



1. Project Data

Project ID
P163924

Project Name
Pakistan Hydromet & Climate Project

Country
Pakistan

Practice Area(Lead)
Urban, Resilience and Land

L/C/TF Number(s)
IDA-62460

Closing Date (Original)
30-Jun-2023

Total Project Cost (USD)
167,023,140.45

Bank Approval Date
25-May-2018

Closing Date (Actual)
31-Dec-2024

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	188,000,000.00	0.00
Revised Commitment	177,250,826.00	0.00
Actual	167,023,140.45	0.00

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2. Project Objectives and Components

a. Objectives

The original PDO at the time of appraisal (as formulated in the original PAD of 2018) was “To strengthen Pakistan’s public sector delivery of reliable and timely hydrometeorological and disaster risk management services to user departments and communities”. It took two years from the drafting of the PAD until FA signature, and in the original FA from 2020, the PDO was “To strengthen Pakistan’s public sector delivery of reliable and timely hydrometeorological and disaster risk management services to user departments and communities”. However, due to the delays, the project was restructured before project startup, and the PDO in the new Financing Agreement (also 2020) was “To strengthen the delivery of reliable and timely climate and



hydro-meteorological services and enhance community resilience to shocks”. This PDO will be treated as the original PDO in the ICRR assessment, as the project had not started and no disbursements had been made prior to this first restructuring (the first disbursement was made in April 2021). The project underwent a second restructuring in 2023, where the PDO was revised to: “To restore ecosystems in selected areas and provide immediate and effective response to an Eligible Crisis or Emergency”. This will be treated as Revision 1 in the ICRR. Given the PDO revision in the second restructuring (here called Revision 1), a split assessment will be conducted, and the objectives will be parsed as follows:

Original Objective 1: To strengthen the delivery of reliable and timely climate and hydro-meteorological services

Original Objective 2: To enhance community resilience to shocks

Revised Objective 1: To provide immediate and effective response to an eligible crisis or emergency

Revised Objective 2: To restore ecosystems in selected areas

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

No

c. Will a split evaluation be undertaken?

Yes

d. Components

There were three original components:

1: Hydro-Meteorological and Climate Services (US\$106.0 million at appraisal; reduced to US\$60 million at the first restructuring; US\$0 million, actual). This component was to finance three sub-components, reduced the scope with unchanged subcomponents at the first restructuring, and dropped altogether at the second restructuring.

- *Institutional Strengthening and Capacity Building* was to finance the development of a legal and regulatory framework, build capacity at the Pakistan Meteorological Department (PMD), and raise public awareness. The first restructuring reduced the scope of this subcomponent.
- *Modernization of the Observation Infrastructure, Data Management, and Forecasting Systems* was to finance the modernization of observation infrastructure, data management, and forecasting systems (including flood modelling), and refurbish PMD facilities. The first restructuring reduced the planned acquisition of weather radars, automatic weather stations, and observatories and dropped seismic and glacial hazards.
- *Enhancing PMD Service Delivery and Building Partnerships with the Private Sector Partnerships* was to finance early warning system (EWS), agriculture and climate advisory services, and aviation-related services to improve PMD’s service delivery and foster private sector partnerships. The first restructuring dropped this subcomponent.



- *Project Management, Systems Integration, and Monitoring and Implementation Support of PMD* was to finance overall project coordination and monitoring by PMD.

2: Disaster Risk Management (US\$82 million at appraisal; increased at the first restructuring in 2020 to US\$128 million, reduced at the second restructuring in 2023 to US\$18 million; US\$17.1 million, actual). This component was to finance disaster preparedness and response systems under three subcomponents:

- *Legal Policy and Institutional Strengthening* was to finance the National Disaster Management Authority (NDMA)'s legal policy and institutional development, covering disaster risk financing mechanisms, urban search and rescue capabilities, multi-hazard vulnerability assessments, and other hazard impacts analytics.
- *Infrastructure for Resilience* was to finance resilient infrastructure, including a national emergency command center, mobile command centers, information systems, and pilot activities for resilient infrastructure. The first restructuring increased the financing to offer grants under the Ecosystems Restoration Initiative (ESRI) to support climate-smart technologies and nature-based solutions (NbS) for community resilience against climate risks, health emergencies, food insecurity, and natural disasters.
- *Project Management, Monitoring, and Implementation Support of NDMA* was to finance coordination, implementation support, and monitoring activities.

