# Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 07-Jun-2019 | Report No: PIDISDSC23122

## BASIC INFORMATION

### A. Basic Project Data

| Country | Project ID | Parent Project ID (if any) | Project Name |
|---|---|---|---|
| India | P165129 | | Integrated Project for Source Sustainability and climate Resilient Rain-fed Agriculture in Himachal Pradesh (P165129) |
| **Region** | **Estimated Appraisal Date** | **Estimated Board Date** | **Practice Area (Lead)** |
| SOUTH ASIA | Nov 25, 2019 | Feb 27, 2020 | Agriculture |
| **Financing Instrument** | **Borrower(s)** | **Implementing Agency** | |
| Investment Project Financing | Department of Economic Affairs | Department of Forest, Government of Himachal Pradesh | |

**Proposed Development Objective(s)**

To increase the sustainable use of water resources in Himachal Pradesh by improving upstream watershed management and increasing agricultural water productivity in selected Gram Panchayats

## 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 |

| Environmental and Social Risk Classification | Concept Review Decision |
|---|---|
| Moderate | Track II-The review did authorize the preparation to continue |

Other Decision (as needed)

Not applicable.

## B. Introduction and Context

Country Context

1. **India's growth remains robust but has moderated from prior high levels in the past** fiscal year (FY18/19). After growing at 7.2 percent in FY17/18, economic growth slowed to 6.8 percent in FY 18/19, with quarterly growth falling to 5.8 percent (y-o-y) in Q4. Growth remains broad-based, but the impact of accelerating industrial growth was counterbalanced by decelerations in services and agriculture growth, on the production side. On the demand side, consumption has been bolstered by public spending, but investment growth has decelerated. In FY18/19, the current account deficit is estimated to have reached 2.6 percent of GDP but a strong rebound in foreign investment over the second half of the year allowed foreign reserves to remain at a comfortable level of US$411.9 billion, as of end-March 2019 (equivalent to about 9.7 months of imports). Going forward, output growth is projected to recover and stabilize at around 7.5 percent, thanks primarily to resilient private consumption, but also to a rise in exports of goods and services and a gradual recovery in investment. The current account deficit is projected to narrow to 1.9 percent of GDP in FY19/20 but external headwinds—in the form of re-escalating trade tensions and elevated oil prices – could put pressure on the balance of payments.

2. **Since the 2000s, India has made remarkable progress in reducing absolute poverty.** Between FY2011/12 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 robust reduction in poverty. Aided by 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 India. In 2015, with the latest estimates, 176 million Indians were living in extreme poverty while 659 million, or 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). Recent trends in the construction sector and rural wages, a major source of employment for the poorer households, suggest that the pace of poverty eradication may have moderated.

3. **India is the world's third largest emitter of greenhouse gasses (GHGs) and is highly vulnerable to climate change.** It has ratified the Paris Agreement (COP21) and is committed to "enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change". India's federal intended national determined contributions

(INDC) commits to reduce the energy intensity of GDP from one-third and to increase the share of renewable energy (including from hydro generation). It also commits India to expand its existing carbon sink by 2.5 – 3.0 billion mt of carbon dioxide. Large areas of India are likely to be under water stress: 54 percent of the country's area is subject to high or extremely high water stress, and almost 600 million face disruptions from surface water supply disruptions. Punjab and Haryana – major rice and wheat producing states – are particularly affected. More than half of the country's groundwater wells are dropping, 16 percent by more than one meter per year.1 With shared water resources and given the region's complex history, the region could see escalating tensions over water use in the future.

