Program Information Documents (PID)

Appraisal Stage | Date Prepared/Updated: 07-Apr-2021 | Report No: PIDA208055

BASIC INFORMATION

A. Basic Program Data

Country	Project ID	Program Name	Parent Project ID (if any)
India	P172187	Rejuvenating Watersheds for Agricultural Resilience through Innovative Development	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
SOUTH ASIA	26-Apr-2021	27-Jul-2021	Agriculture and Food
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Program-for-Results Financing	India	Department of Land Resources, Karnataka Department of of Agriculture, Odisha Department of Agriculture, Andhra Pradesh Department of Panchayati Raj and Rural Development	

Proposed Program Development Objective(s)

Strengthen capacities of national and state institutions to adopt improved watershed management for increasing farmers' resilience and support value chains in selected watersheds of participating states.

COST & FINANCING

SUMMARY (USD Millions)

Government program Cost	741.90
Total Operation Cost	741.90
Total Program Cost	741.90
Total Financing	741.90
Financing Gap	0.00

FINANCING (USD Millions)

Total World Bank Group Financing	134.60
World Bank Lending	134.60

Total Government Contribution	607.30

Decision

The review did authorize the team to appraise and negotiate

B. Introduction and Context

Country Context

1. **India's Gross Domestic Product (GDP) growth has slowed in the past three years, and the COVID-19 outbreak is expected to have a significant impact**. Growth has moderated from an average of 7.4 percent during FY15/16-FY18/19 to an estimated 4.0 percent in FY19/20. The growth deceleration was due mostly to unresolved domestic issues (impaired balance sheets in the banking and corporate sectors), which were compounded by stress in the non-banking segment of the financial sector, and a marked decline in consumption on the back of weak rural income growth. Against this backdrop, the outbreak of COVID-19 and the public health responses adopted to counter it have significantly altered the growth trajectory of the economy, which is now expected to contract sharply in FY20/21. On the fiscal side, the general government deficit is expected to widen significantly in FY20/21, owing to weak activity and revenues as well as higher spending needs. However, the current account balance is expected to improve in FY20/21, reflecting mostly a sizeable contraction in imports and a large decline in oil prices. Given this, India's foreign exchange reserves are expected to remain comfortable.

2. **Although India has made remarkable progress in reducing absolute poverty, the COVID-19 outbreak has reversed the course of poverty reduction**. Between 2011-12 and 2017, India's poverty rate is estimated to have declined from 22.5 percent to values ranging from 8.1 to 11.3 percent. Recent projections of GDP per capita growth rate indicate that as result of the pandemic, poverty rates in 2020 have likely reverted to estimated levels in 2016. The extent of vulnerability is reflected in labor market indicators from high frequency surveys. Data from the Centre for Monitoring Indian Economy (CMIE), shows urban households are facing greater vulnerabilities: between September-December 2019 and May-August 2020, the proportion of people working in urban and rural areas has fallen by 4.2 and 3.8 percentage points respectively. Approximately, 11 and 7 percent of urban and rural individuals, identifying themselves to be employed in the recent period, have performed zero hours of work in the week before the survey. Short-term employment outlook is contingent on whether these temporarily unemployed workers can fully re-enter the labor force. Overall, the pandemic is estimated to have raised urban poverty, creating a set of new poor that are likely to be engaged in non-farm sector and receive at least secondary or tertiary education, as compared to existing poorer households who are predominantly rural with lower levels of education.

3. **Agricultural growth is important for reducing persistent rural poverty, but faces several challenges accentuated by Climate Change and COVID-19**. Agriculture accounts for 18.2 percent of Gross Value Added (GVA) and is the primary source of livelihood for 58 percent of rural households. Land degradation, soil erosion, water scarcity, climatic uncertainties and low productivity are key challenges facing the sector. Climate change is expected to further exacerbate these challenges – where an increase in average temperature can affect crop yields, changes in seasonal precipitation can shift planting seasons and trigger pest outbreaks, and more

frequent extreme weather events such as floods and droughts can harm agriculture and livestock systems, and lead to food shortages. Further, in the shorter term, the livelihoods of vulnerable communities, including those living in resource-poor rainfed regions of India, are likely to be disproportionately affected by COVID-19 due to non-availability of migrant labor, disruptions to supply chains, depressed demand for certain commodities and reduced prices,[1] non-availability of cash for investments by households, and human morbidity and mortality.