Following the 2022 floods, and at the second restructuring, this component – Disaster risk management (DRM) – was reassigned as Component 1, later renamed Enhancing Resilience – and was to finance two other activities in place of the original three above:

- *Ecosystems Restoration* focuses only in Sindh province on ecosystem restoration and in Khyber Pakthunkhwa (KP) province on climate-resilient horticulture.
- *Institutional Strengthening* to finance the establishment of four technical units –(i) the Climate Communication Unit, (ii) the Environment and Climate Change Unit, (iii) the MoCC Project Support Unit, and (iv) the Green Finance Unit in the new Ministry of Climate Change and Environmental Coordination (MOCC&EC).

3: Contingent Emergency Response Component (CERC) (US\$0 at appraisal; US\$150 million, actual). This component was to finance rapid response to climate and natural disasters, emergencies, and/or catastrophic events. The June 2023 restructuring renamed this as Component 2 after the government activated CERC to finance one-time cash transfers of PKR 25,000 (equivalent to US\$114 in August 2022) to vulnerable households affected by the 2022 floods.

At the first restructuring, the project was renamed “*Pakistan Hydromet and Climate Services Project*” and was to finance two components described above: (i) Enhancing Resilience (US\$18 million, US\$17.4 million actual), and (ii) CERC (US\$150 million, actual).

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost: The total appraised project cost was US\$188 million. Foreign exchange losses reduced the project cost to US\$168 million. The project disbursed US\$167.4 million by closing.



Financing: The International Development Association (IDA) financed this project. There were no other co-financiers.

Borrower Contribution: The government committed to contribute US\$22 million to finance twinning operational support, construction of buildings and offices, vehicles, high-performance computers, architectural and supervision consultants, system integrator, equipment for the proposed National Disaster Response Force, gender mainstreaming, and part of project management and operations and maintenance (O&M) costs for the two implementing agencies – NDMA and PMD. The June 2020 restructuring (see Dates below) dropped counterpart financing as the government faced fiscal constraints in allocating resources for hydromet and DRM services due to COVID-19 (ICR, footnote 12).

Dates: The Board approved the project on May 25, 2018 and it became effective on June 1, 2020. The Bank team conducted the Mid Term Review (MTR) on March 22, 2022. The original closing date was June 30, 2023. The first restructuring extended the project by 18 months to close on December 31, 2024. Two level 2 restructurings revised PDO rather than a Level 1 restructuring because there was (i) no change in safeguards category; (ii) no extension of the Bank Guarantee Expiration Date, and (iii) no alternative procurement arrangements:

- On June 10, 2020. First, the PDO was revised: “to strengthen delivery of reliable and timely climate and hydro-meteorological services and enhance community resilience to shocks.” Shocks included socio-economic disruptions caused to communities by climate risks, health emergencies, food security, and natural disasters. The new government launched the Ecosystem Restoration Initiative (ESRI) in December 2019 to focus on Nature-based Solutions (NbS) for climate adaptation and mitigation to strengthen resilience against climate change. Second, the project was renamed “*Pakistan Hydromet and Climate Services Project*” from “*Pakistan Hydromet and Disaster Risk Management Services Project*.” Third, the project was extended by eighteen (18) months to close from June 30, 2023, to December 31, 2024 (see Section 4 Efficacy below). Fourth, the National Disaster Risk Management Fund (NDRMF, then under the MOCC&EC) replaced the PMD and NDMA as implementing agency.
- On June 4, 2023, First, to revise the PDO a second time, “to restore ecosystems in selected areas and provide immediate response to the 2022 floods”. Second, to revise the original project components, reallocate costs, and revise disbursement estimates by dropping the original first component altogether, reduce the scope of the *Enhancing Resilience* component to ecosystem restoration, reallocate US\$150 million (equivalent to SDR 115,904,000) from Category 1 (Goods, works, services, operating costs, and training) to Category 2 (Emergency expenditures), to finance the *Flood Relief Cash Assistance Program 2022*. Third, revise the indicators and targets in the results framework. Fourth, revise the implementation arrangement by acknowledging that NDRMF was now under Ministry of Planning, Development and Special Initiatives (MOPDSI) and added MOCC&EC to implement the revised ‘*Institutional Strengthening*’ subcomponent. Fifth, update risk assessment and ratings.

Split Rating: The review will apply a split rating as follows: The original PDO from 2018 will not be assessed, as no activities had started and no disbursements had been made prior to the restructuring in June 2020. Had this been included in the assessment, the rating would have been negligible, but it would have had no value, as no funds had been disbursed. The PDO and the components from the first restructuring in June 2020 will thus be treated as the original objective and the original project design. The second restructuring in 2023 will be treated as Revision 1 in this ICRR.