## Sectoral and Institutional Context

4. **Himachal Pradesh (HP) is a Special Category state in the Himalayan mountains.** Special Category status is afforded due to inter alia: (i) mountainous terrain; (ii) low population density (123 per km2); (iii) significant population of scheduled tribes; (iv) HP's strategic location bordering neighboring countries; (v) it's 'backward' status in terms of economic development and infrastructure; and (v) non-viable nature of the state's financial situation (the fiscal deficit for FY2019/20 is projected to be 4.4 percent of the state's GDP). With an altitude ranging from 350 meters above mean sea level [msl] to 6,975 msl, much of the state's area is sloping, with inclines of between 0.5 – 70 percent. Land with a slope of up to 40 percent is already typically under agricultural production; in some areas farming is practiced on even steeper gradients of 60 – 70 percent. Of a total of 3,243 Gram Panchayats (GPs) in HP, 551 (or 17 percent) have been declared 'backward' status and therefore subject to special programs from the Government. Scheduled tribes are scattered throughout the state with concentrations in Kinnaur and Lahaul and Spiti, and parts of Chamba amounting to 6 percent of the total population of which 32 percent are located in Scheduled Areas of the State; there is also a considerable scheduled caste population of 25 percent. Himachal Pradesh is among India's leading States on gender equality and social development. It has the highest female labor force participation rate in the country[2], even though it has declined since 2005. Much of the state's female workforce participation is driven by women's self-employment in agriculture, still the mainstay of the state's largely rural economy. Women's higher participation in agriculture, horticulture, and livestock sectors is socially and culturally embedded in the state, largely due to traditional out-migration of men for jobs that leaves the women behind to provide labor and supervisory inputs to pre-harvest and post-harvest activities. However, their access to ag-tech & climate resilient technologies, markets and finance, as well as to skills and entrepreneurship opportunities remains limited. Non-farm jobs for rural women remain limited. New opportunities in agribusiness are important to reverse the decline in women's participation in agriculture.

5. **HP has a particular role to play in contributing to India's INDC commitments.** Its topography and available water resources are well suited to hydro generation with an installed capacity of 3,421 MW controlled jointly by the GoHP (8 percent) and GoI (92 percent), against an estimated potential of over 27,000 MW. Only 14 percent of India's total generation is from hydro, of which 8 percent is from HP.[3] Meeting the INDC commitments on reducing the carbon intensity of India's energy generation will depend on further exploitation of hydro in states like HP. Improved watershed and catchment area management upstream of hydro reservoirs can reduce operational costs from siltation and water turbidity . Similarly, HP enjoys around 1.126 million ha of forest cover, representing 25 percent of the land area in the state and 1.5 percent of India's total forest cover of 70.827 million ha.[4] Although currently a small share of the overall area, HP has substantial potential to further expand forest cover (including through increased density) and therefore will play a major role in contributing to the national commitments on carbon sequestration.

[1] World Resources Institute. See https://www.wri.org/blog/2015/02/3-maps-explain-india-s-growing-water-risks
[2] http://documents.worldbank.org/curated/pt/375181504083376244/pdf/119178-BRI-P157572-Himachal-Pradesh-Gender.pdf
[3] Data from Wikipedia sources.
[4] 2017 State of Forest Report.

6. **The Government of Himachal Pradesh (GoHP) is already well experienced in management of its natural resources as a driver for development but recognizes the need to increase the quality and sustainable use of these resources.** 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 (5 national parks, 26 wildlife sanctuaries and 3 conservation reserves) and HPFD manages these to protect biodiversity and promote ecotourism. These forests provide catchment areas for 5 major river basins. Despite considerable investments to date in catchment treatment and afforestation, forest quality (measured as canopy density) remains poor in HP. The gross area of forests is increasing due to better law enforcement, afforestation to offset forests cleared for development, and the partial lifting of the felling ban in 2018, which allowed for selective felling of older trees and subsequent regeneration. However, the quality of forests has not improved over the past six decades due to several factors, including poor afforestation techniques, lack of maintenance, incorrect site/plant selection, and uncontrolled grazing and fires. The state has enjoyed significant success in agricultural development in particular fruit production and as a major source of off-season vegetables exported to other parts of India. Fruit production exceeds 600,000mt of which three-quarters is apples) while over 1.8 million mt of vegetables are produced annually. However, the majority of agricultural land (85 percent) remains under rain-fed agriculture and the land under irrigation reports a low intensity of 137 percent (i.e. only one-third is used for more than one crops a year). Given changing weather patterns already observed (annual and monsoon rains declining by 2.26mm and 2.85mm 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.

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, commissioned as part of project preparatory tasks highlighted critical aspects of both the mitigation and adaptation agenda in the state:

- ***Mitigation:*** Agriculture is a minor source of the state's GHG emissions, constituting only 1.8 percent (164,000mt of CO2 equivalent) of the total. Of these, 90 percent are attributable to rice cultivation over 43,450 ha of area; crop residue burning adds a further 8 percent and enteric fermentation contributes less than 2 percent.