4. **Rainfed[2] areas represent a significant share of the agricultural landscape and output but are prone to environmental and climatic challenges**. An estimated 96 million hectares (ha), representing 30 percent of the total geographical area in India, is experiencing land degradation. Further, 85 percent of these degraded land are in dry, rainfed land areas,[3] and mainly in six states – Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Odisha and Rajasthan, which also have high vulnerability of agriculture to climate change. Of the 140.13 million ha of net sown area in the country, about 51 percent (71.745 million ha) is rainfed and home to 86 percent of the country's poor. Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Andhra Pradesh account for more than three-quarters of the total rainfed area in India.[4] The clear implications are that a small number of states account for the bulk of rainfed agricultural lands, and that these lands are predominantly in a degraded state. Rainfed areas are characterized by low and erratic rainfall, high temperature, soil nutrient deficiencies, excessive runoff, and high drought incidence. These concerns are likely to intensify, as climate change projections point to fewer wet days, more intense extreme events and an increase in the number of very hot days.[5] Since rainfed areas contribute significantly to agricultural output (producing 44 percent of country's food grains, 80 percent of the pulses, 73 percent of oilseeds and 66 percent of livestock), conservation and sustainability of these lands and their natural capital becomes essential.

5. **India is committed to achieving Land Degradation Neutrality and increasing farmer's incomes**. As a signatory to the United Nations Convention for Combating Desertification (UNCCD), the Government of India (GoI) has committed to restore 26 million ha of degraded land by 2030. The GoI has also focused on doubling farmers' income in seven years (from 2015–16 to 2022–23), marking a significant departure from past policies which emphasized production rather than marketability. The strategy for doubling farmer incomes recognizes that management of natural resources is a comprehensive and scientific approach to achieve sustainability and manage risk in agriculture.

6. **Integrated watershed[6] management provides a constructive framework to manage natural resources and build a resilient food system**. Global experience, including good examples from India, have demonstrated that effective watershed management can help to comprehensively address land degradation, land use, water conservation, agricultural performance, livelihood security and climate change in rainfed areas, while building a more resilient food system. A resilient food system requires substantial investments in restoration of

[1] Dev, S. M. April 2020. Addressing COVID-19 impacts on agriculture, food security and livelihoods in India. IFPRI Blog. Viewed at https://www.ifpri.org/blog/addressing-covid-19-impacts-agriculture-food-security-and-livelihoods-india

[2] Rainfed areas receive less than 750 mm of rainfall annually and have less than 30 percent of cropland under irrigation (from both surface and ground water).

[3] Including arid, semi-arid and sub-humid regions.

[4] Maharashtra (14.49 million ha), Rajasthan (12.15 million ha), Madhya Pradesh (9.31 million ha), Karnataka (7.46 million ha), Andhra Pradesh (6.48 million ha), Gujarat (6.58 million ha).

[5] Annex 8 on Climate Co-benefits provides further details on the climate vulnerability context.

[6] Watershed is a natural hydrological entity governed by terrain topography, that covers a specific expanse of land surface from which the rainfall runoff flows to a defined drain, channel, stream or river at any particular point. Based on the size, the hydrological unit is termed as water resource region, basin, catchment, sub-catchment, watershed, sub-watershed and micro-watershed respectively. India is divided into six River Resource Regions, 37 Basins, 117 Catchments, 588 Sub-catchments, 3,854 Watersheds, 49,618 Sub-watersheds and 321,324 Micro-watersheds. Watersheds have a size range of 20,000–150,000 ha, sub-watersheds are 5,000–9,000 ha, and micro-watersheds are 500-1500 ha (Source: Micro Watershed Atlas of India 2015).

ecosystems to support precision farming, based on efficient use of natural resources and inputs, including water, land, fertilizers, and pesticides. In addition, integrated watershed management provides opportunities to support rural livelihoods in the short, intermediate, and longer-term as part of strategies to address impacts from COVID-19.