3. Relevance of Objectives

Rationale

Context: Pakistan, ranked 7th on the Climate Risk Index 2017, is highly vulnerable to hydrological and meteorological (hydromet) hazards, such as storms, floods, and droughts. Pakistan is one of the most flood-prone countries, with billion-dollar losses in flood-related disasters. The 2022 floods inundated one-third of the country, affected 33 million people, and caused an estimated US\$14.9 billion in damage. The government prioritized building public sector capacity for climate resilience and protecting the poorest and most vulnerable segments of society who are disproportionately affected by climate shocks. Modernizing hydromet infrastructure, expanding its observational networks, and enhancing forecasting capabilities would improve last-mile early warning delivery. Improved coordination between the Pakistan Meteorological Department (PMD)'s sub-regional offices, provincial and district disaster management authorities, and the National Disaster Management Authority (NDMA), would strengthen disaster planning, preparedness, and response.

Country Plans: The original and revised PDOs were relevant to the country's climate change policies contained in its updated National Climate Change Policy 2021 that aimed to strengthen institutional capacity for climate action and issued guidelines for developing sectoral mitigation and adaptation plans. The revised Nationally Determined Contribution (NDC) 2021 prioritized the development of a sustainable, low-carbon, and climate-resilient Pakistan. The National Adaptation Plan 2023 also envisioned a climate-resilient Pakistan with communities that have both socioeconomic and environmental adaptive capacities. The PDO was also relevant to the government's strategy for sustainable development called Vision 2025. This strategy acknowledged the urgency of addressing Pakistan's exposure to climate risks, that often lead to disasters and called for greater resilience in food and water systems to safeguard long-term development.

World Bank Country Partnership Framework: The revised PDO also remained relevant to the first 10-year Country Partnership Framework (CPF) for FY2026–2034, which focuses on climate resilience, including adaptive social protection for shocks and emergencies, climate-resilient agriculture, and strengthened agri-value chains, long-term investments focusing on sustainable growth, social progress, and climate resilience. Specifically, the PDO contributes to Outcome 3, which focuses on increasing resilience to climate change through improved preparedness, climate-resilient infrastructure, and enhanced agricultural productivity.

World Bank Experience in the Sector and in the Country: The World Bank's long-standing engagement in Pakistan's disaster risk management sector provided a strong foundation for this project. Over the years, the Bank has supported technical assistance and risk assessments at both federal and provincial levels, alongside major investments such as the 2012 Baluchistan Disaster Management Project, the US\$125 million Disaster and Climate Resilience Project following the 2014 floods, and the Sindh Resilience Project. Additional initiatives included the Jhelum and Tawi Flood Recovery Project and urban-focused programs like the CLICK Project and Karachi Water and Sewerage Services Improvement. These efforts, combined with ongoing collaboration to enhance climate risk understanding and advance Pakistan's green transition, underscore the Bank's operational experience and strategic alignment with national priorities.



The PDO was expressed at two levels – one at an intermediate level – “to strengthen” – and at an outcome level – “to enhance.”. This is an appropriate formulation given the World Bank experience in the country and in the context of the fragile context of the country. The tendency to repurpose created institutions were acknowledged as a development outcome risk. Hence, the PDO formulation was appropriate.

Overall, the relevance of the PDO is rated High.

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To strengthen the delivery of reliable and timely climate and hydro-meteorological services.

Rationale

Theory of Change: The June 2020 restructuring financed this objective with US\$60 million to align with the new 2018 government’s focus on climate change.. The scope and targets of the activities supported *Institutional Strengthening and Capacity Building* by supporting the Pakistan Meteorological Department (PMD) in training technical personnel, establishing collaboration with local universities for introducing specialized curriculum and education programs in meteorology, climate, and hydrometeorology, hydromet research and

development, and providing training support for main stakeholders and end-users, including agriculture, water resources, DRM, civil aviation, energy, and health. *Modernization of the Observation Infrastructure, Data Management, and Forecasting Systems* would upgrade and expand the meteorological and hydrological observation networks and ensure that they are well functioning and interoperable; modernize data management, communication, and information and communication technology (ICT) systems; improve weather and hydrological forecasting processes and numerical prediction systems; and improve a range of main PMD services including creation of a National Framework for Climate Services, impact based forecasting and agriculture and climate advisory services. The project was renamed “*Pakistan Hydromet and Climate Services Project*”.

Outputs (listed indicators, of which none were achieved):

- Number of beneficiaries from project activities (target 1 million, of which 50 percent were women);
- Improved access to and use of training opportunities in PMD (target 90 percent); and
- Improved sub-regional information exchange (target Yes)



Outcomes (listed indicators, of which none were achieved):

- Improved weather forecasting (target 0.70); and
- Improved satisfaction with PMD services (target 40 percent);
- Meteorological observation stations operating in compliance with SOPs (target 90 percent)

None of the outputs or outcomes were achieved because no disbursements were made against the activities that would have led to the expected outcomes. Rating of the achievement of the original objective 1 is Negligible, as nothing was implemented and no disbursements made.

