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Report No: PAD00039

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF
US$135 MILLION

TO

INDIA

FOR AN

UTTARAKHAND DISASTER PREPAREDNESS AND RESILIENCE PROJECT

MARCH 11, 2024

Urban, Resilience, and Land Global Practice
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective January 31, 2024)

Currency Unit =	Indian Rupee (INR)
INR 83.05=	US$1

FISCAL YEAR

April 1 – March 31

Regional Vice President:	Martin Raiser
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ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AM	Accountability Mechanism
BoQ	Bill Of Quantities
CERC	Contingent Emergency Response Component
CPF	Country Partnership Framework
DRM	Disaster Risk Management
e-GP	electronic Government Procurement
EDGE	Excellence in Design for Greater Efficiencies
ESMF	Environmental and Social Management Framework
EWS	Early Warning System
FD	Forest Department
FM	Financial Management
GDP	Gross Domestic Product
GoUK	Government of Uttarakhand
GRID	Green, Resilient, and Inclusive Development
GRS	Grievance Redress Service
HPC	High-Powered Committee
IPF	Investment Project Financing
IUFR	Interim Unaudited Financial Report
M&E	Monitoring and Evaluation
MIS	Management Information System
NDC	Nationally Determined Contribution
PA	Project Agreement
PDO	Project Development Objective
PIE	Project Implementing Entity
PIU	Project Implementation Unit
PMU	Project Management Unit
PPSD	Project Procurement Strategy for Development
PWD	Public Works Department
RCP	Representative Concentration Pathway
RWD	Rural Works Department
SDRF	State Disaster Response Force
SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
SNA	Single Nodal Agency
SOP	Standard Operating Procedure
STEP	Systematic Tracking of Exchanges in Procurement
UDRP	Uttarakhand Disaster Recovery Project
UFES	Uttarakhand Fire and Emergency Services
ULMMC	Uttarakhand Landslide Mitigation and Management Centre
U-PREPARE	Uttarakhand Disaster Preparedness and Resilience Project
USDMA	Uttarakhand State Disaster Management Authority

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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
India	Uttarakhand Disaster Preparedness and Resilience Project		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P179749	Investment Project Financing (IPF)	Substantial	

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] 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
[ ] Alternative Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
01-Apr-2024	30-Jun-2029
Bank/IFC Collaboration	
No	

Proposed Development Objective(s)

To enhance the climate and disaster resilience of critical public infrastructure and strengthen disaster risk management capacity in Uttarakhand.

Components

Component Name	Cost (US$)
Enhancing Infrastructure Resilience	50,000,000.00
Improving Emergency Preparedness and Response	56,000,000.00
Preventing and Managing Forest and General Fires	45,000,000.00
Project Management	17,412,500.00
Contingent Emergency Response Component	0.00
Front End Fee	337,500.00

Organizations

Borrower: India
Implementing Agency: Uttarakhand State Disaster Management Authority, Government of Uttarakhand

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? No

SUMMARY

Total Operation Cost	**168.75**
Total Financing	**168.75**
of which IBRD/IDA	**135.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	135.00

Non-World Bank Group Financing

Counterpart Funding	33.75
Borrower/Recipient	33.75

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	0.00	10.00	20.00	30.00	32.00	38.00	5.00
Cumulative	0.00	10.00	30.00	60.00	92.00	130.00	135.00

PRACTICE AREA(S)

Practice Area (Lead)

Urban, Resilience and Land

Contributing Practice Areas

Climate Change; Environment, Natural Resources & the Blue Economy; Transport; Social Sustainability and Inclusion

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate

7. Environment and Social	Substantial
8. Stakeholders	Moderate
9. Overall	Moderate

POLICY 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

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

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: 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

Legal Covenants

Sections and Description
Section I.A.3, 1.A.4 of the Schedule to the PA: The Project Implementing Entity ("PIE") shall maintain, throughout Project implementation, the PIUs, and Field PIUs with composition, resources, qualifications, experience, and terms of reference acceptable to the Bank.
Section I.A.5 of the Schedule to the PA: The PIE shall ensure that the PMU and the PIUs will closely coordinate with other relevant entities, in particular with SDRF and the UFES.
Section I.B.1 of the Schedule to the PA: Not later than three (3) months after the Effective Date, the PIE, through the PMU, shall prepare and adopt, and, thereafter, maintain throughout the implementation of the Project, the Project Implementation Plan, acceptable to the Bank, containing detailed guidelines and procedures for the implementation of the Project.
Section I.E.1 of the Schedule to the PA: The PIE, through the PMU, shall make a Community Grant to a Beneficiary under a Community Grant Agreement approved by the Bank, in accordance with eligibility criteria and procedures acceptable to the Bank set forth in the Community Grants Manual, as said manual may be amended from time to time with the prior concurrence of the Bank.

Conditions

Type	Citation	Description	Financing Source
Disbursement	Condition-1	Section III.B.1 of Schedule 2 to the Loan Agreement: No withdrawal shall be made: (a) for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed $27,000,000 may be made for payments made prior to this date but on or after April 1, 2023, for Eligible Expenditures under Category (1); (b) for Community Grants under Category (2), unless and until the Community Grants Manual, acceptable to the Bank, has been prepared and adopted by the Project Implementing Entity; or (c) for Emergency	IBRD/IDA

		Expenditures under Category (3), unless and until, all of the disbursement conditions have been met in respect of the said expenditures.	

I. STRATEGIC CONTEXT

A. Country Context

1. **Growth is forecast to be between 6.3-7.3 percent in FY23-24 and to remain robust in the medium term.** In FY23/24, India will remain the fastest growing large economy. While consumption growth is expected to slow down (as the post pandemic rebound dissipates) and export demand to be somewhat depressed by the weak global environment, strong investment growth should keep economic growth elevated. The public investment push should gradually crowd-in private investment, which will also be facilitated by healthy corporate profits, easing inflation, India's strong macroeconomic fundamentals and a reduction in bank non-performing loans. The government's efforts to contain current spending coupled with strong revenue performance should contribute to narrow the general government fiscal deficit (to 8.7 percent in FY23/24), with the debt-to-GDP ratio stabilizing at around 82 percent of GDP over the medium term. India's external position remains favorable, with growing services exports, a narrowing merchandise trade deficit, steady net foreign capital inflows, and large foreign exchange reserves of more than US$600 billion (as of end-2023).

2. **India has made remarkable progress in reducing extreme poverty over the past two decades.** The share of the population living below US$2.15 per person per day (2017 PPP) is estimated to have halved between 2011 and 2019 from 22.5 to 12.7 percent. In line with global trends, extreme poverty increased by two percentage points in 2020 on account of the pandemic. However, broad access to vaccines and government mitigation measures contributed to the return to pre-pandemic poverty levels. The extreme poverty rate is estimated to have declined to 11.9 percent in FY 2021/22, while moderate poverty (US$3.65 per person per day) rate is estimated at 40 percent in FY 2021/22. India's long-term progress in reducing extreme poverty was accompanied by a sharp decline in the incidence of multidimensional poverty, from 27.7 percent in 2015/16 to 16.4 percent in 2019-21. Inequality in consumption has remained stable over the past two decades, with a Gini index of around 35. Child malnutrition declined sharply between 2015-16 and 2019-21, with 35.5 percent of children under the age of 5 being stunted. Headline employment indicators have improved since 2020, and unemployment rates have recovered in urban and rural areas but concerns about job quality remain.

3. **India is highly vulnerable to natural disasters, and climate change increases this vulnerability.** More than 80 percent of India's population lives in areas highly susceptible to extreme hydrometeorological (hydromet) disasters, including floods, droughts, and cyclones, and consequential landslides. Out of the almost 3.3 million km^2 of landmass, 15 percent is susceptible to landslides, 12 percent is prone to river floods, 59 percent is prone to earthquakes of moderate to very high intensity, and 75 percent of the coastline is prone to cyclones. By the 2090s, temperatures in India are projected to increase by approximately 4.5°C under the Representative Concentration Pathway (RCP) 8.5 scenario and by around 1.2°C under the RCP2.6 scenario. Rising temperatures, sea level rise, and extreme precipitation due to climate change are expected to further erode the country's glacier mass and increase the frequency and magnitude of wildfires, landslides, and coastal and river flooding.

4. **India has demonstrated policy ambitions for both climate change mitigation and adaptation.** The updated 2022 Nationally Determined Contribution (NDC) strengthens the country's ambition to achieve the goals of the Paris Agreement. Compared to 2005 levels, India's NDC pledges to reduce GDP emissions intensity by 45 percent, obtain 50 percent of its installed electricity capacity from renewable energy resources, and provide an additional carbon sink of 2.5–3.0 billion tons of carbon dioxide by increasing forest cover, all by 2030. Alongside its mitigation efforts, the country has pursued disaster risk reduction. The NDC calls for better adaptation to climate change, including in the Indian Himalayan Region. The 2019 National Disaster Management Plan puts the Sendai Framework for Disaster Risk Reduction into action.

B. Sectoral and Institutional Context

5. **Uttarakhand is a Himalayan region mountain state that is regularly affected by flash floods, landslides, wildfires, glacier lake outbursts, cloudburst incidences, and earthquakes.** The combination of unfavorable geology, steep sloping areas, and cloudburst incidences makes the occurrence of landslides very likely, with 51 percent of the state's area having high or very high landslide susceptibility. Frequent disasters, such as the 2013 floods and landslides with 4,000 fatalities, the 2016 wildfire affecting more than 4,500 hectares of forest, the 2021 rock and ice avalanche, and the slow subsidence unfolding in Joshimath, are disrupting development in Uttarakhand. This is reversing hard-won development gains and having multi-dimensional effects on the state's economy. Most of the state's landmass falls under Seismic Zone IV or V, the highest seismic risk zones of the country, and the state has witnessed 11 major earthquakes over the last century.