- ***Adaptation:*** There are many examples of CSA technologies already being deployed in cereals, horticulture, vegetable and livestock sectors. However, observed adoption rates are typically less than 30 percent, meaning there is considerable scope for scaling these up throughout the state. Adoption rates in the horticulture and higher-value vegetable sectors are typically higher. This is because the financial incentives are stronger but also because the farmer endowments that drive past diversification out of cereals are the same as those that make adoption easier. CSA technologies are not scale neutral, they are risky, and there are significant up-front investment costs. Integrating CSA technologies more thoroughly into the existing Krishi Vigyan Kendra (KVK; i.e. research and extension) system is essential.

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 delivered and more sustainable when the local beneficiary communities have a substantial stake in their delivery. This is particularly the case for local natural resource management when communities are often

simultaneously 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.

9. **GoHP has a clear and relevant vision for its NRM sector.** First, it seeks to continue its impressive trajectory of rural transformation by raising agricultural productivity, strengthening market linkages and diversifying production patterns to increase agricultural value addition, while maintaining biodiversity and ensuring sustainable land and water use. Second, GoHP recognizes its role as custodian of a unique landscape with a special set of critical natural resource endowments that provide critical environmental services not only for its own population but for other states and indeed globally. Therefore, it recognizes the importance of reconciling the imperative of delivering results in terms of continued development for its population without undermining its natural resource base.

10. **The project addresses several elements of outstanding agendas in the realm of NRM, forestry and agriculture.** A review of ex poste assessments (implementation completion reports and project or thematic evaluations) reports a positive track record of past interventions that have delivered on their project objectives, although considerable 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 include the greater role of GPs in taking responsibility for, and managing investments in, sustainable landscape management 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, leveraging HP's position as a major off-season producer serving distant Indian markets. The major challenges moving forward are to further scale-up these successes by utilizing Bank support to address specific institutional and technical constraints for doing so – i.e. not just the financing of scale-up which can in principle be deferred to GoHP's own resources.

**Figure 1: Outstanding Issues in the NRM, Forestry and Agriculture Agendas**

| Intervention | Results (from ICRs/ IEG) | Remaining Issues |
|---|---|---|
| Watershed management | Strengthened capacity at GP for planning and implementing watershed treatments & livelihoods. | Evidence-based planning and investments in improved environmental services and in trade-offs between competing uses. |
| Watershed investments: improved environmental services | Reduced land degradation; improved biomass production. | Scale-up since pressure on degraded lands and on water use are increasing exponentially; integrated approach across GoHP agencies. |
| Watershed investments: water use efficiency | Improved cropping systems and diversification to raise water productivity (Nrs) | Scale-up; affordability and utilization of high-tech irrigation still limited |
| Mountain livelihoods | Promote value addition, NTFP production and downstream value chains; importance of market-based orientation for non-agric interventions. | Unrealized potential for NTFPs; critical policy issues restrict full community utilization of forested areas |
| Promoting CSA Technologies | Agric research system has developed CSA technologies promoted by KVK | Adoption rates are low @ < 30% and favor larger farmers; continual adaptive innovation required |
| Carbon finance | GoHP secured CDM finance for 140 GPs. | Other opportunities for CDM finance plus potential collaboration with private sector sponsors |
| Recovery of degraded fringe forestry | Rehabilitated forest cover in fringe areas under sustainable community management | Scale-up; room for further innovations in community management and for PES |
| NRM DPO (and evaluation of Env DPOs generally) | Institutional strengthening at local and state level on NRM and hydro management; promoted 'platform' for NRM issues in GoHP. | Institutional coordination remains a challenges. Apparent fragmentation of depts after DPO ended. |

Relationship to CPF

11. **The World Bank Group's Country Partnership Framework (CPF)** juxtaposed: (i) India's development priorities as outlined in its FY2017-19 action agenda as well as national missions and programs; (ii) the assessment of India's challenges in sustaining progress towards the twin goals as set out in the Bank's Strategic Country Diagnostic (SCD); (iii) the WBG's comparative advantage in the country; and (iv) lessons derived from decades of WBG engagement in India. The CPF identified three substantive areas: (i) promoting resource efficient growth; (ii) enhancing competitiveness and enabling job creation, and (iii) investing in human capital. In addition to these focus areas, the CPF also set out four operating modalities. These are: (i) leveraging the private sector; (ii) strengthening public sector institutions; (iii) engaging a Federal India; and (iv) promoting a "Lighthouse India" that connects practical know-how for the benefit of India and the wider world.