Rating

Negligible

OBJECTIVE 1 REVISION 1

Revised Objective

To provide immediate and effective response to an eligible crisis or emergency

Revised Rationale

Theory of Change: The project was restructured to activate CERC on August 29, 2022, in response to the unprecedented 2022 monsoon flooding that affected over 33 million people, resulting in nearly 8 million displaced with an estimated total damage of US\$14.9 billion, and economic loss of US\$15.2 billion. The component under this objective was to finance immediate recovery activities in response to the floods. The government prepared a CERC Manual and an Emergency Action Plan (EAP) where the NDRMF was the implementing agency and the Benazir Income Support Programme (BISP) was the Fund Implementing Partner (FIP). Cash transfers were to be given to households from the bottom 40 percent as identified by the National Socio-Economic Registry affected by floods. BISP was to disburse a one-off cash payment of PKR 25,000 per eligible household to meet their urgent and essential needs including support for food, water, shelter etc. A new output and outcome indicator were added - Eligible beneficiary households residing in the flood affected areas received emergency one-time cash transfers (target of 1.3 million households) and its use (for urgent needs). A new output target was added – the number of eligible beneficiary households to receive cash transfers following the floods – target 1.3 million households). The outcome was to be the use of these resources.

The efficacy to achieve this project is rated High.

OUTPUT

- 1,414, 843 Eligible beneficiary households residing in the flooded areas received one-time emergency cash transfers, exceeding the target of 1.3 million.

OUTCOME

Over 90 percent of funds were distributed by September 2022 and the remainder by December 2022. Favorable exchange rates enabled the project to exceed its original target.



- The World Bank conducted a qualitative survey of 100 beneficiary households across Sindh, KP, Balochistan, and Punjab using Proxy Means Test (PMT) scores of varying vulnerability levels from the National Socioeconomic Registry to assess the effectiveness and utilization of emergency cash assistance. The PMT is a 100-point composite index that assesses household welfare through their assets and consumption levels based on selected variables such as receipt and use of transfers, challenges faced, satisfaction with the process, perceptions of fairness, program awareness, gender dynamics, and broader impacts on household decisions. Beneficiaries also shared suggestions to improve future cash assistance programs.
- The findings reaffirmed the value of cash-assistance in disaster recovery. Recipients used the funds to address multiple urgent needs such as the following:
 - 91 percent of respondents reported using cash transfers to purchase food rations and clean drinking water. Market disruptions and fuel shortages had made access to these essentials difficult, and cash transfers helped bridge the gap, fulfilling their primary relief objective.
 - About 40 percent of respondents reported spending the funds on medications and healthcare, particularly for water-borne diseases such as cholera and typhoid, as well as chronic conditions like diabetes and hypertension. Disease outbreaks in flooded areas severely impacted community health, making this a critical area of expenditure.
 - Approximately 10 percent of respondents utilized the funds for minor home repairs and flood protection, including levees/dikes, sealing roof leaks, and reinforcing walls—indicating the flexibility of cash transfers to meet diverse household priorities
 - Around 18.5 percent of households also used the funds to replace lost clothing
 - Around 7 percent of households used the funds on education expenses
 - 25.7 percent repaid loans or debts—highlighting the broader economic strain faced by affected households.

The efficacy of the project to achieve this objective is rated High. The targets for both output and outcome indicators were exceeded while successfully reaching the targeted households and addressing their urgent needs for these resources following a disaster.

Revised Rating
High

OBJECTIVE 2

Objective

To enhance community resilience to shocks

Rationale

Theory of Change: The government launched the Ecosystem Restoration Initiative (ESRI) in December 2019 to emphasize nature-based solutions (NbS) for climate adaptation and mitigation, and to support activities that enhanced resilience to climate, pandemics, and other shocks - particularly of the COVID-19 emergency in 2020. Activities were to include: (i) promoting nature-based solutions (NbS) in forest conservation, promoting biodiversity, and mitigating land degradation; (ii) carry out climate adaptation and mitigation activities in preventing high intensity floods through improved flood water management, promoting clean mobility, and supporting Clean Green Pakistan Index; and (iii) promote climate-smart technology.