Sectoral and Institutional Context

7. **Watershed management programs in India have evolved over time in terms of their approach, strategy, and operational scale.** In the late 1970s, watershed management programs were mainly about top-down engineering-focused, soil and water conservation infrastructure development to protect large downstream water bodies (especially dams) from silting up. From the late 1980s, programs began focusing on soil and water issues and productivity in resource-poor, poverty stricken upstream areas. From the late 1990s, a new approach based on participatory watershed planning, implementation and management was pioneered in several states. In 2009, the Integrated Watershed Management Programme (IWMP) was launched, which marked the consolidation of various watershed development schemes under an integrated program. In 2015-16, the IWMP became a component of the GoI's flagship program on extending irrigation coverage and improving water use efficiency – the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). Recently, watershed programs, such as the Karnataka Watershed Development Project (KWDP)-II (known locally as 'Sujala III') financed by the Bank, began emphasizing improved biophysical and socio-economic site data, more science-based watershed planning, and value-chain development through investments in farmer producer organizations (FPOs) and market linkages. The operational scale of watershed development has also shifted over time from larger treatment areas to smaller micro-watersheds and then to a meso-scale focused on clusters of micro-watersheds covering contiguous areas.[7]

8. **A robust institutional architecture for watershed development exists in the country.** The Department of Land Resources (DoLR) of the Ministry of Rural Development (MoRD), GoI is the key national agency responsible for watershed development. The National Rainfed Areas Authority (NRAA) of the Ministry of Agriculture and Farmers' Welfare (MoAFW) provides technical and policy support to the DoLR on watershed development. State Level Nodal Agencies (SLNAs),[8] housed in various agencies,[9] are responsible for delivering national watershed programs, including watershed planning, resource mobilization, monitoring, capacity building and coordination through their district and block level structures. To facilitate meaningful engagement of the community in planning, implementation and monitoring of watershed development, community level institutions and local government bodies are supported. These include Watershed Development Committees (WDCs), farmer or water user groups, self-help groups (SHGs), and the Gram Panchayats (GPs).

9. **Watershed programs in India have been well-resourced**. The Watershed Development Component of the PMKSY[10] (WDC-PMKSY) is the key ongoing government program in the watershed development sector with

[7] Over time, watershed programs typically covered areas of 50,000 ha; from early 1990s to 2000s the programs moved to treating micro-watersheds of 500 ha; and from 2008 onwards the watershed programs focused on clusters of micro-watersheds covering contiguous areas of around 5,000 ha, emphasizing on a saturation approach of treating a high percentage of the site.
[8] also referred to as State Watershed Departments (SWDs) in this document.
[9] Depending on the state, this could be the Department of Agriculture, Panchayat Raj Department, Forest Department, or in some cases a separate Watershed Development Department.
[10] The PMKSY scheme is an amalgamation of three ongoing national schemes: (i) Accelerated Irrigation Benefit Program of the Ministry of Water Resources (MoWR), River Development and Ganga Rejuvenation (RD&GR); (ii) the Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR) of the Ministry of Rural Development (MoRD); and (iii) the On-Farm Water Management of Department of Agriculture and Cooperation.

an allocation of USD 314 million in 2019–20.

10. **GoI's key watershed program, the WDC-PMKSY, has made good progress, but the process has weaknesses that are reducing expected results.** Under the IWMP/WDC-PMKSY, 8,214 watershed development sub-projects[11] were approved, between 2009-10 and 2014-15 in 28 states, covering an area of about 39.07 million ha. Of these, 3,061 have been completed – treating about 20.5 million ha of rainfed and degraded land; creating 608,000 water harvesting structures; bringing 1.3 million ha of land under protective irrigation; improving 201,000 ha of wasteland; and benefitting 2.7 million farmers. Based on the total of 96 million ha of rainfed lands in India and the area treated to date with government watershed programs (20.5 million ha), 75.5 million ha remain to be treated.