6. **Uttarakhand's disaster vulnerability is further exacerbated by climate change.** Regional climate models predict a warming of 1.3–1.6°C in Uttarakhand by the middle of the century and 2.3–5.9°C by the end of the century. This will further increase the risk of forest fires during the summer and contribute to the ongoing loss of glaciers. Increasing monsoon precipitation and enhanced glacier melt lead to a significant increase in peak runoff during the monsoon months. This can elevate the risk of flash floods, landslides, and glacier lake outburst floods. The potential landslide activity of some regions of Uttarakhand might increase by up to 90 percent during the monsoon season (May–October) by the second half of the century due to climate change-induced glacier melting and increased rainfall. Altogether, climate change adds to the unpredictability of disasters and is further aggravated by anthropogenic trends, including unplanned urbanization, deforestation, and water extraction.

7. **The Government of Uttarakhand (GoUK) is committed to addressing climate change across sectors while supporting inclusive growth.** It has implemented initiatives to mainstream adaptation and build resilience, such as establishing the Uttarakhand State Disaster Management Authority (USDMA) under the 2005 Disaster Management Act and creating state, district, and village disaster risk management (DRM) plans. The 2014 Uttarakhand Action Plan on Climate Change is the state's key climate change policy document, presenting climate-resilient development pathways for 12 key sectors. GoUK has implemented the World Bank-financed Uttarakhand Disaster Recovery Project (UDRP) and Additional Financing (AF) since 2013. UDRP, which closes in September 2023, has restored housing and rural connectivity, built the resilience of communities, and increased the capacity of the state to respond to emergencies.

8. **A holistic approach that integrates risk reduction into critical infrastructure planning is still lacking in Uttarakhand.** The state will need to conduct a review of its infrastructure planning processes, mainstream resilience into processes and institutions, and build adequate planning capacity. For example, transport infrastructure is a critical lifeline that is prone to climate and disaster risks. Disaster-related interruptions in the transport infrastructure in Uttarakhand cut off communities from markets, schools, medical facilities, and other economic opportunities and essential services. Timely emergency response and reconstruction are impaired by Uttarakhand's mountainous topography. To ensure all-weather connectivity, new resilient bridges are required at essential missing link locations and many existing bridges require upgrades. Slope stabilization is needed at critical locations to reduce the risk and impact of landslides and to improve safety.

9. **Gaps remain in the state's emergency preparedness.** USDMA, the nodal agency for coordinating all DRM matters, works closely with other relevant departments, including the State Disaster Response Force (SDRF, focusing on relief and rescue operations), the Uttarakhand Fire and Emergency Services (UFES, de jure first responder for any type of small-scale disaster), and the Forest Department (FD, responsible for forest fire management). USDMA's coordinating role needs to be strengthened through capacity building, enhanced multi-stakeholder Standard Operating Procedures (SOPs), and mandated responsibilities. Moreover, agencies currently lack the capacity, infrastructure, training facilities, equipment, and technology to fulfill their functions effectively across the entire state. Despite frequent disaster incidents and a significant influx of tourists and a number of communities in remote, hard-to-reach, mountainous areas, there are

currently no disaster shelters in the state. Insufficient funds and access to external funding for urgently needed investments across all sectors is a key cross-cutting challenge.

10. **The transformation of Uttarakhand's meteorological and hydrological services and early warning system (EWS) is critical to reduce the increasing costs of natural hazards and increase the productivity of key economic sectors.** Currently, the state relies on the India Meteorological Department's forecasting services, which are limited in quality and performance. To increase the granularity, accuracy, and timeliness of forecasts, Uttarakhand requires services from the private sector to improve the forecast quality; deliver user-oriented, fit-for-purpose products to different end users; and build forecasting capacity in the state. The current EWS is limited and fragmented, lacking people-centered approaches that allow for informed decision-making and action at all levels, down to the community.

11. **The capacity within UFES to respond to fires in commercial, residential, and industrial areas and to enforce preventative fire safety measures is limited.** Fire incidents have increased sixfold in the past 20 years in the state. Given the ongoing rapid population growth in Uttarakhand, the capacity gaps lead to increased fire response times which are directly related to loss of life and economic damages. The increasing risk of climate-induced forest fires also increases the risk of fires spreading across the wildland-urban interface. UFES is struggling to send its personnel to the centralized national training facility due to a lack of available personnel to maintain service delivery in the state's vast area that faces fire hazards. Although a set of regulatory requirements exists to ensure fire safety in buildings, UFES is unable to enforce these requirements. It requires capacity building through the provision of training, equipment, and enhanced coordination with other stakeholders. Public awareness raising is also needed.

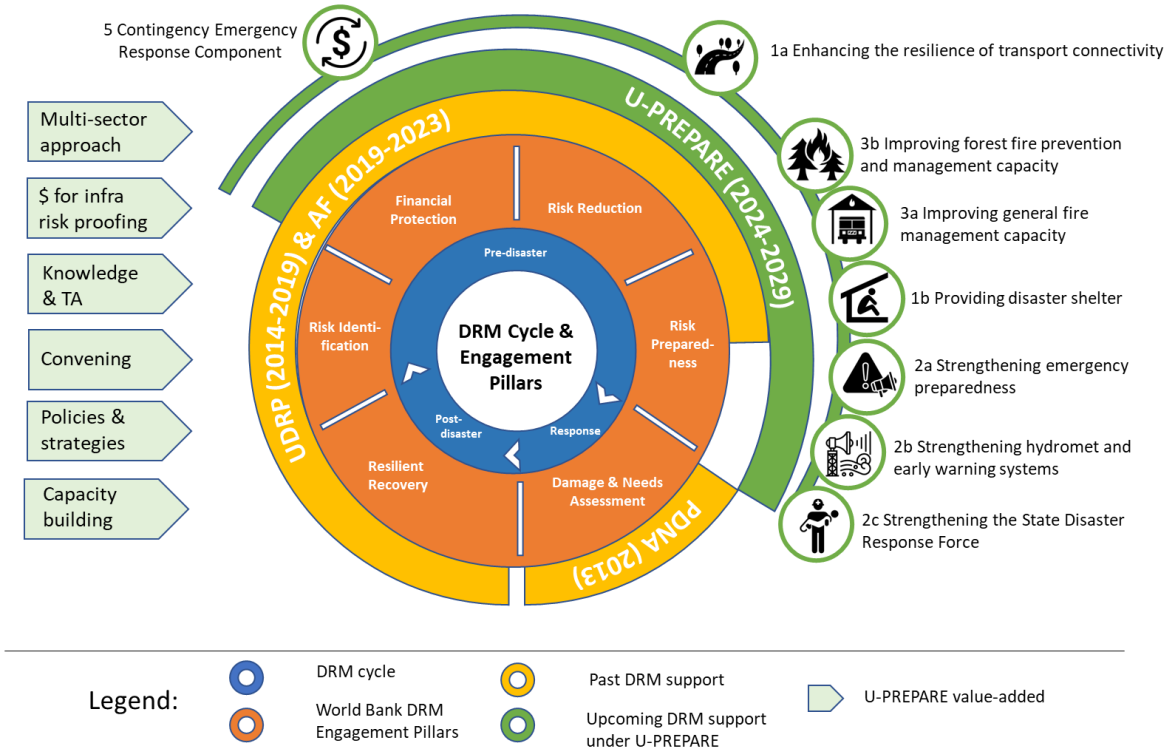
12. **Forest fires are increasing in their intensity and spread.** Forests cover 45 percent of the State's area, with the rural population being largely dependent on natural forest resources. Around 65 percent of the forest area is sensitive to forest fires, with 2,800 registered forest fires in 2021, affecting an area of almost 4,000 ha. India's forest carbon stock is estimated at 7.204 Gt in 2021—among the six most significant national carbon sequestration potentials worldwide. However, forest fires and degradation have negatively affected forest ecosystem services, including the carbon stock. The potential to monetize carbon sequestration services resulting from sustainable forest management including forest fire risk management remains largely untapped, and gaps remain to effectively manage forest fire risk. This includes a lack of equipment, infrastructure, and capacity within the FD and communities; awareness and incentives at the local level; and interagency coordination such as the integration of the FD within the wider DRM system.

13. **Women tend to be more severely affected by disasters and are underrepresented in DRM agencies.** Women and men experience disaster impacts differently, with women often being more severely affected and having lower levels of resilience than men. This also applies to Uttarakhand where more than 70 percent of the women workers are dependent on climate-sensitive sectors such as agriculture and are often in vulnerable employment. Existing DRM mechanisms have often failed to address the differentiated impacts of disasters on women. After the 2021 Uttarakhand floods, for example, 50 percent of women did not have access to safe spaces and 65 percent could not access adequate sanitary supply. This insufficient consideration of women's needs is exacerbated by the lack of female employees in DRM agencies. For instance, among the almost 1,000 employees of UFES, less than 1 percent are female and existing fire stations do not have adequate facilities for women.

14. **The proposed project will promote a comprehensive multi-sectoral approach with much-needed investments, knowledge, and convening power required to improve the resilience of critical infrastructure and disaster preparedness in Uttarakhand.** It will support a shift in the state's disaster and climate risk management from a reactive to a proactive approach as illustrated by the evolution of the World Bank's support in the state in terms of the DRM Engagement Pillars covered (see Figure 1). UDRP (2014–2019) focused on resilient recovery in response to the 2013 floods, risk identification, and a limited number of risk preparedness activities. Under the AF (2019–2023), resilient reconstruction activities and risk

preparedness activities were expanded, and risk reduction activities were introduced. A Contingent Emergency Response Component (CERC) provided financial protection and was activated in response to the COVID-19 pandemic. The Uttarakhand Disaster Preparedness and Resilience Project (U-PREPARE) will focus on risk preparedness and risk reduction, complemented by financial protection via a CERC, and support the shift toward proactive DRM that builds on previous activities and focuses on the pre-disaster phase. The combination of climate proofing critical infrastructure with strengthened capacity and governance is key to comprehensively enhance resilience and DRM. In addition to USDMA, Public Works Department (PWD), and SDRF, which have been part of UDRP and the AF, U-PREPARE will also work with UFES, Rural Works Department (RWD), and forestry sector (FD) to improve governance, coordination, and partnerships among key agencies and build their capacities in an integrated and sustainable manner, facilitated by an empowered USDMA.