Grants were to be given to non-public sector and/or community-based organizations to carry out a program of activities to enhance community resilience to immediate COVID-19 pandemic and medium to longer term climate impacts such as (i) alternative income-generating activities to reduce pressure on natural resources and diversify income sources with selected communities; (ii) community level works to support livelihoods to address socio-economic shocks; (iii) piloting sustainable community forestry and agriculture practices and promoting land conservation; (iv) trainings; (v) promoting the role of women in the workforce (such as eco-tourism); and (vi) empowering women to reduce vulnerability and to mitigate risks from climate change. Another set of grants were to federal and/or provincial governments to carry out a program of activities under ESRI to: (i) promote nature based solutions in forest conservation, promoting biodiversity, and mitigating land degradation; (ii) carry out climate adaptation and mitigation activities in preventing high intensity floods through improved flood water management, promoting clean mobility, and supporting Clean Green Pakistan Index; and (iii) promote climate-smart technology. Expected outputs were to be number of low-income workers and daily-wage earners employed through ESRI (target 15,000); Livelihood opportunities for women under forestation activities (target 30 percent); Number of strategic plans and guidelines developed for thematic areas under ESRI (target 3); Amount of carbon sequestration by afforestation / reforestation (target 800,000 tonnes CO₂- eq); Seedling survival rate (target 70 percent). Two new outcome indicators were to capture how reforestation addressed climate adaptation and mitigation to enhance resilience, i.e., “*area managed according to sustainable forest management plans (in hectares)*” and “*targeted community members satisfaction with monetary or non-monetary benefits from forestry activities (in percentage)*”.

OUTPUTS:

- 2,532 low-income and daily wage workers were employed, not achieving the original target of 15,000.
- 5.15 percent of livelihood opportunities for women under the forestation activities, not achieving the original target of 30 percent.
- No strategic plans were developed, not achieving the original target of 3.
- No carbon sequestration was achieved, not achieving the original target of 800,000 tonnes.
- 80 percent seedling survival rate was reported, exceeding the original target of 70 percent.

OUTCOMES:

- 28,848 hectares of forest area managed according to sustainable forest management plans, not achieving the original target of 100,000 hectares.
- 70 percent of targeted community members were satisfied with monetary or non-monetary benefits from forestry activities, achieving the target of 70 percent. This included both the Sindh and KP subprojects.

The efficacy of the project to achieve this objective is rated Modest. Most of the output and one outcome targets were not achieved. Only one outcome target – the community expressing their satisfaction with the benefits from the forestry activities implemented – was achieved, indicating a Modest achievement of the objective to enhance community resilience to shocks.

Rating
Modest



OBJECTIVE 2 REVISION 1

Revised Objective

To restore ecosystems in selected areas

Revised Rationale

Theory of Change: This objective replaced the original objective altogether. This objective strengthened the efforts of the government to restore landscapes and ecosystems as part of its commitment to the country's Updated Nationally Determined Contributions (NDC). While addressing implementation challenges brought by the government transition, operationalization of new government policies, capacity constraints, and the COVID-19 pandemic. Target values were reduced. This objective was to build community resilience and implement the Ecosystems Restoration Initiative (ESRI) and improve the capacity of MoCC to respond to climate challenges. Two sub-projects in Sindh and KP were implemented by the FIPs – Sindh Forest Department and KP Agriculture Department, respectively - through the NDRMF. Ecosystems were to be restored through mangrove conservation, biodiversity promotion, mitigating land degradation, and managing forest area according to sustainable forest management plans. The intervention was also to generate livelihood opportunities for low-income and daily wage earners. The expected outputs were to be the reduced target for both outputs – low-income earners employed under ESRI (reduced target to 2,400) and livelihood opportunities for women (reduced target of 15 percent. A new output indicator was the Improved technical capacity of MoCC to play an integral role in combating climate vulnerability through establishment of four specialized units (target 4) All indicators associated with the hydromet components were dropped including - Number of beneficiaries from project activities (target of 1 million of which 50 percent were women); Improved access to and use of training opportunities in PMD (target of 90 percent); Improved sub-regional information exchange (target Yes); Meteorological observation stations operating in compliance with SOPs (target 90 percent); The following outputs were also dropped: - Number of strategic plans and guidelines developed for thematic areas under ESRI. (target 3); Amount of carbon sequestration by afforestation / reforestation (target of 800,000 tonnes CO₂-eq); seedling rate (target of 70 percent). The expected outcomes were to include a reduced target for the forested area to 25,000 ha.

OUTPUTS:

- A total of 2,532 low-income individuals were employed, including 1,056 in Sindh and 1,476 in KP, exceeding the revised target of 2,400.
- 5.15 percent of livelihood opportunities for women under the forestation activities, not achieving the revised target of 15 percent.
- MOCC created four units, i.e., (i) Climate Communication Unit; (ii) Environment and Climate Change Unit; (iii) MCC Project Support Unit; and (iv) Green Finance Unit, achieving the target of creating 4 units.

The following additional outputs were reported but were not included in the RF and hence had no targets:

- In Sindh, 206,900 person-days of employment were created through a watch-and-ward system and community-run nurseries produced 5.2 million plants — 30 percent of which were used for income-generating activities.



