system that allows the assessment of a project's net carbon-balance, defined as the net balance of CO_2 equivalent GHG that are emitted or sequestered because of project implementation compared to a without project scenario. EX-ACT captures project activities in five modules: land use change, crop production, livestock and grassland, land degradation, inputs, and investment. EX-ACT estimates the carbon stock changes (emissions or sinks), expressed in equivalent tons of CO_2 per hectare and year.

Results of the GHG Balance Analysis

3. Table 13 presents the impact of the project activities or interventions and including inputs in the form of fertilizer and compost on GHG balance (Emissions and Removals). The ex-ante estimation of the GHG balance using Tier 1 for the project is shown to be negative, leading to no net emissions and actually net sequestration. The sources of GHG are the application of fertilizer, pesticide, and compost. The results indicate a negative GHG balance of -1,745,884 tCO2eq over 20 years. The annual negative GHG balance is estimated to be -87,294 tCO2eq/year. The net GHG benefit on a per hectare basis for the project area is estimated to be 0.6 tCO_2/ha/year. The negative GHG balance estimated using EX-ACT shows that the project will lead to net CO_2 sequestration.

Table 13: Greenhouse Gas benefits of project activities under the HP project according to EX-ACT Model

Project activities	GHG benefits during the entire project period of 20 years (tCO_2)eq			GHG benefits per year (tCO_{2eq}/year)		
	Without project scenario	***With project scenario***	***Net carbon balance***	***Without project scenario***	***With project scenario***	***Net carbon balance***
Land Use Change Module						
Afforestation	0	-32,09,944	-32,09,944	0	-1,60,497	-1,60,497
Crop Production Module						
Agriculture – Annual crops	-68,70,463	-61,80,125	6,90,338	-3,43,523	-3,09,006	34,517
Management of Degradation Module						
Degraded forest restoration	3,12,341	-8,14,499	-11,26,840	15,617	-40,725	-56,342
Inputs and Investments Module						
Fertilizers	37,00,614	56,01,176	19,00,562	1,85,031	2,80,059	95,028
Total						
Net Total (tCO_2)eq	**-28,57,508**	**-46,03,392**	**-17,45,884**	**-1,42,875**	**-2,30,170**	**-87,294**
Per hectare per year (tCO_{2eq}/ha) – CO_2 Sequestration	**-1.0**	**-1.6**	**-0.6**	**-1.0**	**-1.6**	**-0.6**

Data Used for EX-ACT Model

Table 14: Data used for Module 1: Crop Production

Module 1: Crop Production								
1. AGRICULTURE CROPS								
Intervention	Start Area (Ha.)	Without Project Area (Ha.)	With Project Area (ha.)	Agronomic practices	Nutrient Management	Water Mgt.	Manure Application	No till & residue Management
Kharif Crops								
				Yes	Yes	Yes	Yes	less Tillage with residue management / mulching etc.
Maize	55743.00	55743.00	55743.00	Yes	Yes	Yes	Yes	-do-
Tomato	3625.00	3625.00	7425.00	Yes	Yes	Yes	Yes	-do-
Capsicum	2700.00	2700.00	5575.00	Yes	Yes	Yes	Yes	-do-
Cauliflower	1100.00	1100.00	2230.00	Yes	Yes	Yes	Yes	-do-
Beans	1050.00	1050.00	2220.00	Yes	Yes	Yes	Yes	-do-
Ginger	320.00	320.00	560.00	Yes	Yes	Yes	Yes	-do-
Turmeric	275.00	275.00	520.00	Yes	Yes	Yes	Yes	-do-
				Yes	Yes	Yes	Yes	-do-
Rabi Crops								
Wheat	48161.00	48161.00	51789.00	Yes	Yes	Yes	Yes	-do-
Peas	1360.00	1360.00	4700.00	Yes	Yes	Yes	Yes	-do-
Cabbage	455.00	455.00	1400.00	Yes	Yes	Yes	Yes	-do-
Garlic	325.00	325.00	1100.00	Yes	Yes	Yes	Yes	-do-
Potato	450.00	450.00	1575.00					