12. **The project is consistent with the CPF** by delivering outcomes for resource efficient growth in targeted GPs in HP and in enhancing 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.

## C. Proposed Development Objective(s)

13. To increase the sustainable use of water resources in Himachal Pradesh by improving upstream watershed management and increasing agricultural water productivity in selected Gram Panchayats

Key Results (From PCN)

14. Proposed PDO-level indicators are as follows:

- Increased sustainability of perennial water sources in targeted watersheds
- Selected upland areas managed in accordance with site-specific management plans
- Increased agricultural water productivity among participating farmers
- A more institutionally integrated approach to multi-sectoral watershed-level decision making
- Increased adoption of climate-smart technologies among participating farmers

## D. Concept Description

15. **The overarching problem statement the project seeks to address is that HP is facing increased demand for, and reduced supply of, water resources** and therefore needs to manage these better if it is to maintain its economic growth without jeopardizing continued downstream supply to the grain basket of Punjab. HP's population increased 13 percent over the decade 2001 – 2011 with an ever-greater share now residing in urban areas. Niti Aayog reports[5] that half of all springs are now dry or seasonal. Addressing this challenge requires progress under three pillars:

- Sustainable land and water resource management;
- Improved agricultural productivity and value addition; and
- Institutional capacity of GoHP to sustainably manage watersheds and resource use trade-offs and to effectively deliver environmental services.

16. **Each element contributes to the overall theory of change** that underpins the proposed project design, as follows and summarized in the Figure below:

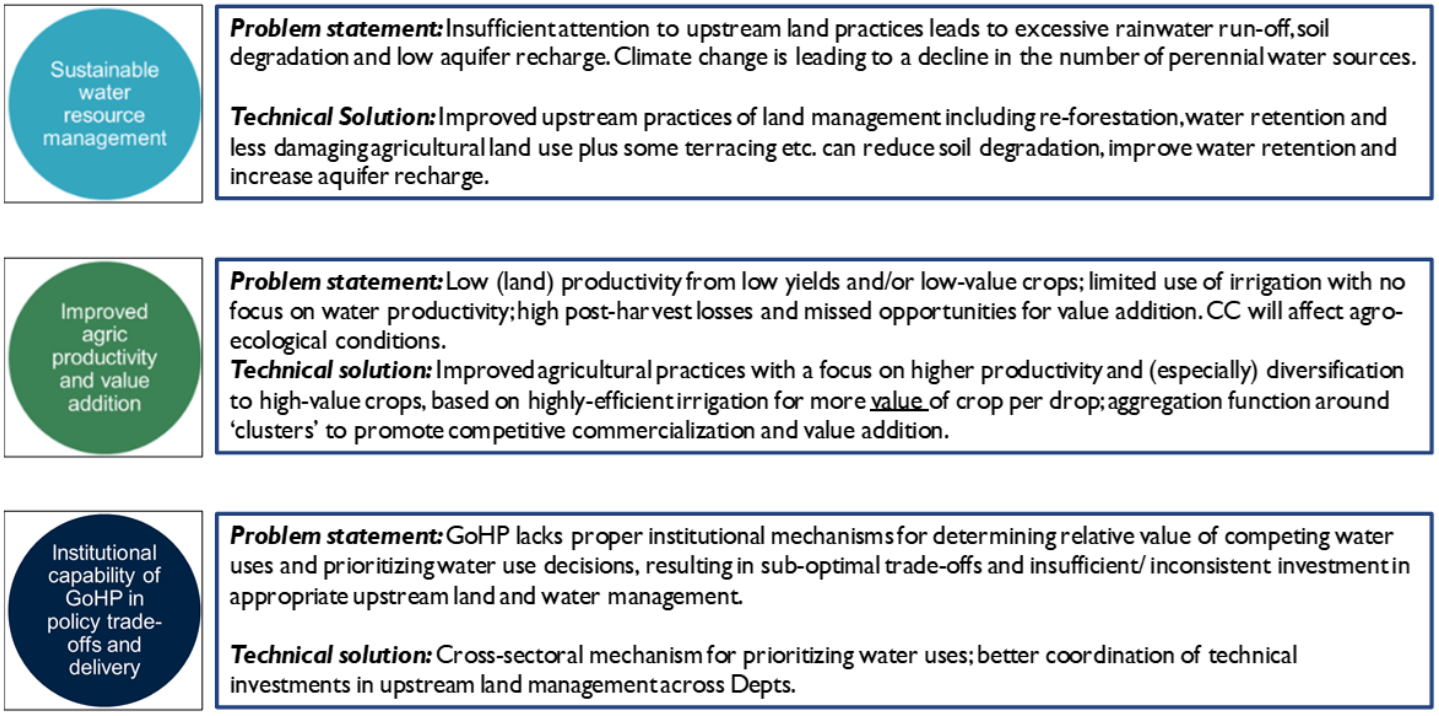
- ***Land and water management:*** Current land use practices in upstream watersheds is resulting in excessive soil erosion and degradation, rain-water run-off and depleted rates of recharge of critical aquifers. Soil run-off results in reduced natural soil fertility (with a resulting loss on productivity or additional costs for replacement of inorganic fertilizers) and reservoir and intake sedimentation with the consequent loss of hydro generation capacity and damage to turbines, and/ or reduced availability of stored water for drinking or irrigation. This is compounded by retreating glacial sources and changes in rainfall patterns linked with climate change.
- Existing ***agricultural productivit***y remains low – both in terms of physical yields (mt/ha) and value (Rs/ha). The use of irrigation is extremely limited across the state, with surface irrigation predominating and more limited use of the drop or sprinkler systems required for higher value crops, which can lead to substantial increases in water