- Community orchards also reported over 80 percent survival rates, with strong replanting initiatives led by beneficiaries

OUTCOMES:

- Over 28,484 hectares of forested area were managed according to sustainable forest management plans, exceeding the revised target of 25,000 ha. Restoration efforts covered a diverse range of ecosystems, including reforestation;
 - 3,083 hectares of inundated riverine areas,
 - restoring 405 hectares of high-lying riverine forests, and
 - rehabilitating degraded inland forests. This included converting degraded land into productive orchards of mango, guava, lemon, berries, and olives.
 - 22,983 hectares of mangroves were planted in the Indus Delta using four native species for coastal protection.
 - 2,306 hectares of fruit and date orchards were established in KP through climate-smart techniques. A diverse mix of indigenous species was used to ensure adaptability and ecological resilience, with TPV confirming improvements in plant survival, regeneration, and canopy cover.
- 70 percent of Targeted community members across both Sindh and KP were satisfied with monetary or non-monetary benefits from forestry activities, achieving the target of 70 percent.

The efficacy of the project to achieve this objective is rated Substantial. The target for low income wage to benefit from ESRI efforts and MOSCC installing 4 technical specialized units achieved a substantial level of capacity to address climate change challenges. The forested area adopted sustainable forest management plans. This shows that the objective to restore ecosystems in selected areas were substantially achieved.

Revised Rating
Substantial

OVERALL EFFICACY

Rationale

The efficacy of the project to achieve the original Objective 1– To strengthen the delivery of reliable and timely climate and hydro-meteorological services – is rated **Negligible** as nothing was implemented and no disbursements were made. The expected outcomes were not achieved.

The efficacy of the project to achieve the original Objective 2 – To enhance community resilience to shocks – is rated **Modest**, as only one of the expected outcomes were achieved. The overall original efficacy is rated Modest due to low achievement.

Overall Efficacy Rating

Primary Reason



Modest

Low achievement

OVERALL EFFICACY REVISION 1

Overall Efficacy Revision 1 Rationale

The efficacy of the project to achieve the revised Objective 1 – To provide immediate and effective response to an eligible crisis or emergency is rated High, as targets were exceeded.

The efficacy of the project to achieve the revised Objective 2 – to restore ecosystems in selected areas, is rated Substantial as the evidence shows that this objective was substantially achieved.

Overall revised Efficacy is thus Substantial.

Overall Efficacy Revision 1 Rating

Substantial

5. Efficiency

Economic Efficiency: A cost benefit analysis was applied at appraisal on identified components, particularly the proposed investments in hydromet equipment. A first-year investment of US\$10.0 million was assumed, and the remainder to be apportioned across a four-year implementation period. Costs for capital maintenance (e.g., depreciation) and for O&M were applied to 70 percent of the cumulative investment at a rate of 10 percent per year. Benefits were calculated based on a benefit transfer method using two examples of benefits from similar projects. First, households' willingness to pay (WTP) for improvements to national hydromet services used valuation studies data from a similar project in Mozambique converted to the Pakistan context with an updated 2016 income ratio. The aggregate national Pakistani WTP for hydromet forecast improvement was estimated to be US\$90.5 million. Second, benefits from an improved cyclone warning service in Vietnam was transferred to Pakistan and aggregated, with a potential national annual WTP of US\$12.9 - 19 million. At appraisal, the benefit cost ratio (BCR) was estimated at 1.94. At closing, the total present value of project benefits based on cash transfers distributed to affected households to cover basic needs was estimated to be between US\$357.1 million and US\$545.0 million. The estimated benefit cost ratio averaged at 2.6. The BCR at closing is not comparable to that at appraisal because restructuring significantly changed the scope of the project.

Administrative and Operational Efficiency. A new government was formed following the 2018 general elections. Priorities shifted. Federal government roles were restructured. Ministerial responsibilities changed. New institutional arrangements were introduced. Climate responsibilities were given to the new Ministry of Climate Change and Environmental Coordination (MOCC&EC). The government signed the project, and it was made effective two years after approval by the Board. The government requested a realignment of scope to reflect the administration's new focus on meeting their commitment to the Nationally Determined Contribution and requested a restructuring right after project signing and effectiveness. This further delayed the start of implementation. Project approvals from relevant government authorities were delayed following the swearing-in of a new administration because a revised implementation structure would now involve different agencies. The revised scope to use grants to finance nature-based solutions for ecosystem restoration efforts lacked an overarching framework and criteria for sub-project selection to guide approval of interventions and delayed implementation. Delays in hiring technical experts for the ESRI component postponed the approval of



ecosystem restoration sub-projects. The creation of a new implementing agency, NDRMF (first created under MOCC&EC then later transferred to MOPDSI) led to a prolonged leadership vacancy (September 2020 to January 2022), an incompletely filled Board, and protracted staff recruitment. Provincial counterparts were encouraged to develop strong sub-project proposals, but drawn out internal sub-project approval processes contributed to slow progress. Performance remained limited after restructuring because of institutional challenges, technical capacity constraints, and complex project design that involved a federal project financing provincially implemented activities. Nonetheless, after restructurings, the project closed after an 18-month extension, almost fully utilizing the budget.