Table 15: Data used for Module 2: Forestry Interventions

Module 2. Forestry Interventions					
Particulars	**Is fire used to clear land**		**Previous land use**	**Area that will be afforested / reforested (ha.)**	
Type of vegetation that will be planted	**Without Project**	**With Project**		**Without Project**	**With Project**
Forestry (conversion of open and degraded forests to high density forests) - mixed broad-leaved forests, Antidesma acuminatum, Dysoxylum gobara, Elaeocarpus tectorius, Leea alata, Litsea monopetala, Mesua ferrea, Polyalthia jenkinsii, Schima wallichii, Shorea robusta	Partial	No	Degraded forest	Degraded forests	800 plants per ha = 3852 ha. 400 plants per ha. 4708 ha. 100 plants per ha. 2140 ha. 1100 plants per ha. 3424 ha. Grass development = 20544 ha.

Table 16: Data used for Module 3: Inputs

Module 3: Inputs										
Input category	**Unit**	**Agriculture**			**Horticulture/ Agro-forestry**			**Forestry**		
		Amount applied			**Amount applied**			**Amount applied**		
		Start of the project	**Without Project**	**With Project**	**Start of the project**	**Without Project**	**With Project**	**Start of the project**	**Without Project**	**With Project**
Lime	Kg/ ha./year	0	0	0	0	0	0	0	0	0
DAP	Kg/ ha./year	0	0	0	0	0	0	0	0	0
12:32:16 (N:P:K Complex Fertilizer)	**Kg/ ha./year**	175	175	235	0	0	0	0	0	0
Compost/ Farm Yard Manure	**Kg/ ha./year**	10000	10000	15000	0	0	0	0	0	0
Urea	**Kg/ ha./year**	200	200	210	0	0	0	0	0	0
Chemical pesticides (carbofuron, Chlorpyriphos)	**Liter/ha/year**	4	4	4			IPM	0	0	0
Chemical herbisides	Kg./ha/year	0	0	0	0	0	0	0	0	0
Chemical fungicides	**Kg./ha/year**	25	25	25	0	0	0	0	0	0
Energy Consumption										
Electricity	KWh / ha/year	Mostly human labour is used. No processing. Fuel used only for transportation of produce to market		Project will promote use of renewable energy (solar, wind, hydro etc.).	Mostly human labour is used. No processing. Fuel used only for transportation of produce to market		Project will promote use of renewable energy (solar, wind, hydro etc.).	Mostly human labour is used. No processing. Fuel used only for transportation of sedlings wood to market		Project will promote use of renewable energy (solar, wind, hydro etc.).
Diesel	Liters/ ha./year									
Gasoline	Liters/ ha./year									
LPG	Liters/ ha./year									
Wood	Kg/ ha./year									

ANNEX 4: Climate Co-Benefits

Background/Climate Vulnerability Context

1. As a mountainous state, HP is particularly vulnerable to climate change and associated risks. Many of the lowland areas available for agricultural production lack access to irrigation water and depend on decreasing amounts of rainfall during the critical monsoon season and annually. Agricultural production and snowlines have already shifted to higher altitudes, significantly impacting the production of fruits, including HP's iconic apples. Climate change is also expected to increase average temperatures and decrease rainfall in the lowlands, while both temperatures and rainfall are expected to increase in the highlands, which could lead to more extreme flooding events downstream, particularly in the context of continued forest degradation.

2. The changing weather patterns in HP highlight that while the monsoon season in HP is expanding, overall rainfall is on a decline. Most weather stations are reporting an increasing trend in temperatures in HP and Jammu & Kashmir in the past 30 years. Snowfall days in Shimla are showing a decreasing trend during the same period. The snowfall season in the state is shrinking with decreasing seasonal snowfall and snowfall days.

3. Given changing weather patterns already observed in HP (annual and monsoon rains declining by 2.26 mm and 2.85 mm per year, respectively; mean annual temperature increasing on 0.02 degrees Celsius per year), progress could be easily reversed unless the state invests in adaptation strategies to increase resilience. The project location has experienced climate and geophysical hazards in the past and is expected to experience these in the future with moderate intensity, frequency, or duration.