[5] Niti Aayog (2018) Report of Working Group 1: Inventory and Revival of Springs in the Himalayas for Water Security

productivity. The absence of irrigation remains a binding constraint on farmers' ability to increase incomes (and therefore undermines the policy objective of doubling farmer incomes) and renders them vulnerable to climatic shocks; a situation that is becoming increasingly precarious with climate change.

- The GoHP lacks robust institutional mechanisms for ***making trade-offs and investments to ensure sustainability of environmental services*** into the future. It cannot properly evaluate relative values of competing uses for the states' natural resources, especially in terms of the states' overall management of environmental services. There is an absence of underlying analytical foundation for such trade-offs to be evaluated, and no formal structures to facilitate integrated decision-making. Moreover, fragmentation amongst ministries and agencies means that any investments in upstream watersheds are typically insufficient and/ or inconsistent and therefore not adequate or efficiently delivered.

**Figure 2: Summary of the Theory of Change**




17. **The project will deploy institutional and technical solutions to address these challenges.** These are explained in more detail below with each proposed project component corresponding to the constraints thereby completing the project's theory of change.

**Component 1: Sustainable Land and Water Resource Management**

18. **This component promotes participatory and sustainable land and water management through financing the planning and implementation of investments in selected catchments** based on the Sutlej Basin Comprehensive CAT (CCAT) plan, and micro-catchment plans in other river basins. For each of these, range-level site-specific management plans (SSMP) will be prepared to specify detailed activities by location. The main implementers and beneficiaries will be

HP Forest Department (HPFD) staff and relevant community organizations, particularly Joint Forest Management Committees (JFMCs). The component will include a combination of TA, investments, and partnerships with other agencies and will lead to improved forest cover (and hence carbon capture), increased water and sediment regulation, reduced erosion, and improved community participation in and benefits from forest management.

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

19. **Subcomponent 1A will strengthen landscape planning.** Specifically, it will: (a) review progress and revise the existing Sutlej Basin CCAT plan; (b) prepare micro-catchment plans in other project river basins; (c) support additional diagnostic studies, designs, and assessments; and (d) develop SSMPs through a participatory process led jointly by the HPDD and JFMCs. The CCAT plan review will identify the most cost-effective interventions implemented to date and propose revisions to plan investments and locations based on new hydrological and sediment load modeling. The CCAT plan review will include the design and implementation of a comprehensive M&E system for CCAT plan investments initially across the Sutlej Basin and later replicated in other project catchment areas and will include measurement of water flows and sediment loads to refine the hydrological models and ensure that investments maximize silt retention and surface water absorption.

*Subcomponent 1B: Implementation of participatory and sustainable land and water management investments*

20. **This subcomponent will finance the implementation of activities identified in the SSMPs will contribute to improved forest cover and quality** (including carbon emission reductions and sequestration), as well as improved water and sediment regulation. Activities supported by this subcomponent include, but are not limited to, the following areas:

- *Soil and water conservation measures.* 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, crate wire spur structures, bunds and water harvesting, and drainage line treatments, like gully plugging.