Figure 1. Project Context of the Evolving Disaster Risk Management Support to Uttarakhand



Note: TA = Technical assistance.

C. Relevance to Higher Level Objectives

15. **The project is consistent with the World Bank Group's Country Partnership Framework for India FY18–22 discussed by the Board of Executive Directors on September 20, 2018 (Report 126667-IN) and extended to FY25 by the corresponding Performance and Learning Review dated October 23, 2023.** It contributes to several objectives in the CPF: it will enhance the welfare of rural populations (Objective 1.1), advance DRM through support for resilient infrastructure and state DRM institutions (Objective 1.5) and enhance connectivity and the resilience of transport infrastructure (Objective 2.3). It further aligns with the Green, Resilient, and Inclusive Development (GRID) approach by implementing green infrastructure, setting up a carbon market scheme, and promoting inclusive local approaches through community training in risk management and forest fire reduction.

16. **The project is aligned with the World Bank's cross-cutting focus on gender, inclusion, and climate action and with the Government's climate change strategies.** It has a focus on extending employment services to women in both the public and private sectors, supporting Objective 2 of the World Bank Group Gender Strategy FY16–23, which aims to remove constraints for more and better jobs for women. The proposed cross-sectoral approach aligns with several priority activities in the World Bank Climate Change Action Plan 2021–2025 and the South Asia Climate Roadmap, including strengthening public infrastructure in climate-vulnerable zones and developing resilience at the systemic level using a whole-of-government approach. The project is also consistent with India's updated 2022 NDC and contributes to the NDC's targets of adapting to climate change by increasing investments in disaster management in the Himalayan region and increasing carbon sink through enhanced forest cover. It also contributes to India's 2022 Long-Term Low-Carbon Development Strategy, especially to the key transitions of urban planning and buildings (including mainstreaming adaptation measures in the built environment and promoting climate response and resilient building design, construction, and operation) and forests (restoration and management of forests).

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

17. To enhance the climate and disaster resilience of critical public infrastructure and strengthen disaster risk management capacity in Uttarakhand.

PDO Level Indicators

18. The project will measure progress toward the Project Development Objective (PDO) via the following indicators:

(a) Millions of people that benefit from improved access to sustainable transport infrastructure and services (Number) (Corporate Scorecard Indicator)
(b) People benefitting from new and upgraded fire stations (Number)
(c) Millions of people with enhanced resilience to climate risks (Number) (Corporate Scorecard Indicator)

B. Project Components

19. The project will finance the following activities in selected areas, which are agreed between the GoUK and the World Bank and set forth in the Project Implementation Plan:

Component 1 - Enhancing Infrastructure Resilience (Total: US$50 million; IBRD: US$40 million; Government: US$10 million)

20. This component will support the development of climate- and disaster-resilient priority infrastructure and integrate resilience into infrastructure planning, through the following:

(a) **Enhancing the resilience of transport connectivity (Total: US$46 million; IBRD: US$36.8 million; Government: US$9.2 million),** through (i) improving the condition, safety, and resilience of select bridges that are prone to floods; (ii) reducing the risks of landslides to enhance population safety, including scaling up bioengineering solutions; (iii) supporting the new Uttarakhand Landslide Mitigation and Management Centre (ULMMC) achieve its vision of becoming a center of excellence for landslide risk management, including through capacity building, preparing an institutional development plan, and promoting the

application of technology and innovation; and (iv) strengthening the capacity of the PWD in resilient design and construction, developing a PWD Climate Adaptation Policy, which will integrate disaster and climate risk management approaches into existing systems, and developing a Road Asset Management System with a climate module.

(b) **Providing disaster shelter (Total: US$4 million; IBRD: US$3.2 million; Government: US$0.8 million),** through (i) conducting a shelter needs and development assessment in the context of climate change; (ii) constructing pilot multipurpose disaster shelters in selected disaster-prone areas along major routes with resilient, inclusive, and energy-efficient designs; and (iii) establishing institutions and procedures for shelter management including the use and maintenance of the shelters during non-emergency situations.

Component 2 - Improving Emergency Preparedness and Response (Total: US$56 million; IBRD: US$44.8 million; Government: US$11.2 million)

21. This component will support improving the capabilities of Uttarakhand's government entities and first responders to predict, prepare for, and respond to disasters, through the following:

(a) **Strengthening emergency preparedness (Total: US$10 million; IBRD: US$8 million; Government: US$2 million),** through (i) establishing a State Emergency Operations Center with a Centralized Incident Command System to enhance coordination, (ii) reviewing and strengthening the Uttarakhand's multiagency institutional emergency and response frameworks and SOPs, and (iii) implementing community DRM activities.

(b) **Strengthening hydromet and early warning systems (Total: US$40 million; IBRD: US$32 million; Government: US$8 million),** through (i) improving impact forecasting for weather, climate, and hydrological hazards; (ii) establishing an end-to-end multi-hazard EWS to provide timely warnings directly to the vulnerable population, using multichannel and multi-technology dissemination systems; (iii) developing fit-for-purpose hydromet tools and services for stakeholders in key sectors; and (iv) providing training and capacity building for DRM officials at the state and local levels and communities.

(c) **Strengthening the State Disaster Response Force (Total: US$6 million; IBRD: US$4.8 million; Government: US$1.2 million),** through (i) constructing SDRF outdoor search-and-rescue training facilities; (ii) providing search-and-rescue and communications equipment; and (iii) providing training on equipment storage, maintenance, and repair.

Component 3 - Preventing and Managing Forest and General Fires[1] (Total: US$45 million; IBRD: US$36 million; Government US$9 million)

22. This component will support enhancing the capacity of the Uttarakhand government and local communities to prevent and manage forest and general fires, through the following:

(a) **Improving general fire risk management capacity (Total: US$35 million; IBRD: US$28 million; Government US$7 million),** through (i) conducting a fire risk assessment in the context of climate change and a gap analysis to prioritize resources and interventions; (ii) developing a fire risk management strategy and action plan that defines the roles of and coordination mechanisms for different stakeholders, sets targets, and defines budget needs for UFES; (iii) strengthening UFES's capacity for firefighting, application of innovative technologies, building inspections, enforcement of fire safety acts, rules, and norms, and occupational health

[1] General fires refer to instances of commercial, residential, or industrial fires which fall under the legislated accountabilities of UFES.

and safety management; (iv) constructing and upgrading fire stations to improve response time and effectiveness, meet the needs of female employees, and incorporate resilience, environment, health, and safety design considerations; (v) constructing a general fire risk management training facility; (vi) implementing community-based activities on fire safety, including raising public awareness and promoting self-compliance and transparency in the fulfillment of fire safety norms; and (vii) supporting female UFES staff including by organizing on-the-job trainings, exposure visits, and outreach activities to make UFES a more attractive employer for women and increase the share of female employees.

(b) **Improving forest fire prevention and management capacity (Total: US$10 million; IBRD: US$8 million; Government: US$2 million),** through (i) strengthening the FD's prediction, mapping, and early detection capacity, focusing on new technologies, such as mobile applications and artificial intelligence, and considering shifts in fire risks due to climate change; (ii) assessing policies, processes, planning, and interagency forest fire coordination mechanisms, including creating an incident command system for forest fire management; (iii) strengthening the FD's forest fire suppression capacity by purchasing equipment and providing capacity building for officials and communities; (iv) establishing an incentive-based community program, including provision of community grants, for forest fire risk management that will be guided by sustainable forest management principles, reducing fuel load, restoring degraded lands, and enhancing soil moisture levels; and (v) preparing a carbon finance mechanism based on reduced emissions from the abovementioned activities as a sustainable funding mechanism for community forest fire risk management activities.

Component 4 - Project Management (Total: US$17.4125 million;[2] IBRD: US$13.8625 million; Government: US$3.55 million)

23. This component will support project management and knowledge sharing, through the following:

(a) **Carrying out the day-to-day coordination,** through supporting financial management (FM), procurement, environmental and social management, communication, monitoring and evaluation (M&E), and stakeholder engagement, including community outreach and enhancing the state's ongoing efforts on open data management.

(b) **Supporting the establishment of a Lighthouse Uttarakhand platform,** through disseminating lessons learned and good practices in Uttarakhand to other states in India and supporting the exchange of knowledge and strengthening the capacity of institutions in India through partnerships.

Component 5 - Contingent Emergency Response Component (CERC) (US$0)

24. This component will allow provision of immediate response to an eligible crisis or emergency, as needed, through the reallocation of undisbursed loan proceeds.

C. Project Beneficiaries

25. **The project is expected to benefit approximately 10 million people (of which 49 percent are women) living in the state.** The direct beneficiaries include the following groups: (a) people who will have access to continuous service provision due to more climate- and disaster-resilient road infrastructure and constructed emergency shelters; (b) people

[2] The front-end fee of the loan is reduced from the IBRD part of the funding allocated to Component 4.

who will benefit from the state's advanced multi-hazard EWS and the enhanced emergency response entities; and (c) people who will be better protected from forest and general fires due to the strengthened capacities of UFES and the FD.