Component-wise Adaptation and Mitigation Climate Co-Benefits

4. The main design of the project is to build both adaptation and mitigation measures for source sustainability of selected watersheds in HP. The project will also initiate institution reforms to better anchor these measures. Component 1 on Sustainable Land and Water Resource Management relates to enhancing the sustainability of water sources in the upper catchment (primarily in forest areas) as indicated in respective Gram Panchayat Resource Management Plan, with water-security for selected village as one of the important elements. Component 2 on Improved Agricultural Productivity and Value Addition will support interventions for enhancing the climate resilience of agriculture and allied activities, with efficient use of water as its focal point. The objective of this component is to ensure climate resilience through providing water security, income security, food/ nutritional security, and social security for poor, marginalized, and women's groups engaged in farming activities. Component 3 will address gaps in the institutional capacity of the implementing agencies, viz. HPFD, Gram Panchayats, and the project management units, through institutional assessments, reform, training and capacity building, with a view to support a more comprehensive and holistic approach to managing the state's water resources and strengthen the HPFD's institutional structure and capacity for improved service delivery.

Table 17. Component-wise Adaptation and Mitigation Climate Co-Benefits

Activities	Adaptation Actions	Mitigation Action
Component 1: Sustainable Land and Water Resource Management		
Subcomponent 1A: Improved planning for participatory and sustainable land and water management		
1. Preparation and approval of Gram Panchayat Resource Management Plan (GP-RMP): - Identification of natural sources of water for selected village in participating GPs. - Assessment of criticality, seasonality and dependence of community of each of the water sources, - Selection of water sources for treatment. 2. design and implementation of a catchment monitoring and evaluation (M&E) system	The activities listed will introduce a climate change lens at the Gram Panchayat Level and build a basis for a resilient natural resources management and build a wide network of weather monitoring for efficient use of water downstream.	
Subcomponent 1B: Implementation of participatory and sustainable land and water management		
1. Investments in upper catchment to ensure adequate and sustainable water supply to dependent communities as per water security plans including: o Forest management with development of nurseries, reforestation, afforestation, enrichment planting, silvi-pasture development, plantations along drainage line, fire management in fire vulnerable forest areas, seed management etc. o Soil and water conservation with contour trenching with grass seeding, drainage line treatment with vegetative check dams, dry stone/cement and concrete check barriers etc. o Development of water harvesting structures (ponds- manual and mechanical excavations) o Development and renovation of primary water storage and	The project activities listed here will build the resilience of targeted areas in the State of Himanchal Pradesh through increased forest cover, better forest management system, reduced soil erosion, reduced flooding downstream, improved soil health and soil fertility with enhanced CO_2 sequestration capacity and increased water holding capacity. These activities will further improve the productive capacity of both the forests and the downstream climate smart agriculture activities.	Afforestation (plantations) and agroforestry on non-forested land Reforestation on previously forested land Improved forest Management and planning Sustainable forest management activities that increase carbon stocks or reduce the impact of forestry activities Improved existing carbon pools through reduced soil erosion and improved soil health

Activities	Adaptation Actions	Mitigation Action
distribution structures (gravity check dams, intake structure, sub-surface dykes, pipelines etc.) ○ Development of springs ○ Management of invasive species 2. Regular monitoring of water quality and productivity of selected water sources through network of sensors and data collection by community resource persons. 3. Forest fire rating and management.	These activities will contribute to reducing GhG emission from uncontrolled forest fires.	
Component 2: Improved Agriculture Productivity and Value Addition		
Subcomponent 2A: Improved water productivity		
1. Development of community infrastructure for village level efficient distribution and use of water (tanks, channels, sprinklers etc.) 2. Knowledge dissemination, training and capacity building of farmers to cope up with adverse climatic conditions will also be done through extensive participatory demonstrations of site-specific agricultural practices on: - Soil resilience - Rainwater harvesting, storage and recycling - Promotion of water saving technologies - Selection and promotion of climate adapted cultivars - Improved cropping systems - Improved feed and feeding methods for livestock	These activities will help cope with the changing rainfall pattern through the management of harvested rain water and its efficient use for irrigation through sprinkler and drip system, and adoption of good agricultural practices. The mentioned activities will build the capacity of the beneficiary and targeted GPs by introducing a climate change lens for all agricultural investment in the GP-RMP and all processes at the GP, District and state levels that will help integrate and address climate vulnerabilities. Crop advisory services will focus on adopting climate resilient crops such as millets which might be more suitable for changing climatic patterns and provides food security to the farmers.	These activities will help manage the risks associated with increasing water stress through investment in technologies that promote the efficient use of water, such as efficient greenhouses, sprinkler and drip-irrigation systems and water-recycling systems.
SubComponent 2B: Adoption of Climate Smart Technologies and Diversification into High-Value Crops		
1. Value chain scoping study for selecting most potential climate resilient crops and their package of practices will be	The activities under this component will increase the resilience and the capacity of	Matching grants criteria to include climate lens for lowering GHGs