- *Development of high-quality seed stands.* Establishment of a geo-referenced seed production system; construction of a centralized seed center to process, treat, store, and test seed; and construction of a climate-controlled seed bank.

- *Nursery development.* Provision of machinery and equipment to produce the additional seedlings.

- *Forest management.* Planting and management of trees in open and medium density forests and slopes vulnerable to soil erosion and protection of plantations

- *Pasture management.* 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.

- *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.

**Component 2: Improved Agricultural Productivity and Value Addition**

21. **This component would support interventions in downstream areas where the primary (existing or potential) water use is for irrigation in agriculture.** It would seek to augment the use of irrigation as a principle strategy for shifting from low-value cereal production to higher-value fruit and vegetable production but would do so with a focus on increasing water productivity so as to maximize the financial returns to water use. Key interventions include infrastructure to increase high-productivity water utilization (drip and sprinkler irrigation plus the necessary primary and secondary distribution systems)

*Subcomponent 2A: Increasing value addition through improving water productivity*

22. **Subcomponent 2A will support investments in the provision of water by investing in primary and secondary distribution infrastructure and matching grants for the purchase of on-farm equipment for drip and sprinkler (i.e. high-tech) irrigation technology.** It will support decentralized water infrastructure development under the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) based on robust micro-watershed plans across clusters of GPs in locations. By focusing on water productivity rather than water availability it will only invest in increasing water utilization in GPs where: (i) upstream investments in source sustainability are being implemented under Component 1; and (ii) where productivity of subsequent use will be maximized thereby ensuring 'more crop for the (incremental) drop'.

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

23. **This component supports the adoption of climate smart agriculture (CSA) practices for existing cropping patterns in beneficiary GPs and also facilitates farmers to diversify into high-value crops, either in conjunction with high-tech irrigation equipment.** The project will leverage HP's agricultural research and extension system and existing Government-backed interventions to expand the adoption of contemporary CSA practices among participating farmers. CSA practices will apply to both existing cropping patterns and to new higher-value crops. Where the evidence of what constitutes CSA practices in these new crops is limited, the project will collaborate with the research institutions to strengthen the evidence base. This component will leverage and support the Government's own KVK farmer extension system and their Rashtriya Krishi Vikas Yojana (RKVY; now known as the Remunerative Approach for Agriculture and Allied Sector Rejuvenation). By focusing on the market, and in conjunction with Subcomponent 2C, the approach adopted here will take a value chain perspective with competitiveness at the fore.

24. **This sub-component will also support greater use of Non-Timber Forest Products (NTFPs)** as part of the diversification agenda, and as a mechanism for incentivizing community participation in sustainable land and water management. This will create alternative livelihood opportunities, by removing barriers to investment in NTFP value chains, and increase local incomes from sustainable production and increased value addition. This sub-component targets NTFP collectors, often women, and producers interested in cultivation of NTFPs (medicinal, aromatic plants) and other high-value commodities identified for value chain development. Alignment with the relevant line departments (e.g., agriculture, horticulture, and animal husbandry) will be ensured. In addition to improving local livelihoods, the proposed activities will reduce pressure on watersheds and contribute to increased carbon sequestration and storage and reduced erosion. Strengthening NTFP value chains and institutions with a focus on women, will enhance livelihood diversification and improve communities' resilience to climate change.

25. **There is potential for securing climate change finance for on-farm and/ or community investments in reforestation and/ or economic trees.** HP successfully secured the first ever Clean Development Mechanism subproject

in project under the Kyoto Protocol was registered with the UNFCCC in March, 2011. This was implemented in 11 watershed divisions and covering 140 GPs it generated carbon credits trough reforestation activities supported under the MHWDP. A scoping assessment supported by the World Bank has identified significant potential for similar carbon financing via Indian private sector conglomerates seeking to invest in carbon offsets for their industrial enterprises as well as for corporate social responsibility (CSR) motivations.