11. **Rural women play a central role in managing land, water, biomass and agriculture, as well as addressing household requirements of food and income, and are consequently most affected by climate change and vulnerabilities associated with rainfed agriculture.[12]** Successive guidelines[13] as well as projects on watershed development have emphasized women's representation in water institutions and their participation in watershed planning and management. However, the implementation experience and outcomes for gender equity have shown significant variations. This is due to multiple reasons: such as inadequate focus on women's differential needs and priorities, as well as social and cultural constraints that limit women's voice. Typically, states include 33 percent reservation and representation criteria for women in watershed committees.[14]

12. **Improving impacts of India's watershed development program will require a more science-based and data-driven approach, shorter sub-project cycles, stronger institutional capacities, and greater attention to farmers' needs.** Current watershed programs need to adopt a stronger science-based approach by: applying modern tools and comprehensive site data for more efficient and integrated planning among the line departments; reducing time for sub-project planning and execution; and shifting monitoring systems from tracking physical and financial progress to an approach that also measures broader results and impacts. Programs need more emphasis on hydrology – especially water budgets and the demand side of groundwater management in watersheds, crop selection based on land suitability assessment, rational fertilizer use informed by analysis of soil nutrient status, and greater value addition and market access.

13. **States need support to implement new national watershed guidelines**. Drawing on guidance from the NRAA, the DoLR revised the *Draft Guidelines for New Generation Watershed Development Projects 2020.*[15] The draft guidelines incorporate new approaches, many adopted from the KWDP-II.

14. **Key lessons from watershed management programs financed by the Bank, from within India and**

[11] Each covering about 5,000 ha.

[12] Gender Perspective in Water Management: The Involvement of Women in Participatory Water Institutions of Eastern India, Varsha Khandker; 2019

[13] Integrated Watershed Management Guidelines, 2011; GoI

[14] Watershed Development in India, World Bank; 2014

[15] The 1994 Guidelines for Watershed Development focused on the watershed scale and having a participatory focus. The 2001 Common Guidelines for Watershed Development were applicable to several GoI programs involving watersheds (DPP, DPAP, IWDP). These had a more participatory and project-specific focus with greater flexibility in implementation. The 2003 Hariyali Guidelines focussed on integration of community institutions more meaningfully in the GoI's watershed programs and simplified procedures. The Parthasarathy Committee (2006) report on watershed programmes suggested radical reforms in the way watershed sub-projects were being planned and implemented. In 2008, common guidelines for watershed programs in the country were put out by DoLR. These gave primacy to local government institutions, participatory planning and implementation of watersheds, etc. However, the guidelines lacked adequate emphasis on hydrological assessments, groundwater management and demand side management of water. The revised guidelines issued in 2011 also retained these gaps. Both the IWMP and the WDC-PMKSY followed the 2008 guidelines (revised in 2011).

outside the country, have informed the design of the proposed *Rejuvenating Watersheds for Agricultural Resilience through Innovative Development* (REWARD) Program. Key lessons emphasize the importance of**:** (I) using scientific data-driven analytics (such as LRI, hydrology, climate) and planning; (ii) focusing more on water management, including demand management; (iii) improving evidence-based and data-driven monitoring systems focused on results and impacts; (iv) building stronger technical and management capacities at national, state and local levels to apply new approaches and technologies; (v) developing O&M policies and financing mechanisms; (vi) providing performance incentives, including bio carbon funds, to incentivize local governance and maintenance of watersheds; (vii) introducing innovative participatory processes, including setting up special women forums to facilitate participation; and (viii) integrating value chain services to help farmers gain more income.

PforR Program Scope

15. **The Government's Watershed Development Component – Pradhan Mantri Krishi Sinchayee Yojana (WDC-PMKSY) is a key source of funds for watershed management.** The DoLR provides national guidelines and funds to states through national watershed schemes for execution at the sub-project level.[16] The long-standing funding pattern of 90:10 (Centre:state) changed to 60:40 from 2016-17. The actual fund release from DoLR to the states has ranged from USD 214 million in 2016-17 to USD 256 million in 2018-19. In 2019-20, the actual fund release dipped to USD 139 million.

16. **DoLR aims to bring at least 10 million ha of hitherto untreated land under watershed development**. The current WDC-PMKSY national watershed scheme is ending in March 2021, and a follow-on program with a planned outlay of USD 2.3 billion is proposed. Through the 2020-21 fiscal year in the current WDC-PMKSY and the follow-on program, DoLR plans to undertake watershed management on 10 million ha. The USD 2.3 billion allocation represents only DoLR's share. The cost-sharing with states is expected to continue at 60:40, inferring that the total cost of the new program will be USD 3.6 billion. The new cost norms will apply to all states taking up the new national watershed program. The three states participating in the REWARD Program have confirmed their financial contributions to the national program.