D. Results Chain (Theory of Change)

Figure 2. Theory of Change

Long-term Outcomes	**Reduced human and economic losses from disasters in Uttarakhand**			
	People in Uttarakhand with enhanced resilience to climate and disaster risks			
Mid-term Outcomes	Enhanced climate and disaster resilience of critical public infrastructure in the State	Strengthened disaster risk management capacity of the State		
Short-term Outcomes	Bridges, slopes, and shelters provide uninterrupted service and protection during disasters	Disaster risk management capacity improved through better coordination, information, training, and equipment	General fire risk management capacity strengthened	Forest fire risk management capacity strengthened
Outputs	• Bridges strengthened, slopes stabilized & emergency shelters established • Resilience integrated into PWD policies & planning	• Weather forecasting & early warning systems improved • SEOC established • SOPs developed • SDRF training facility constructed & equipment provided	• Fire stations & training facility built • Fire management equipment provided • UFES training programs & stakeholder coordination for general fires improved	• Forest fire risk management program implemented • Forest fire management equipment provided • Carbon-finance mechanism prepared
Activities	• Strengthen bridges, stabilize slopes & establish emergency shelters with resilience features • Integrate resilience into PWD policies & planning	• Improve weather forecasting & early warning systems • Establish SEOC • Develop SOPs for multi-agency coordination • Construct SDRF training facility & provide equipment	• Build fire stations & training facility • Provide fire management equipment • Improve UFES training programs & stakeholder coordination for general fires	• Implement a community-based forest fire risk management program • Procure forest fire management equipment • Prepare a carbon-finance mechanism for emission reductions from reduced forest fire risk

Note: SEOC = State Emergency Operations Center.

E. Rationale for Bank Involvement and Role of Partners

26. **The World Bank is a leading partner in the areas of DRM and climate adaptation in Uttarakhand, India, and globally.** It has been the primary partner for GoUK for DRM efforts through the implementation of UDRP and the AF since 2013. It has strong partnerships with USDMA, the UDRP Project Management Unit (PMU), and other implementing agencies. While the state has been able to make tremendous progress under UDRP, the proposed follow-on project will further strengthen its multidimensional climate and disaster resilience and result in fewer human and economic losses to evolving future shocks. The World Bank brings expertise in designing and implementing multi-sectoral, complex DRM operations in India. On the other hand, it is well positioned to introduce DRM approaches across different sectors based on significant technical assistance that has been leveraged to support the project design (see also section IV).

F. Lessons Learned and Reflected in the Project Design

27. **Physical investments need to be complemented with capacity building and systems strengthening.** In addition to the urgently needed physical infrastructure construction and upgrades, there is global evidence that introducing complementary investments in building institutional, operational, and technical capacity is effective in maximizing development outcomes in the long term. This lesson is reflected in every component with interventions focused on building state entities' capacities. Client systems will be strengthened under the project to ensure sustainability and impact of activities beyond the project scope. While hiring external consultants for core Government responsibilities is often required at earlier stages of engagements, this can undermine client capacity building in the medium to long term. Government systems will be increasingly relied on as the project progresses, for example, in infrastructure design, works supervision, and weather forecasting. In addition, based on the lesson from UDRP, the custodian line departments will be engaged as implementing agencies to ensure their ownership.

28. **Climate-proofing transport infrastructure has long-lasting benefits.** With an incremental cost of around 3 percent of the overall investment needs, making infrastructure resilient is estimated to have a benefit of US$4 for each dollar invested and is thus highly cost-effective in the medium to long term. Global evidence also finds that proper planning for climate change impacts across the full scope of assessment management can help reduce transport connectivity disruptions and maintenance costs and increase transport infrastructure service life and road safety. To advance climate-resilient transport infrastructure in Uttarakhand, the project will support the development and adoption of a PWD climate adaptation policy and a Road Asset Management System with a climate module. The policy will identify key processes to mainstream resilience into the sector across the entire life cycle, from the planning phase to engineering, operations, maintenance, and contingency programming. The Road Asset Management System will be the basis for the development of climate-informed maintenance plans.

29. **Enhancing communities' capacities for disaster reduction and response is critical for effective DRM, particularly in the mountainous and hard-to-reach areas of Uttarakhand.** Communities are often the first responders and have a deep understanding of the local climate and environment. Strengthening community-based DRM and the uptake of traditional knowledge and local best practices for climate change adaptation and resilience building can improve response, limit loss of life and assets, and help quickly identify changes in local conditions. One lesson is the importance of being inclusive by engaging all members of the community, regardless of their age, gender, race, ethnicity, or socioeconomic status. Another lesson is to engage communities early on for all phases of the DRM cycle to achieve the highest impact and to promote multi-sectoral approaches combining various adaptation and risk mitigation measures. Following these lessons, the project will work with existing community institutions and provide training and resources.

30. **Private capital mobilization enables the sustainability of investments in resilience.** Past projects have shown that the lack of Government budget for the operation and maintenance of project investments after project closure is undermining their sustainability. To counter this risk, the GoUK will explore revenue-generating opportunities under this

project to enhance the operational and financial viability of the supported institution and infrastructure through (a) developing a financing mechanism for community forest fire risk management based on carbon markets; (b) exploring income opportunities for ULMMC and UFES, for example, through issuing building permits and fire safety certificates, respectively; (c) establishing business plans for the SDRF and UFES training facilities that allow for income generation; and (d) generating income through non-timber forest products via the community forest fire risk mitigation activities.

31. **Effective forest fire risk management requires strong community engagement.** A global wildfire management review conducted by PROGREEN's World Bank Global Fire Initiative identified the following top three success factors, which have been considered for the design of the forest fire component: (a) involvement of multiple stakeholders, including identifying and understanding their roles and building consensus between them; (b) engagement with rural communities and ensuring their involvement and buy-in; and (c) introduction of better technology with careful planning and support. Technology alone has limited impact without community support and properly trained, equipped, and coordinated forest firefighters on the ground.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

32. **The institutional and implementation arrangements will largely follow the existing structure of UDRP, which has proven to be satisfactory.** A High-Powered Committee (HPC) headed by the Chief Secretary will provide strategic oversight and approvals and ensure the overall coordination and monitoring of the project. A PMU at the state level will be responsible for the overall project management, implementation, and compliance. It will be placed in USDMA, which has successfully managed UDRP since 2013. Four Project Implementation Units (PIUs) will be responsible for implementing specific project activities and managing the respective funds: PIU PWD (Road Infrastructure), PIU RWD (Emergency Response and Fire), PIU USDMA (Shelters, Preparedness, and EWS), and PIU Forest (Forest Fire). Field PIUs for PWD, RWD, and FD, consisting of the departments' existing field offices, will be responsible for implementing and monitoring project activities in their respective geographic areas. The PMU and PIUs will closely coordinate with other relevant entities, in particular SDRF and UFES. The PMU will also appoint a third-party quality assessment consultant to oversee and support construction in the field. USDMA and PWD have already implemented components under UDRP. RWD and the FD are new implementing agencies and will receive enhanced implementation support to familiarize staff with World Bank procedures and requirements. The detailed implementation arrangements of the community-based activities under Subcomponent 3b will be determined during the first year of implementation based on consultations and technical analysis.

33. **The PMU will be headed by a project director who will be supported by two additional project directors and four project managers (one for each PIU), a finance controller, and multidisciplinary teams.** The project managers will supervise the operations of the respective PIUs, including monitoring and coordination. Staff will be deployed from various government departments and through open recruitment. Training will be provided for all staff. Project management capacity will be closely monitored during the implementation supervision and addressed if needed. More details are included in Annex 1.

B. Results Monitoring and Evaluation Arrangements

34. **The PMU will be responsible for M&E.** The various implementing agencies will assist the PMU in collecting and reporting on the Results Framework and other data on all subcomponents, including on (a) social and environmental compliance, (b) technical quality, and (c) physical and financial progress. Technical assistance will be provided to update the management information system (MIS) platform developed under UDRP. The MIS will be developed as an open data platform and will include interfaces with geographic information systems, mobile phone messaging, closed-circuit television, and video footage. The M&E process will include semiannual progress reports in accordance with a format

agreed with the World Bank, project monitoring meetings, and implementation support missions by the World Bank team at least twice per year to review progress and help resolve implementation issues that may arise.

35. **Independent third-party consultancies will be hired to conduct audits of works at various stages to ensure quality control, enhance project performance, and maintain compliance with technical requirements.** The M&E function will be particularly important to ensure the resilient standards are upheld. The consultancies will also supervise implementation of the Environmental and Social Management Framework (ESMF) including the management measures provided in the Environmental Management Plans and the Resettlement Action Plans.

C. Sustainability

36. **Institutional sustainability.** A key element to ensure sustainability is systematic institutional capacity building to enable counterparts to sustain and scale up project-related activities beyond the project's duration. Capacity building and the strengthening of training curricula are included under all components. For example, PWD's capacity will be strengthened by providing training in resilience measures to the PWD design cell. SDRF and UFES will build dedicated training facilities to support increased capacity and capability for response. The project's close alignment with the Government's priorities will also contribute to the overall sustainability of the project.

37. **Physical sustainability.** Climate-proofing investments will extend the lifespan and strengthen the sustainability of the physical investments over the long term amid increasing climate-related hazards. In addition, energy and water efficiency measures for public buildings are included in the shelter construction. Technical audits and experts will ensure the systems are of high quality. Various resilience upgrades to infrastructure will reduce the overall operating and maintenance costs in the long term. Support for training, exercises, and drills will ensure equipment and systems are used efficiently.

38. **Financial sustainability.** The project will support the Government in reducing its contingent disaster liability by improving the design and quality of infrastructure to be more resilient. The efforts of private capital mobilization will contribute to the financial sustainability of the project (see section II. F).