*Subcomponent 2C: Support to farmer groups linked to agri-business clusters*

26. **This component will promote agribusiness clusters among several GPs in high-potential areas already benefitting from project interventions under Component 2.** Fostering value addition, agribusiness and agro-industry clusters requires coordinated planning and investments by a range of departments. The key objective is typically to aggregate production to internalize economies of scale and provide sufficient volume to meet the minimum efficient scale of agro-processors hereby stimulating private investment by agribusinesses and promoting value addition. There may be other efficiencies for instance in waste treatment and the clustering of ancillary businesses. The project will seek to aggregate via clusters in collaboration with farmer organizations (which will also be strengthen under the project). This component will coordinate such investments to promote clusters which will connect groups of beneficiary farmers, via their respective farmers' associations, to agribusiness to facilitate processing and value addition.

27. **Interventions will include technical assistance to farmers' groups and prospective agribusinesses as well as some (likely modest) infrastructure provision to locate participating agribusinesses.** This will fall short of 'agro-business park' models but could include specific locations for the establishment of agro-businesses close to the producing areas and including last-mile infrastructure as well as facilities for storage, packaging and waste management.

**Component 3: Institutional capacity building for integrated watershed management and making policy trade-offs.**

28. **The objective of this component is two-fold:** first, is to support a more comprehensive and holist approach to managing the state's water resources recognizing competing uses both within HP and downstream in other states in particular Punjab; second to facilitate a better alignment of institutional mandates for IWM and strengthen the HPFD's institutional structure and capacity for improved forest service delivery. It will be implemented through a combination of TA and investments.

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

29. **Through the convening power of the HPFD and its role in managing watersheds, this subcomponent will provide TA to support improving integrated watershed management (IWM).** The subcomponent will support an IWM 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 on the necessary longer-term reforms to the relevant state institutions that will result in effective interagency cooperation and, ultimately, IWM.

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

30. **This subcomponent will support the institutional development of HPFD.** It will provide TA and investments to (a) conduct a functional review of forest institutions (FRFI) that will produce a vision, goal, and time-bound action plan for change; (b) implement an initial set of prioritized HPFD institutional reforms; and (c) strengthen the HPFD's capacity to deliver its core mandates. This subcomponent will also support an initial set of prioritized institutional governance reforms through TA and investments. These reforms include 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;[6] (b) development and implementation of a comprehensive HPFD monitoring and evaluation (M&E) system; (c) establishment of a centralized staff performance monitoring system; and (d) development of regulatory and management standards for pastures. 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 climate resilience.[7] Training will include all project participants.

*Subcomponent 3C: Improve water resource coordination and decision making at the macro-level*

31. **This subcomponent will operationalize some of the opportunities for institutional coordination and increasing synergy between the different institutions involved with water resource management**, identified in subcomponent 3A. Coordination. Successfully managing watersheds and water supply/use, both the upland and downstream areas, will require managing tradeoffs between the different treatments, uses and beneficiaries. There are a great number of stakeholders involved, including numerous state departments (e.g. HPFD, Agriculture, Animal Husbandry, Horticulture, Irrigation and Public Health etc.), individuals and the private sector, donor supported projects, NGOs, local governments, and local communities. This component will set up a high-level decision-making process (based on improved data collected by the project), in a transparent and participatory process to provide strategic guidance and to manage the trade-offs necessary to ensure sustainability.

**Component 4: Project Management.**

32. **This component would support the project management function including key staff and operational costs.** The precise nature of the project management entity is to be determined (see below) 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 endowment. A key example is agribusiness for which few existing staff of Departments have the required expertise. It would also support the project monitoring and evaluation functions as well as grievance redress apparatus, and project communications and outreach including the contribution to Lighthouse India by which project lessons can be shared with other states.

33. **The component would also support a robust evaluation of impact.** The team will consider options for statistically robust evaluative techniques (randomized control treatment GPs; discontinuity methodologies utilizing similar treatment and control GPs etc.) as a foundation for project evaluation.

**Information and Communication Technology**

34. **The project would specifically seek innovations in information and communication technology (ICT) in all aspects of the project** (building on experience in other agricultural projects in HP and across India). ICT and geospatial

[6] The preparation of the IT strategy will include the analysis of the most appropriate disruptive technologies.
[7] The subjects will include management of seed stands, nursery management, range management, forest protection, community mobilization, and institutional development.

analysis would be utilized to inform project planning and implementation and a web-based GIS platform will be established to report progress, and to allow stakeholders to report implementation concerns. Furthermore, there are opportunities for ICT-based tools to quickly assess soil type (for optimum fertilizer application) which when used offer direct benefits to farmers while also helping construct a detailed soil map of the state. Remote monitoring systems can provide real-time data on weather, water flows and turbidity and can play important roles in weather-related risk mitigation, irrigation scheme-level and farm management decision-making and in project monitoring. The use of blockchain technology is increasingly being deployed to facilitate traceability of fresh produce in agricultural value chains and will be encouraged by the project. Greater use of cell phone-based market information systems can increase market efficiency and empower farmers to supply more remunerative markets and to negotiate higher prices.