17. **New national watershed guidelines will govern the follow-on scheme starting in April 2021.** The new guiding watershed principles will address several key points. The thrust areas of the government program, specified in the new guidelines, are decentralization, flexibility, transparency, equity, and community empowerment. In many ways, the new national guidelines mirror key elements and innovations from the successful KWDP-II.

18. **The proposed PforR will support the next phase of the WDC-PMKSY program.** The WDC-PMKSY program is implemented across all states (except for the state of Goa) and has an allocation of USD 2.3 billion from the Central government. The REWARD Program is a sub-set of the new WDC-PMKSY program with activities at the Central level and in several participating states over a five-year period. The proposed Central allocation to the REWARD Program for Karnataka, Odisha, Andhra Pradesh and the DoLR is USD 546.1 million.[17] The proposed International Bank for Reconstruction and Development (IBRD) financing of the REWARD Program is USD 134.6 million including USD 128.6 million to be allocated across the three states and USD 6 million to the DoLR. At the

[16] The DoLR and SWDs use the term 'project' to refer to the watershed development activities covered by a single 'Detailed Project Report' and typically covering a sub-watershed or a micro-watershed. However, this document uses the term 'sub-project' to refer to the same, to avoid confusion with other national and state level projects.
[17] This includes: DoLR USD11.86 million, Karnataka USD219.14 million, Odisha USD141.57 million, Andhra Pradesh USD173.57 million.

Central level, the REWARD Program scope covers management, monitoring, communication, and knowledge sharing functions of the DoLR. At the state level, the REWARD Program will support implementation of key evidence-based watershed activities and value addition initiatives, and in so doing, aim to influence the WDC-PMKSY in the three states.

19. **Each participating state meets specific qualifying and readiness criteria.** These criteria are: (i) extent of rainfed area in the state;[18] (ii) socio-economic profile;[19] (iii) financial readiness: the state governments have agreed to provide counterpart financing of 30 percent of the cost of the Program to complement the financing provided by the GoI using the Bank's resources; (iv) financial performance: the state has demonstrated utilization of more than 85 percent of the funds released by the DoLR under the WDC-PMKSY in the past five years; (v) institutional readiness: the state has established institutional arrangements at the state and district levels for watershed development and initiated partnerships with technical institutions; and (vi) demonstrated performance: the state has strong leadership in the State Watershed Department (SWD, also referred to as SLNA) and demonstrated capacity to plan and implement watersheds at scale with evidence of results. **All participating states have been working with DoLR to implement watershed programs**.

20. **Karnataka** has a total geographical area of 19 million ha of which 12.9 million ha require watershed treatment. Under various schemes and projects to date,[20] about 6.7 million ha is treated. Of the remaining area, 5.4 million ha is available for treatment. Starting in 2019-20, the state also allocated INR 1,000 million/year (USD 13.2 million/year) for the next five years to watershed development in drought prone areas, guided by successful approaches and innovations in KWDP-II. It was among the first states to constitute a separate Watershed Development Department in 2000. The technical design of the proposed REWARD Program draws heavily from the approaches and experiences of the KWDP-II, which closed December 31, 2019.

21. **Odisha** has a total geographical area of about 15.57 million ha divided into 20,079 micro-watersheds. Of these, 16,873 are treatable and 7,721 have been taken up so far under various schemes. A total of 9,152 micro-watersheds covering an area of about 4.7 million ha are yet to be treated. The WDC-PMKSY has been the main source of funding for watershed development in the state. The Odisha Mineral Bearing Area Development Corporation (OMBADC) set up by the Government of Odisha (GoO) in 2014 also provides funds to watershed development in the mining districts of the state. In 1977-78, the state created the Directorate of Soil Conservation, which is responsible for watershed development.

22. **Andhra Pradesh** has a total geographical area of about 16.3 million ha, of which 12.6 million ha is treatable, and 3.44 million ha has been treated so far under various schemes. An area of about 9.16 million ha is yet to be treated. The WDC-PMKSY has been the main source of funding for watershed development in the state. The state created a watershed development department, under the Department of Rural Development.