Activities	Adaptation Actions	Mitigation Action
selected for commercialization and value chain development 2. Sub -project investments for agriculture and allied activities 3. Cluster-level common infrastructure development 4. Enterprise incubation 5. Technology for farm management will be extensively used for weather based agro-advisories 6. Market access and product development	businesses and selected value chains and beneficiary farmers through adaption to climate change. The infrastructure supported will be such that they help farmers to adapt to the changing climate and sustain their market linkages.	All financing leveraged by the project will also have lower climate footprint Resource efficiency in agricultural processes and supply chains
Component 3: Institutional capacity building for integrated watershed management		
Subcomponent 3A: Improving the governance structure for integrated watershed management		
1. TA to support improving integrated management of water resources	The TA will carry out an institutional assessment to: (a) identify the institutions that affect water supply, quality, use, and management and their roles, responsibilities, and mandates; (b) conduct a SWOT analysis of the current institutional framework and highlight any overlaps and/or gaps that undermine IWM; (c) identify opportunities for institutional coordination and synergy; and (d) build consensus on the need for reform and develop the goals and vision for institutional collaboration, a time-bound action plan, and an implementation road map. The results of this assessment will inform the GoHP and other state governments on the necessary institutional reforms that will result in effective interagency cooperation and IWM. Stronger institutions will lead to improved planning and responsiveness to climate change impacts.	The listed activities will lead to water resource use efficiency in HP. The listed activities will form part of training, capacity-building and awareness-raising on climate change mitigation and sustainable, and efficient water resource use in HP.

Activities	Adaptation Actions	Mitigation Action
Subcomponent 3B: Institutional reform and strengthening of the Himachal Pradesh Forest Department		
1. support the further institutional development of HPFD - development & implementation of a comprehensive HPFD IT for watershed-level planning - development of regulatory and management standards for pastures	The development and implementation of the IT tool will help in better understanding of watershed- level planning and help build capacity at HPFD level. The IT and knowledge strategy and M&E system will incorporate relevant climate-related data and research, for example to track forest quality (since forest degradation is linked to increased flood risk) and to identify the most appropriate tree species and forest management practices in light of changing rainfall patterns and temperatures. The pasture regulatory and management standards will account for the impact of changing rainfall patterns and temperatures on pasture management, for example by promoting climate-adapted species and practices, which will lead to increased carbon pools by reducing pasture degradation and increasing above- and below-ground (soil) biomass. The trainings will cover diverse subjects and will be designed with a climate change lens to build resilience and mitigation; for example, trainings on GP-RMP development will include guidance on how to ensure that climate change is adequately addressed in these plans, and the extension trainings will emphasize CSA practices and technologies to increase the adaptive capacity of farmers, reduce GHG emissions and enhance carbon sequestration,	Better management of pastures will result in reduced grazing areas and lower GHG emissions. These trainings will lead to reductions of non-CO2 GHG emissions from agricultural practices and technologies and increase resource use efficiency by reducing unnecessary nitrogen-based fertilizers use due to improved soil health resulting from CSA adoption.

Activities	Adaptation Actions	Mitigation Action
	and improve the resilience and resource use efficiency agricultural production systems in HP	
Component 4: Project Management		
1. Setting up of project management units at different implementation levels 2. Managing the project's M&E	PMU will contract environmental and social experts who would advise on adoption of adaptation and mitigation measures for all mentioned activities throughout the project	