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

39. **There is a strong economic case for investments in climate adaptation and resilience building, with the average cost-benefit of climate proofing the existing, and building new resilient infrastructure estimated at US$4 return for each US$1 spent.** Under the project, the engineering design of the bridges and slopes will be risk-informed. Climate vulnerability is the main criterion for infrastructure selection. Specific resilience measures to mitigate climate-induced floods and landslides will include (a) raising bridge elevations in flood-prone locations and adapting them to the changing hydrology and projected flooding intensity in the area, including the risk of impacts of fallen trees, boulders, and other debris; (b) reducing the number of bridge spans and the number of substructure units, reducing the risk of erosion and scouring; (c) improving vulnerable road approach sections with resilient pavement materials and protected embankments to withstand heavy rains; (d) improving road drainage systems through sloped shoulders, roadside ditches, and additional culverts; and (e) scaling up and entrenching cost-effective slope stabilization measures, including bioengineering, soil nailing, horizontal drains, and surface drains. The newly introduced resilience measures will be sustained through strengthening the capacity of the implementing agencies, piloting performance-based maintenance contracting, and developing a business plan for ULMMC. Disaster shelters in hard-to-reach mountainous areas will be constructed in line with good practice examples of shelters in such locations and piloting them in Uttarakhand. These could provide valuable lessons for other Himalayan states in India and the region.

40. **At an estimated average benefit-cost ratio of 9:1, the economic case for strengthening EWSs under Subcomponent 2b is strong.** The project will enhance the existing forecasting services available from the national hydromet agencies and develop improved weather impact forecasting services based on the use of advanced simulation models, augmentation of observation networks, use of earth observation data from satellites, and technical skills training for USDMA staff. It will develop customized weather and climate information tools and products for key economic sectors and will strengthen public-private engagement. Currently, systems for the dissemination of alerts across the state are isolated with limited functionality and reliability. The project will establish a people-centered multi-hazard EWS with dedicated and redundant communication links at the state, district, and local levels for effective disaster management. The EWS will be coupled with a decision support system that integrates a managed siren network, SMS-based mass messaging, cell broadcasting services, TV and radio, social media interfaces, and intelligent video monitoring systems. Training will be provided to officials and communities, which will be involved in the system development.

41. **Project investments have been informed by various technical studies.** These include the Ready2Respond rapid diagnostic which provides investment plans for the state's emergency preparedness and response capacity across the project's implementing agencies, namely USDMA, SDRF, and UFES. The World Bank has also led an analysis of the state's fire safety ecosystem, which resulted in an in-depth understanding of the challenges and opportunities for the state to advance fire safety in the built environment. SDRF and UFES investments are also informed by two gap analyses of firefighting and search-and-rescue infrastructure and equipment. Forest fire activities were informed by a review of forest fire management in India jointly conducted by the GoUK and the World Bank and by a global wildfire management review conducted by PROGREEN's World Bank Global Fire Initiative (see lessons learned). Additional gap reviews and studies will be conducted as needed, including an analysis of how to strengthen systems to address the loss of land after disasters due to lost records or land degradation, often leading to cascading effects on livelihoods.

42. **Project investments have been identified based on clear prioritization criteria.** Bridges and slopes were selected using robust prioritization methodologies, which combined geospatial analysis with environmental and social screening and a focus on improving rural connectivity. Only bridges subject to significant climate risk were included. Other criteria were considered for the selection from the sample of climate-vulnerable bridges. The criteria for the prioritization of climate-vulnerable bridges included (a) the number of people served, (b) connecting links, (c) economic benefits, (d) traffic, and (e) social benefits. The fire stations were identified based on a suitability screening of the proposed locations. The list of areas where the activities under the project will be implemented in the State of Uttarakhand will be specified in the Project Implementation Plan, selected in accordance with World Bank policies.

43. **The average economic internal rate of return for the project is 23.5 percent with the net present value in the range of US$254 million to US$561 million and the benefit-cost ratio in the range of 3.4–5.5 for the discount rates of 10 and 5 percent, respectively.** The economic internal rates of return of capital investments are based on Subcomponents 1a (Enhancing the resilience of transport connectivity) and 2b (Strengthening hydromet and early warning systems) and Component 3 (Preventing and Managing Forest and General Fires). The main benefits of these activities are improvement of sectoral income from tourism and agriculture, repair costs savings by PWD, and time-saving benefits for the local population (Subcomponent 1a); improvement to the state's GDP via avoided damages and losses to the economy from natural disasters (Subcomponent 2b); and human lives saved from forest and general fires and avoided loss of forest products and livestock (Component 3). Based on Monte Carlo simulations, the probability of low economic returns is zero for the overall project.

44. **The operation is aligned with the goals of the Paris Agreement on both mitigation and adaptation**, including with India's updated NDCs and Long-Term Low-Carbon Development Strategy.

(a) **Assessment and reduction of adaptation risks.** The main climate and disaster risks likely to affect the project investments are flash floods, landslides, earthquakes, wildfires, and cloudburst incidences. Increasing the resilience of critical public infrastructure against these risks is at the core of the project. All infrastructure to be financed will be climate risk informed and include resilience measures. For transport infrastructure, resilience will be improved through climate-informed designs, raising of flood-prone bridges, resilient pavement, enhanced drainage, and bioengineering for slope stabilization. The project also aims to strengthen the GoUK's climate and DRM capacities, involving the procurement of equipment, software, and technical assistance. This support will transform ULMMC into a center of excellence for landslides. ULMMC will conduct research on landslide risk mapping, offer advice to government agencies like PWD on climate-proofing investments against landslide risks, and contribute to infrastructure planning. Additionally, all building components, including medical facilities, emergency shelters, and fire stations, will incorporate design features to enhance physical resilience against climate-related natural hazards.

(b) **Assessment and reduction of mitigation risks.** The project will support road infrastructure that primarily seeks to increase resilience and accessibility and will not result in significant capacity enhancement, which meets the conditions for being considered universally aligned with the Paris Agreement. Institutional strengthening and awareness-raising activities are not expected to result in a significant increase in greenhouse gas emissions and can be considered low risk on mitigation. Emergency preparedness and response, hydromet monitoring, forecasting systems, and EWSs are also considered low risk on mitigation. However, the construction and upgrading of buildings, such as shelters, SDRF training facilities, fire stations and the fire training facility pose risks of carbon lock-in and additional emissions. To mitigate these risks, the buildings will incorporate low-carbon measures like on-site renewable energy generation and passive design features and follow energy efficiency guidelines based on the highest standards applicable in the project context. Building codes will also follow the most efficient country-specific codes or EDGE1-equivalent standards.[3] Additional mitigation measures within the project include improved carbon sequestration through enhanced forest management and reduced forest fire risk.

B. Fiduciary

45. **The FM risk rating is Moderate.** FM systems worked satisfactorily in the last project. A project budget head has been created. The PMU will consolidate and request allocation of the project budget every year. Funds from the state's budget will be transferred to the PMU in its Single Nodal Agency (SNA) bank account. PIUs and Field PIUs will be provided with link bank accounts and limits (fixed every quarter based on work plan) so that they can spend the amount from the SNA. Accounts will be maintained by the PMU, PIUs, and Field PIUs at all levels in Tally as the funds will be used outside the treasury account. The PMU will prepare and consolidate the project-level accounts. The PMU, PIU PWD, and PIU USDMA are well versed with the World Bank's FM requirements. The PIU RWD and PIU FD will require support in terms of staffing and capacity building, which will be provided through Tally consultants. The PMU and PIU staff will be hired within three months of effectiveness. Consolidated interim unaudited financial reports (IUFRs) will be prepared by the PMU and submitted to the World Bank within 60 days after the end of each quarter. Disbursements will be made based on the IUFRs. The project financial statements audit will be conducted by the State Office of the Comptroller and Auditor General according to the agreed terms of reference. Annual audit reports will be submitted within nine months from the

[3] EDGE (Excellence in Design for Greater Efficiencies) is a green building certification created by the International Finance Corporation. EDGE Level 1 requires 20 percent or more savings in energy, water, and materials. The 20 percent savings refer to the baseline, assuming a similar building type and size without any energy efficiency measures in place.

end of the financial year. The project internal audit will be carried out by a chartered accountant's firm which will be appointed as per agreed terms of reference and will submit reports every half year. Retroactive financing will be provided to the project from April 1, 2023, up to a limit of US$27 million.

46. **The funding and implementation mechanisms of the community of the incentive-based community program for forest fire risk management will be developed during project implementation**. Funds will be passed on to the communities only after the mechanism is finalized and agreed upon by the World Bank. A separate financing category for these grants and a related disbursement condition has been introduced to address this requirement.

47. **Procurement for the project will be carried out in accordance with the World Bank's "Procurement Regulations for IPF Borrowers for Procurement in Investment Project Financing – Goods, Works, Non-Consulting and Consulting Services",** dated September 2023, hereinafter referred to as 'Regulations', and the provisions stipulated in the Legal Agreement. The project will be subject to the World Bank's Anticorruption Guidelines (dated October 15, 2006, revised in January 2011, and as of July 1, 2016). The project has prepared a Project Procurement Strategy for Development (PPSD) and will use the Systematic Tracking of Exchanges in Procurement (STEP) tool to plan, record, and track procurement transactions. While this is a follow-on project and the PMU and some PIUs have a fair knowledge of the World Bank procurement procedures, the newly added PIUs and newly hired procurement staff at the PIU level will need training and implementation support for an initial period. Procurement risk is assessed as Substantial before mitigation measures and Moderate after mitigation. The procurement risk mitigation measures include (a) implementing the PPSD with fit-for-purpose procurement and contract management approaches, (b) using the electronic government procurement (e-GP) system where applicable, (c) assigning qualified PIU staff for handling procurement and if necessary supplemented with procurement consultants, and (d) providing procurement training to relevant project officials. Details on procurement arrangements can be found in Annex 1.