23. **In summary, the REWARD Program constitutes a significant part of the watershed development component (WDC) in the PMKSY scheme**. The three states will have a total of USD 534.3 million based on a 60:40 cost-sharing which, using an average cost norm of USD 309.0/ha would enable the treatment of around 1.35 million ha of degraded, rainfed areas.

24. **The REWARD Program is divided into two Results Areas.** The Results Areas outline the broad interface

[18] Karnataka: More than 70 percent of the net sown area in 18 out of the 30 districts (60 percent of the districts) is rainfed. Odisha: More than 70 percent of the net sown area in 13 out of the 30 districts (40 percent of the distrcts) is rainfed. Andhra Pradesh: About 64 percent of the net sown area is rainfed.

[19] 25 percent of rural Karnataka is poor. 36 percent of rural Odisha is poor. 11 percent of rural Andhra Pradesh is poor.

[20] In addition to implementing WDC-PMKSY, Karnataka has implemented several externally aided projects with support from DFID, DANIDA, Swiss Development Corporation (SDC) and the World Bank (KWDP-I and KWDP-II).

between Bank contributions to the national watershed program at the central and state levels, and the key results that the REWARD Program will incentivize:

- **Results Area 1: Strengthened institutions and supportive policy for watershed development:** Results Area 1 will focus on strengthening the institutional capacity and policy environment for science-based, participatory watershed development in the participating states.
- **Results Area 2: Science-based watershed development and enhanced livelihoods:** Results Area 2 will concentrate on science-based watershed development and help demonstrate more efficient and effective planning and implementation of watershed sub-projects that contribute to livelihood enhancement. The emphasis on livelihoods is considered critical in the context of COVID-19, as it will enable quicker local/community recovery and build longer-term resilience.

C. Proposed Program Development Objective(s)

25. Strengthen capacities of national and state institutions to adopt improved watershed management for increasing farmers' resilience and support value chains in selected watersheds of participating states.

PDO Indicators

a) Watershed Committees and Gram Panchayats demonstrate satisfactory watershed management as measured through a performance rating system
b) Land area treated with science-based watershed management technologies
c) Adoption of resilient agriculture technologies and practices by farmers
d) Increase in climate-adjusted soil moisture in targeted watershed areas
e) Direct Program beneficiaries (number, disaggregated by gender and social group).

26. **The primary beneficiaries of the REWARD Program are communities in rainfed areas that rely on sustainable land and water resources for livelihoods and ecosystem services**. The sustainable development of watersheds based on better scientific inputs and technical capacities will lead to more effective conservation of soil, improved surface and ground water availability and efficiency of use, and enhanced agricultural productivity and profitability, thereby generating sustainable improvement in incomes. It will have positive impacts on women, small and marginal farmers, and agricultural laborers. The efforts to ensure social inclusion in watershed planning and management will enhance the benefits that accrue to the most vulnerable.

27. **Disbursement of funds will be linked to DLIs across the two Results Areas** – 1) Strengthened institutions and supportive policy for watershed development and 2) Scientific watershed development and enhanced livelihoods The DLIs have been finalized in consultation with the DoLR and the three participating SWDs, considering the need to signal critical actions in the achievement of the PDO; the need for a financial incentive to achieve the intended results; practical considerations of verifying achievement; and states' capacity to achieve the results during the Program implementation period. The DLIs are listed below.

- DLI #1 Watershed Committees and Gram Panchayats demonstrate satisfactory watershed management as measured through a performance rating system (USD 24.0 million)
- DLI #2 Land area treated with science-based watershed management technologies (USD 50.1 million)
- DLI #3 Adoption of resilient agriculture technologies and practices by farmers (USD 20.2 million)
- DLI #4 Farmer Producer Organizations with 25 percent increase in business turnover relative to

baseline (USD 24.3 million)

- DLI #5 Number of professionals who complete certified training on improved watershed management provided by national center for excellence on watershed development (USD 10.0 million)
- DLI #6 National technical standards for improved watershed management updated by the DoLR and directive issued to states (USD 6.0 million) (DLI for DoLR).