**Proposed Project Locations**

35. **Project locations will be identified based on a robust and objective set of criteria.** The primary criteria will be to identify (i) high priority micro-watersheds that are in urgent need of remedial steps to maintain their perennial water sources and then to overlay these with (ii) locations with high potential as agricultural and agribusiness clusters. Once these areas are identified, further criteria will be to select specific GPs recognizing the need for a qualitative approach. It is expected that in total around 900 GPs will be included.

36. **The project will be applied in all districts of HP with the exception of the two high mountain districts of Kinnaur and Lahul and Spiti.** There are seven main river basins in HP and in principle the project could select micro-watersheds within any basin. However, a modified approach will reflect those basins for which activities similar to those proposed in Component 1 are already being supported by other Development Partners (DPs) (for instance, KfW supported HP Forest Eco-System Climate Proofing Project in Kangra and Chamba Districts and the JICA supported Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods in Bilaspur, Shimla, Mandi, Kullu, Kinnaur and Lahul and Spiti Districts). In such cases, this project would collaborate closely with those interventions, gap-filling Component 1 where necessary and focusing more on delivery of Component 2.

37. **The project will also consider the merits of structured phasing.** For instance, one option would be to defer interventions in Sutlej basin until the Comprehensive Catchment Area Treatment (CCAT) plan revision is completed as this would help better target the resulting investments under Components 1 and 2. Conversely, there may be proposed project areas which are already high priority with an underlying analytical foundation for the rapid delivery of interventions under Components 1 and 2 (perhaps those in areas supported by KfW and/ or JICA projects).

| Legal Operational Policies | Triggered? |
|---|---|
| Projects on International Waterways OP 7.50 | TBD |
| Projects in Disputed Areas OP 7.60 | No |

Summary of Screening of Environmental and Social Risks and Impacts

The project will undertake measures to improve the state of water resources in Himachal Pradesh 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. In particular the project will: i) promote participatory and sustainable land and water management through strengthened landscape planning and ii) implement NRM activities from the plans such as soil and water conservation measures like check dams, bio-engineering structures, etc, development of high quality seed stands, nursery development, forest and pasture management and forest fire prevention and suppression; iii) provide water through primary and secondary distribution infrastructure and matching grants for the purchase of on-farm equipment for drip and sprinkler irrigation technology; iv) support the adoption of Climate Smart Agriculture (CSA) practices for existing cropping patterns and facilitate diversification into high value crops; v) strengthen NTFP value chains; vi) promote agribusiness clusters including technical assistance to farmers groups and infrastructure provision to facilitate storage, packaging, waste management as well as last-mile linkages and vii) undertake institutional capacity building for integrated watershed management and making policy trade-offs focusing on the Himachal Pradesh Forest Department (HPFD).
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 understood that "no adverse impacts to critical habitats are expected." Because activities will be outside critical natural habitats or any activities that would impacts on critical habitats will not be financed. No adverse impacts to critical habitats or cultural heritage are expected. The risk seems to be moderate.
Potential for adverse social impacts come from i) infrastructure (aggregation, processing, soil and water conservation, water distribution, pasture and nursery development); and ii) access and use restrictions related to natural resource management, NTFP value chains and forest fire prevention interventions. Other potential social risks are exclusion of small and marginal farmers, nomadic tribes, scheduled castes and scheduled tribes from project institutions and benefits that relate to on farm irrigation inputs, seeds and other improved farming inputs and training. Community level conflicts could also arise from water sharing infrastructure and systems, any land use restrictions mentioned above.While most interventions are likely to be small scale, and the impacts are not expected to be significant, the capacity of the borrower to implement and manage the above social risks as well as those related to labor, community health and safety and sustained stakeholder engagement raises the risk profile to moderate.

**Note** To view the Environmental and Social Risks and Impacts, please refer to the Concept Stage ESRS Document**.**

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