C. Legal Operational Policies

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

D. Environmental and Social

48. **The environmental and social risks are considered Substantial.** The exact nature of environmental and social risks and impacts of the project will only be known during the subproject-level assessments. Possible environmental risks related to the project activities include impacts on environmentally sensitive areas resulting from subproject locations and associated project activities within or close to such areas and adverse impacts from construction activities. The latter might include health and safety risks to communities and occupational health and safety risks to workers due to negative impacts from debris, waste, dust, and noise, as well as the disruption of service provision and/or usage of buildings during retrofitting works. Possible social risks include (a) sexual exploitation and abuse/sexual harassment (SEA/SH) risks due to project-induced labor influx; (b) minimal physical displacement (approximately 80 project-affected families) and economic displacement (300 project-affected families) from limited private land acquisition (approximately 40 ha) for bridges and approach roads under Component 1, including temporary restrictions of villagers from accessing *Van Panchayat* forest land for activities under Component 3; (c) inadvertent exclusion of vulnerable people from accessing project benefits such

as knowledge and training; and (d) noncompliance with labor standards. The possible weak capacity of multiple implementing institutions to effectively manage, monitor, and report on environmental and social risks could also lead to negative impacts. In accordance with the SEA/SH risk assessment tool for projects with civil works, the project is assigned a Moderate risk rating for SEA/SH. The potential SEA/SH risk is mostly associated with construction/workplace situations and community engagement, which can be exacerbated by external factors such as emergency situations and crises.

49. **The anticipated risks and impacts can be avoided, minimized, and managed effectively** by conducting screening and scoping exercises, ensuring due diligence in impact assessment studies, integrating environmental and social health and safety aspects in the planning and design of works, implementing Environmental and Social Management Plans, and establishing robust monitoring mechanisms. The approaches, processes, and guidelines to this effect are embedded in the Project Environmental and Social Framework instruments, which include the ESMF, Stakeholder Engagement Plan, Labor Management Procedures, and Environment and Social Commitment Plan. These instruments have been prepared and disclosed by appraisal.[4] The project has developed mitigation measures to respond to related gender-based violence/SEA/SH risks.

50. **Despite substantial risk, the proposed interventions will have overall positive social and environmental impacts.** Expected environmental benefits include enhanced climate and disaster resilience of public infrastructure including bioengineering solutions and reduced landslide risks, strengthened preparedness and emergency response capacity expected to reduce general fire and forest fire risk, and resulting biodiversity and carbon sequestration benefits. Positive social impacts are expected to result from infrastructure that will provide access to services during and after disasters by all social groups and support to livelihoods through community participation for forest fire risk management.

E. Corporate Commitments

51. **Climate co-benefits.** The project aims to enhance climate resilience by creating resilient infrastructure, enhancing early warnings, and improving preparedness and response as its main development objective. It also contributes to climate mitigation through energy-efficient public buildings and forest fire prevention. A carbon finance mechanism will be developed that will sustain and expand carbon sequestration initiatives in forests, benefitting local communities. Further details are outlined in the Climate Change Technical Note.

52. **Gender.** The project aims to contribute to addressing the gap in female employment in DRM agencies through increasing the share of female employees in UFES (Subcomponent 3a). In addition to strengthening female perspectives in DRM decision-making and tailoring disaster response to the specific needs of women, which the all-men teams may overlook, having more women working with agencies such as UFES is expected to provide women with a wider range of professional opportunities and improved access to stable livelihoods, increasing their resilience. Toward this end, the following interventions are proposed: supporting female UFES staff, including by organizing on-the-job trainings, exposure visits, and outreach activities to make UFES a more attractive employer for women and increase the share of female employees, and constructing and upgrading fire stations to meet the needs of female employees. The progress of these actions will be tracked via the indicator ‘Female employees in the Uttarakhand Fire and Emergency Services (Percentage)” (baseline: 0 percent; target: 10 percent). Reaching the 10 percent target would be a significant achievement since female

[4] In-country state level consultations on the draft E&S instruments were held on November 22, 2023, and on November 25, 2023, in addition to local level consultations that provided inputs for the project design, including E&S management tools. The Environmental and Social Framework documents were first disclosed on the World Bank’s external website on November 11, 2023 (available from: https://documents.worldbank.org/en/publication/documents-reports/documentlist?qterm=P179749) and on the GoUK’s website on November 2, 2023 (available from http://ukdisasterrecovery.in/index.php/downloads/viewcategory/852-u-prepare).

participation in firefighting is globally very low. In the United States, for example, women constitute 5 percent of all career firefighters.

53. **Citizen engagement.** The project includes components with participatory approaches in the areas of community DRM, EWSs, and forest fires. These require outreach, mobilization, and strengthening of the role of communities in planning, implementation, and monitoring. Starting from the project design to ex post evaluation, the project will engage and build a detailed understanding of all citizens' needs—considering gender and less-mobile and different income groups—through surveys, meaningful community consultations, and active use of data to inform planning, measure impact, and take remedial actions. The project will then implement a citizen engagement program, using communications to ensure information dissemination, accountability, and transparency. The existing robust grievance redress mechanism under UDRP will be continued. Two indicators will measure citizen satisfaction and handling of grievances, notably beneficiaries expressing satisfaction with improved transport infrastructure and grievances addressed.

V. GRIEVANCE REDRESS SERVICES

54. **Grievance redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's GRS, visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's AM, visit https://accountability.worldbank.org.

VI. KEY RISKS

55. **The overall risk to achieving the PDO is Moderate.** This reflects substantial technical and environmental and social risks after accounting for mitigation measures. The environmental and social risks and mitigation measures are described in section IV. D.

56. **The Technical Design of Project risk is Substantial.** The complexity of technical design lies in the multi-sectoral, systematic approach that the project will adopt to enhance climate and disaster resilience and DRM capacity. Part of the planned investments go beyond the regular mandate of the existing PMU and require the engagement of additional expertise and interagency collaboration. Risks are expected in successfully implementing the ambitious policy, systems, and institutional changes to be supported under the project. Such risks can be mitigated through targeted capacity building for the implementing agencies and the establishment of effective procedures and mechanisms for interagency collaboration and data sharing.

VII. RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Closing Period
Enhanced climate and disaster resilience of critical public infrastructure											
Millions of people that benefit from improved access to sustainable transport infrastructure and services (Corporate Scorecard Indicator) (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0.023	0.046	0.069	0.092	0.138	0.15	0.2
➢of which female (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0.01127	0.02254	0.03381	0.04508	0.06762	0.0735	0.098
➢of which youth (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0.00483	0.00966	0.01449	0.01932	0.02898	0.0315	0.042
Strengthened disaster risk management capacity											
People benefitting from new and upgraded fire stations (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0	0	0	362000	725000	1087500	1450000
Millions of people with enhanced resilience to climate risks (Corporate Scorecard Indicator) (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0.023	0.046	0.069	10	10	10	10
➢of which female (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0.01127	0.02254	0.03381	4.9	4.9	4.9	4.9
➢of which youth (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0.00483	0.00966	0.001449	2.1	2.1	2.1	2.1

Intermediate Indicators by Components

Baseline	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Closing Period
Enhancing Infrastructure Resilience											
Bridges rehabilitated with enhanced climate resilience (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	5	10	15	20	30	40	45
Slope sites stabilized (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0	0	2	3	5	7	8
ULMMC Institutional Development Plan developed (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Climate adaptation policy for PWD developed and approved (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	No	No	No	No	No	No	Yes	Yes
Beneficiaries expressing satisfaction with improved transport infrastructure (Percentage)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0	0	0	0	0	85	85
Improving Emergency Preparedness and Response											
People benefitting from new multi-hazard early warning system (Number)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0	0	0	10000000	10000000	10000000	10000000
Multi-agency coordination mechanism for emergency preparedness and response strengthened (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Impact forecasting for weather, climate, and hydrological hazards improved (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
State Emergency Operations Center with a Centralized Incident Command System established and operational (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	No	No	No	No	No	No	Yes	Yes
Female participants trained at community level in disaster risk management and response (Percentage)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0	5	8	10	12	16	20

Preventing and Managing Forest and General Fires											
Female employees in the Uttarakhand Fire and Emergency Services (Percentage)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	2	2	4	4	6	6	8	8	10	10
General fire risk management training facility constructed and operational (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	No	No	No	No	No	No	No	Yes
Millions of hectares of terrestrial and aquatic areas under enhanced conservation and management (Corporate Scorecard Indicator) (Hectare(Ha))											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	0	0	0	0	0	0.003	0.007	0.01	0.012	0.015
Carbon-finance mechanism for reduced emissions from forest fires prepared (Yes/No)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Project Management											
Grievances addressed (Percentage)											
Oct/2023	Jul/2024	Jan/2025	Jul/2025	Jan/2026	Jul/2026	Jan/2027	Jul/2027	Jan/2028	Jul/2028	Jan/2029	Jun/2029
0	0	90	90	95	95	95	95	95	95	95	95
Contingent Emergency Response Component											
Front End Fee											

Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Enhanced climate and disaster resilience of critical public infrastructure	
Millions of people that benefit from improved access to sustainable transport infrastructure and services (Number) (Corporate Scorecard Indicator)	
Description	Measures the number of people benefitting from improved climate-resilient transport infrastructure (bridges and slope stabilization works) under the project. The beneficiaries of the bridges are determined based on the population living within a radius of 2 km of the bridges. The beneficiaries of the slopes are based on the population of the roads on which the slopes fall. This indicator is disaggregated by gender and youth.
Frequency	Semiannual
Data source	PWD
Methodology for Data Collection	M&E reports, field reports, and progress reports.
Responsibility for Data Collection	PMU
Strengthened disaster risk management capacity	
People benefitting from new and upgraded fire stations (Number)	
Description	Measures the number of people within the area of responsibility for the new and upgraded fire stations
Frequency	Semiannual
Data source	UFES
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU
Millions of people with enhanced resilience to climate risks (Number) (Corporate Scorecard Indicator)	
Description	Measures the number of people with enhanced resilience to climate risks. This includes the beneficiaries from improved access to sustainable transport infrastructure and services, the new multi-hazard early warning system, and the new and upgraded fire stations. This indicator is disaggregated by gender and youth.
Frequency	Semiannual
Data source	USDMA, PWD, UFES
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Enhancing Infrastructure Resilience	
Bridges rehabilitated with enhanced climate resilience (Number)	
Description	Measures the number of bridges upgraded with climate resilience measures. Such measures are defined as substantive improvements to resilience considering expected worsening climate impacts.
Frequency	Semiannual
Data source	PWD
Methodology for Data Collection	M&E reports, field reports, and progress reports
Responsibility for Data Collection	PMU
Slope sites stabilized (Number)	
Description	Measures the number of slope sites with landslide risk mitigation measures implemented
Frequency	Semiannual
Data source	PWD
Methodology for Data Collection	M&E reports, field reports, and progress reports
Responsibility for Data Collection	PMU
ULMMC Institutional Development Plan developed (Yes/No)	
Description	Measures whether an institutional development plan for the recently established ULMMC was developed
Frequency	Semiannual

Data source	ULMMC
Methodology for Data Collection	Copy of finalized report
Responsibility for Data Collection	PMU
Climate adaptation policy for PWD developed and approved (Yes/No)	
Description	Measures whether the climate adaptation policy for PWD has been developed and approved by the Secretary of the PWD
Frequency	Semiannual
Data source	PWD
Methodology for Data Collection	Copy of the developed policy and proof of adoption by the Secretary of the PWD
Responsibility for Data Collection	PMU
Beneficiaries expressing satisfaction with improved transport infrastructure (Percentage)	
Description	Measures the share of surveyed beneficiaries who expressed satisfaction with the improved transport infrastructure condition and accessibility to facilities. This infrastructure includes the bridges rehabilitated and the slope sites stabilized.
Frequency	After the completion of the relevant project activities
Data source	PWD
Methodology for Data Collection	Survey
Responsibility for Data Collection	PMU
Improving Emergency Preparedness and Response	
People benefitting from new multi-hazard early warning system (Number)	
Description	Measures the number of people receiving disaster early warning messages through various channels/technologies of the newly established early warning system.
Frequency	Semiannual
Data source	USDMA
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU
Multi-agency coordination mechanism for emergency preparedness and response strengthened (Yes/No)	
Description	Measures whether the state's multiagency coordination for emergency preparedness and response was strengthened through the development and training for the implementation of advanced standard operating procedures for select Government agencies, including on data sharing
Frequency	Semiannual
Data source	USDMA
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU
Impact forecasting for weather, climate, and hydrological hazards improved (Yes/No)	
Description	Measures whether two different impact-based forecasting products, combining weather forecasting, hazard, exposure, and vulnerability data, for improved risk identification are generated and used for enhanced decision-making in disaster risk management.
Frequency	Semiannual
Data source	USDMA
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU
State Emergency Operations Center with a Centralized Incident Command System established and operational (Yes/No)	
Description	Measures whether a State Emergency Operations Center with a Centralized Incident Command System is established and operational. Operational means that the center and system are ready to be used and staff are available and trained to use the system efficiently for coordinating the state's response during an emergency.
Frequency	Semiannual
Data source	USDMA
Methodology for Data Collection	M&E reports and progress reports

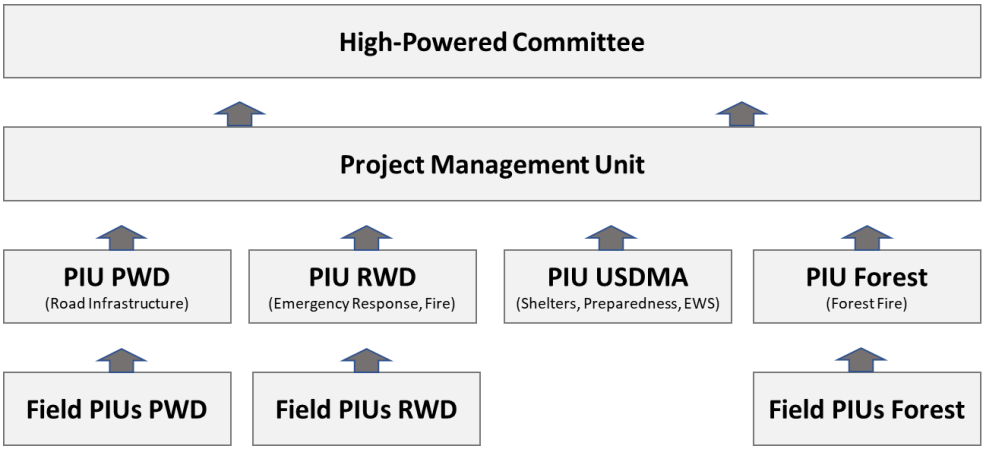
Responsibility for Data Collection	PMU
Female participants trained at community level in disaster risk management and response (Percentage)	
Description	Measures the percentage of female participants in disaster risk management and response trainings at community level. Trainings will be primarily conducted by SDRF and UFES.
Frequency	Semiannual
Data source	USDMA, SDRF, and UFES
Methodology for Data Collection	M&E reports, field reports, and progress reports
Responsibility for Data Collection	PMU
Preventing and Managing Forest and General Fires	
Female employees in the Uttarakhand Fire and Emergency Services (Percentage)	
Description	Measures the percentage of professional-level female employees in UFES
Frequency	Semiannual
Data source	UFES
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU
General fire risk management training facility constructed and operational (Yes/No)	
Description	Measures whether a general fire risk management training facility is constructed and operational. Operational means that trainings are conducted at the facility.
Frequency	Semiannual
Data source	UFES
Methodology for Data Collection	M&E reports, field reports, and progress reports
Responsibility for Data Collection	PMU
Millions of hectares of terrestrial and aquatic areas under enhanced conservation and management (Hectare(Ha))	
Description	Measures the number of hectares covered by increased forest fire risk management through an incentive-based community program guided by sustainable forest management principles.
Frequency	Semiannual
Data source	FD
Methodology for Data Collection	M&E reports, field reports, and progress reports
Responsibility for Data Collection	PMU
Carbon-finance mechanism for reduced emissions from forest fires prepared (Yes/No)	
Description	Measures whether a carbon finance mechanism is prepared based on reduced emissions from forest fire risk management activities implemented by the project to establish the basis for a sustainable funding mechanism for community-level forest fire risk management activities
Frequency	Semiannual
Data source	FD
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU
Project Management	
Grievances addressed (Percentage)	
Description	Measures the share of grievances addressed
Frequency	Semiannual
Data source	PMU
Methodology for Data Collection	M&E reports and progress reports
Responsibility for Data Collection	PMU

ANNEX 1: Implementation Arrangements and Support Plan

I. INSTITUTIONAL ARRANGEMENTS

1. **The project will follow a four-tier oversight and implementation structure (Figure 1.1).** At the state level (Tier 1), an HPC headed by the Chief Secretary will provide oversight and ensure coordination. The HPC is an existing Government committee that has effectively served in the same oversight role for UDRP. At the project level (Tier 2), a PMU will be responsible for the overall project management and compliance including fiduciary aspects, safeguards, and M&E. The PMU will be hosted by USDMA, which has been successfully managing UDRP since 2013. At the component level (Tier 3), four PIUs will be responsible for implementing specific project activities and managing the respective funds. The PIUs are PIU PWD (Road Infrastructure), PIU RWD (Emergency Response and Fire), PIU USDMA (Shelters, Preparedness, and EWS), and PIU Forest (Forest Fires). At the field level (Tier 4), Field PIUs for PWD, RWD, and the FD consisting of the departments' existing field offices will be responsible for implementing and monitoring project activities in their respective geographic areas. The Field PIUs will consist of existing offices of PWD, RWD, and the FD, without new entities being established at the field level. The PMU and PIUs will closely coordinate with other relevant entities, in particular with SDRF and UFES. The institutional and implementation arrangements will largely follow the existing structure under UDRP, which has proven to be satisfactory. USDMA and PWD have already implemented components under UDRP. RWD and the FD are new implementing agencies and will receive enhanced implementation support to familiarize staff with World Bank procedures and requirements.

Figure 1.1. Overview of U-PREPARE Implementation Arrangements



2. **The HPC (Tier 1) will be responsible for project oversight**, specifically providing strategic oversight and approvals and ensuring the overall coordination and monitoring of the project.

3. **The PMU (Tier 2) will be responsible for project management**, specifically (a) coordination with the line agencies in approval of designs and assisting the PIUs in the preparation of detailed project reports, bidding documents, tendering schedules, progress monitoring, and so on; (b) appointment of technical assistance consultants and other safeguards management support to the implementing agencies; (c) quality assurance through third-party audits; (d) maintaining of

MIS and quarterly reporting; (e) progress reporting, FM, and monitoring and reporting; and (f) ensuring of compliance with agreed implementation procedures and other World Bank requirements and so on at the project level.

4. **The PIUs (Tier 3) will be responsible for project implementation**, specifically (a) preparation of detailed project reports including technical designs, surveys and investigations, and so on; (b) tendering, bid evaluation, contract award, contract management, and so on; (c) FM and safeguards compliance; (d) progress and expense reporting to the PMU; (e) coordination with district-level coordination committees, and so on; and (f) ensuring of compliance with agreed implementation procedures and other World Bank requirements and so on at the component level.

5. **Finally, the Field PIUs (Tier 4) will be responsible for field implementation in specific geographic areas**, including (a) providing supervision and quality assurance of works; (b) issuing payment; and (c) ensuring social and environmental safeguards compliance (only for Field PIUs PWD, for other Field PIUs this will be handled at the PIU level).