D. Environmental and Social Effects

28. **The ESSA was carried out in line with the World Bank policy and procedure for PforR financing for the REWARD Program**. The ESSA assessed the adequacy of E&S systems including existing institutional, operational, and regulatory systems and capacities to manage E&S risks and priorities and recommends measures for strengthening them. The ESSA covered a comprehensive review of all relevant E&S plans/frameworks, implementation documents and other technical studies/reports related to national as well as state-supported watershed programs, including the World Bank supported watershed projects in Karnataka. This was complemented with consultations with key primary and secondary stakeholders including SLNAs/SWDs and the other line departments; field visits to watersheds in Karnataka with face-to-face interactions with community groups (including small and marginal farmers, women and women SHGs, landless households, user groups/common interest groups), and community institutions (such as watershed committees), PRIs, NGOs and government line departments and partner agencies. In addition, following the pandemic, multiple rounds of virtual consultations were held with government counterparts, partners, and watershed community representatives in the participating states. The ESSA identified key gaps and opportunities for further strengthening the existing institutional, operational, and regulatory systems and capacities pertaining to E&S issues in the REWARD Program. The draft ESSA report was presented to a wide range of stakeholders for their comments and suggestions through multi-stakeholder consultations in a virtual manner in August 2020 and in February 2021 and revised after incorporating comments and suggestions received from these multi-stakeholder consultation workshops.

Key Findings of the ESSA

29. Potential Benefits: The overall E&S impact of the watershed Program is likely to be positive, owing to benefits such as increased ground water level, improved soil moisture and increase in green coverage, crop productivity due to multi-cropping and increase in rural incomes subsequently reducing poverty. Strengthening capacities of project authorities and functionaries, and both public and private specialized institutions to implement more science-based watershed projects will be beneficial for overall hydrological services and environmental sustainability. Establishing high-level coordinating bodies in the state government on the lines of Multi Stakeholder Platform (MSP), for convergence of watershed issues will benefit the environment with convergence of state specific goals on forest cover, agriculture and horticulture development for developing rainfed districts. The key social benefit of the Program includes: (i) employment creation for both marginal and small farmers as well as for wage laborers, (ii) increased availability of drinking water, (iii) improvements in household incomes and general economic development, and (iv) improvement in the levels of knowledge about water conservation and agriculture.

30. Environmental and Social Risks: Most of the E&S risks and impacts are mainly on account of gaps identified in existing implementation processes of the watershed program and these small scale, site specific, reversible impacts are highly amenable to risk mitigation measures. The key social risk emerges from risk to community participation with potential change in watershed planning process being a ‘top down’ approach

compared to the IWMP 'bottoms up' approach currently being followed. This also adds to the potential risk of exclusion of tribal and other vulnerable communities in participating and receiving equitable program benefits. The environmental risks are largely related to extension of watershed interventions to forest, wetlands and other environmentally sensitive areas; risk of change in cropping patterns to more water-intensive high-value crops leading to excessive withdrawal of ground water, and increased use of fertilizer and pesticides; risk of increase in salinity and sodicity due to excessive irrigation in some areas; risk of restricting surface flow at plot level thereby impacting water bodies in the downstream and overall hydrology. There are no specific measures instituted for management of E&S activities in the process of Program implementation. The planned convergence of other programs of partner departments of agriculture, horticulture, forestry, and MNERGA to conserve soil moisture will contribute to effectively managing all such environmental risks. The REWARD Program's overall E&S risk rating is 'Moderate' and can be effectively mitigated within the existing E&S management systems.

E. Financing

31. The total REWARD Program financing will be USD 741.9 million – government (Central and state shares) financing of USD 607.3 million,[21] and IBRD financing of USD 134.6 million[22] to be allocated to the DoLR (USD 6 million) and to the states of Karnataka (USD 60 million), Odisha (USD 49 million), Andhra Pradesh (USD 19.6 million), subject to potential variations in allocated amounts based on performance during implementation.

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[21] Includes government contributions of (a) USD 557.1 million WDC-PMKSY budget and (b) USD 61.1 million borrower's contribution.
[22] More details on the financing arrangements are found in Table 3.

Borrower/Client/Recipient

Borrower :	India		
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