Overall efficiency is rated Modest. Operational inefficiencies affected this assessment. Implementation risks were mitigated by complex measures that resulted in a series of permutations of targets for the various indicators – both outputs and outcomes – as well as the formulation of the PDOs.

Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

A split rating of the outcome is applied as follows:

	Original Objectives (2020)	Revised Objectives (2023)
Relevance		High
Original Obj. 1 To strengthen the delivery of reliable and timely climate and hydro-meteorological services	Negligible	N/A
Revised Obj. 1 To provide immediate and effective response to an eligible crisis or emergency	N/A	High
Original Objective 2 - To enhance community resilience to shocks	Modest	N/A



Revised Objective 2 – To restore ecosystems in selected areas	N/A	Substantial
Efficacy	Modest	Substantial
Efficiency	Modest	
Outcome	Moderately Unsatisfactory	Moderately Satisfactory
Numeric value of outcome	3	4
Disbursements (in US\$ million)	16.1	151.3
Rate of Disbursement	0.10	0.90
Weighted value of Outcome	$0.10 \times 3 = 0.3$	$0.9 \times 4 = 3.6$
Overall Outcome	$0.3 + 3.6 = 3.9$, rounded up to 4 = Moderately Satisfactory	

- a. **Outcome Rating**
Moderately Satisfactory

7. Risk to Development Outcome

The following pose risks to development outcome:

- Technical risks.** Ecosystem restoration subprojects introduced new systems in Sindh and KP. The continuation of improved farming practices will depend on continued access to affordable seeds, plants, and equipment for small-scale farmers. Third Party Validation (TPV) review reported that saffron farmers maintained their orchards and wild olive grafting in KP, with nearby communities expressing interest in the introduced practices. The Government of Sindh has approved the 2023 Sindh Sustainable Forest Management Policy to promote climate adaptation and mitigation through the restoration and maintenance of healthy forest ecosystems following the practices introduced by the project. The Government of KP has also supported the expansion of saffron cultivation in suitable areas which could support continuity of project activities.
- Financial risks:** Both ecosystem restoration sub-projects in Sindh and KP require adequate operations and maintenance (O&M) budgets to sustain medium- to long-term benefits. There is a high risk that Targeted government support may not be available to avoid delays, address technical gaps, and provide incentives for cultivation. Farmers expressed interest in achieving the benefits of using High Efficiency Irrigation System (HEIS) and would welcome government support to scale this up in water-scarce areas. High upfront costs limited initial adoption. Public investment would make HEIS viable for small landholders in KP.
- Risk of change in government ownership or commitment:** The project created four specialized units at MOCC&EC. Experts in climate adaptation and climate finance were hired. Government commitment is needed given historical institutional volatility to retain qualified professionals, finance the mandate of these units, , and ensure that these units will not be repurposed..
- Political risk:** There is a risk that changes in governments, and in ministerial structures, will lead to new priorities and new institutional arrangements. These may affect follow on projects and cause implementation delays. For example, it took nearly two years—and a restructuring—to revise the project scope and realign it with the new administration’s priorities.
- Risk from exposure to natural disasters:** This continues to be a high risk based on Pakistan’s vulnerability to natural hazards and the effects of climate change on the frequency and intensity of hydro meteorological events. Mitigating measures continue to be the government’s commitment to



enhancing risk reduction through institutionalized disaster response measures. The experience with the distribution of cash transfers to affected households may inform future strategies.