6. **The implementation arrangements and financing sources for the individual components and subcomponents are summarized in Table 1.1.**

Table 1.1. Component-wise implementation arrangements and source of financing

Description	Implementing Agencies	Financing (US$)		
		Overall	IBRD	Counterparts
Component 1 - Enhancing Infrastructure Resilience		**50,000,000**	**40,000,000**	**10,000,000**
1a: Enhancing the resilience of transport connectivity	PIU PWD	46,000,000	36,800,000	9,200,000
1b: Providing disaster shelter	PIU USDMA	4,000,000	3,200,000	800,000
Component 2 - Improving Emergency Preparedness and Response		**56,000,000**	**44,800,000**	**11,200,000**
2a: Strengthening emergency preparedness	PIU USDMA	10,000,000	8,000,000	2,000,000
2b: Strengthening hydromet and early warning systems	PIU USDMA	40,000,000	32,000,000	8,000,000
2c: Strengthening the State Disaster Response Force	PIU RWD (in coordination with SDRF)	6,000,000	4,800,000	1,200,000
Component 3 - Preventing and Managing Forest and General Fires		**45,000,000**	**36,000,000**	**9,000,000**
3a: Improving general fire management capacity	PIU RWD (in coordination with UFES)	35,000,000	28,000,000	7,000,000
3b: Improving forest fire prevention and management capacity	PIU Forest	10,000,000	8,000,000	2,000,000
Component 4 - Project Management	PMU	**17,412,500**	**13,862,500**	**3,550,000**
Component 5: Contingent Emergency Response Component (CERC)	PMU and PIU USDMA (if triggered—in coordination with relevant line departments according to emergency needs)	**-**	-	**-**
TOTAL PROJECT COST		168,412,500	134,662,500	33,750,000
Front-End Fee		337,500	337,500	-
TOTAL OPERATION COST		**168,750,000**	**135,000,000**	**33,750,000**

II. STAFFING ARRANGEMENTS

7. **The PMU will be headed by a project director who will be supported by two additional project directors, four project managers (one for each PIU), a finance controller, and multidisciplinary teams.** The project managers for the four PIUs will supervise the operations of the respective PIUs, including monitoring and coordination. In addition, the PMU will be supported by a finance controller and dedicated managers and teams for FM, procurement, contract management, engineering and construction supervision, social and environmental safeguards, human resources, information technology/MIS, and technical and administrative support staff. To facilitate coordination, departmental coordinators will be assigned, including from UFES and SDRF, for the respective activities implemented for these departments by PIU RWD, and experts nominated by UFES and SDRF will directly support the PIU RWD.

8. **The GoUK has issued a government order for the staffing of the PMU and PIUs.** The order provides the detailed staffing and reporting plan for each unit (PMU, PIUs, and Field PIUs) as well as the qualification and experience required for each post. Staff will be deployed from various government departments and through recruitment from the open market. Appropriate training programs will be developed for all staff. Adjustments to the arrangements—including the need to hire additional staff and/or consultants—may need to be adopted during project implementation. An adequate budget for supporting consultants is provided as part of the project's incremental operating costs. Project management capacity, including FM, procurement, and safeguards, will be closely monitored during the implementation supervision and addressed if needed.

III. FINANCIAL MANAGEMENT

9. **Overall FM capacity.** The PMU, PIU PWD, and PIU USDMA that have already implemented UDRP are well versed with the World Bank's FM requirements. Accounting, reporting, auditing, budget provision, and transfer of funds were timely under UDRP. The new PIU RWD and PIU Forest will require support in terms of staffing and capacity building. The FM risk rating is Moderate.

10. **Eligible expenditures, budgeting, and fund flow.** Eligible expenses under this project, including the community grant category, are goods, works, non-consulting services, consulting services, incremental operating costs, and training. Every year, the PMU shall collate the budget requirement of the project and submit it to the GoUK for inclusion in the budget as per the budget calendar. A budget head has been created for the project. Once the annual budget is approved, the funds will be passed on to the PMU through this head. The PMU will open an SNA bank account. Once the budget is approved, the PMU can draw funds from the budget and transfer them to the SNA bank account. The PIUs and Field PIUs will have link bank accounts linked to the SNA bank account. PIUs will send the request for funds to the PMU along with a work plan, based on which the PMU shall provide limits of the SNA bank account. PIUs and Field PIUs can use the link bank accounts for payment, and they will be automatically adjusted to the SNA bank account. The PMU SNA bank account will provide for the receipt and payment of project funds.

11. **Accounting system.** The PMU will provide funds to PIUs and account, monitor, and report for the project. A Tally accounting system will be implemented across the project including PMU, PIU, and Field PIUs (PWD - 13 Field PIUs, RWD - 17 Field PIUs, and FD - 13 Field PIUs). Separate project accounts will be maintained in the system so that accounts and reports can be consolidated with ease. Field PIU accounts will be consolidated at the PIU level, and then, PIU accounts will be consolidated at the PMU level. If Field PIUs/PIUs require staff for Tally accounting, they can hire graduates with Tally experience or consultants who can help in maintaining the accounts. Manual cash books can be maintained at all levels if required by the GoUK.

12. **Report-based disbursement.** The state will pre-fund the project, and disbursements will be based on IUFRs. These reports will be submitted quarterly within 60 days from the end of the quarter.

13. **External audit.** The annual audit of the project financial statements will be carried out by the State Office of the Comptroller and Auditor General as per terms of reference agreed with the World Bank. Every year, an audit report will be submitted to the World Bank within nine months from the end of the FY. The annual audit report will be disclosed on the PMU website.

14. **Internal audit and control.** The internal audit will be carried out through a chartered accountant's firm. The terms of reference for the internal audit would cover a review of aspects, including controls and contract management. The auditors will be appointed based on selection criteria and terms of reference agreed with the World Bank within six months of project effectiveness.

15. **FM institutional arrangements and staffing.** The PMU will coordinate all FM requirements with the PIUs who will further coordinate with Field PIUs to ensure proper accounting and reporting. The PMU accounts section will be headed by a finance controller (from the Finance Department) and supported by a finance specialist (a chartered accountant) and an accounts officer. Each PIU and Field PIU will be supported by an accountant (who is at least a commerce graduate). PMU and PIU staff will be hired from the market within three months of effectiveness.

16. **Disbursement arrangements.** The project will have two disbursement categories. The disbursement percentage will be 80 percent. Disbursements will be done on a reimbursement basis.

IV. PROCUREMENT

17. **Procurement framework.** Procurement for the project will be carried out in accordance with the World Bank's Regulations and the provisions stipulated in the Legal Agreement. The project will be subject to the World Bank's Anticorruption Guidelines. According to the requirement of the Regulations, a PPSD has to be developed, based on which the Procurement Plan will be prepared, which sets out the process to be followed by the borrower during project implementation for the procurement of goods, works, and non-consulting and consulting services financed by the World Bank. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

18. **STEP will be used to prepare and submit the Procurement Plan once the initial Procurement Plan has been agreed upon.** All records pertaining to the award of tenders, including bid notification, register pertaining to sale and receipt of bids, bid opening minutes, bid evaluation reports and all correspondence pertaining to bid evaluation, communication sent to/with the World Bank in the process, bid securities, and approval of invitation/evaluation of bids would be retained by the project implementing agencies. All contracts not covered under prior review by the World Bank will be subject to post review during implementation support missions and/or special post review missions, including missions by consultants hired by the World Bank. The World Bank may conduct, at any time, independent procurement reviews of all the contracts financed under the loan. The procurement methods, prior review thresholds, and national procurement procedure conditions will be reflected in the Procurement Plan. STEP includes a complaint entering mechanism to address complaints/grievances from contractors/suppliers. On receipt of complaints, immediate action will be initiated to acknowledge the complaint and redress within a reasonable time frame. All complaints during the bidding/award stage as well as complaints during the contract execution along with the analysis and response shall invariably be submitted to the World Bank for review.

19. **Procurement institutional arrangements and staffing.** Procurement will include goods, works, and non-consulting and consulting services. Each of the implementing agencies will be staffed with a procurement specialist who shall ensure satisfactory implementation of the project activities under their purview, including compliance with procurement, fiduciary, and safeguard requirements. The responsibility of the procurement specialists in terms of procurement of their respective agency will include the preparation of procurement documents such as terms of reference, technical specifications, bills of quantities (BoQs), bidding documents, and contract management and working as evaluation committee members for relevant activities. The overall responsibility of procurement will lie with the PMU, which will include, but not be limited to, (a) ensuring uploading and updating of data and documents for activities in the Procurement Plan in STEP, (b) ensuring that World Bank procurement procedures are followed, and (c) maintaining a record of all procurement documents to make them available for review by the World Bank.

20. **Procurement risk.** Procurement risk at this stage is deemed to be Substantial. Though this is a follow-on project and the PMU and some PIUs have fair knowledge of World Bank procurement procedures, there is going to be an addition of new PIUs and recruitment of new procurement specialists at the PIU level who would need training and handholding support for an initial period. The procurement fiduciary risk mitigation measures include (a) preparing and implementing the PPSD with fit-for-purpose procurement and contract management approaches, (b) using the e-GP system where applicable, (c) assigning qualified PIU staff for handling procurement and if necessary supplemented with procurement consultants, and (d) providing procurement training to relevant project officials. The residual procurement risk after mitigation measures is Moderate.

21. **Procurement supervision.** The World Bank's procurement supervision will be ensured through implementation support in the form of prior review and post review. The prior-review contracts will be those which are relatively complex, high-value contracts that will be agreed upon in the Procurement Plan following a risk-based approach. The key steps of the procurement for these activities will be prior reviewed by the World Bank before proceeding to the next step of the procurement. For the post-review contracts, the terms of reference of the consulting services and technical specifications/BoQs of some of the goods/works packages may require technical review by the World Bank. The procurement post review will be conducted by the World Bank on a sample of contracts selected based on associated risks, at least on an annual basis or more frequently based on need.