8. Assessment of Bank Performance

a. Quality-at-Entry

The Bank team prepared the project based on the country's strategic priorities and aligned with the World Bank's objectives in the current Country Partnership Framework for Pakistan. The prolonged preparation led to ambitious objectives - capacities for weather forecasting, hydromet services, and DRM capabilities - that were well-aligned to address climate vulnerability and institutional capacity gaps in key public institutions such as PMD and NDMA. Lessons learned from strengthening the capacity and modernizing similar weather agencies informed project design such as the critical role of system integrators (SI) and focusing on service delivery and responding to user needs. The Bank team considered that the insufficient internal capacity and limited familiarity with Bank procedures of both the PMD and NDMA raised the risk of implementation readiness. The Bank team also noted the substantial political ownership risk from the results of the 2018 general elections. The Bank team adopted mitigating measures through continued dialogue, the design of the capacity building component, fortified international technical support, and FM and procurement standards. However, there were shortcomings at entry. For example, the M&E arrangement was insufficient and the indicators in the results framework proved inadequate (see Section 9 M&E below). The Bank team also provided complex mitigating measures to address the risks from readiness to implement. This was reflected in the numerous target-setting for the output and outcome indicators that were then addressed at restructuring. Also, there were some shortcomings in identifying adequate mitigating measures to address the implementation risks faced at appraisal.

Quality-at-Entry Rating
Moderately Unsatisfactory

b. Quality of supervision

After the 2018 general elections, the project faced considerable implementation delays that the Bank team had to address. This meant numerous iteration of scope and redesigning implementation arrangements (see Section 5 Administrative and Operational Efficiency above). The team also experienced turnover of TTL and co-TTLs although the core team of local and international staff based in Islamabad maintained operational and technical capacity in M&E, safeguards, procurement, and financial management throughout. The Bank team conducted 13 supervision missions, including virtual ones, over the six-year implementation period, in addition to bi-weekly check-ins with NDRMF after the Mid-Term Review. The Bank team engaged with the implementing agencies and responded to evolving government priorities to sustain implementation momentum. The Bank team focused on reallocating funds and revising the PDOs in response to the implementation challenges and the 2022 floods, rather than cancelling the project altogether. The Bank team collaborated with the Benazir Income Support Programme (BISP) to achieve



CERC targets. BISP is the national safety net government institution that implements cash transfers to poor households throughout Pakistan.

The Bank's performance at supervision is rated Satisfactory. Creative solutions responded to implementation challenges by reallocating resources and re-adjusting objectives to respond to a natural disaster and evolving government needs.

Overall Bank performance is thus Moderately Satisfactory.

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The Theory of Change (TOC) created at closing provided a reasonable causal link between the key outputs that led to expected outcomes of the original PDO stated at appraisal. The original PDO formulation was clear although specified at a low level (strengthen delivery). The outcome indicators were too broad – beneficiaries of the improved hydromet data – and did not capture all expected outcomes of the PDO as originally formulated. The ICR noted the lack of measurable outcome indicators (ICR, paragraph 9) that limited the tracking of project progress. The original intermediate outcome indicators were specific, relevant, measurable, time bound, and achievable. Baseline values were available for hydromet related indicators.

b. M&E Implementation

The M&E system was redesigned during implementation to accommodate the revisions introduced during the restructurings. NDRMF implemented the redesigned M&E. NDRMF increased staff, assigned M&E specialists to Sindh and KP sub-projects to ensure accurate reporting. MOCC&EC provided updates on institutional strengthening, BISP shared cash transfer data. The Bank requested from BISP additional details on the 1.4 million flood cash recipients since NDRMF provided sample-based verification of cash transfer data only. The Bank also conducted a qualitative survey on cash transfer recipients to assess flood impact, aid delivery, fund use, and contributions to recovery and resilience. NDRMF consolidated all the M&E information. Weaknesses in the M&E design such as the targets of the output and outcome indicators, more appropriate indicators to associate with the activities that were eventually implemented, were addressed during restructuring by introducing indicators to match the revised PDO formulation. The ICR noted that more appropriate indicators would have been useful, such as survival rates and carbon sequestration for ecosystem restoration activities (ICR, paragraph 80). A third-party verification (TPV) firm was hired to assess the project's relevance, effectiveness, efficiency, sustainability, and impact, and capture key lessons learned. The TPV team triangulated qualitative and spatial data by



conducting interviews, focus group discussions, and field data collection in Sindh and Khyber Pakhtunkhwa.

c. M&E Utilization

The World Bank team, the NDRMF, MOCC&EC, and sub-project PIUs used M&E data to follow project progress and to introduce corrective measures such as more appropriate output and outcome indicators and targets to achieve the revised PDOs. In Sindh and KP, the PIUs reported M&E data to provincial authorities. Local media reported on project-level data.

The overall quality of M&E is rated as Substantial. Despite initial design shortcomings, the quality of M&E data improved over time and was extensively used to devise corrective measures and report on progress. Provincial governments and the media used project data. Hiring a TPV firm and conducting a beneficiary survey has strengthened M&E quality.

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

Environmental Safeguards. The project was assigned environmental and social safeguard category “B” because of the limited environmental impacts that could be linked to temporary soil erosion, dust, noise, and social disturbance during construction and civil works under the project components. The following environmental safeguard policies were triggered: OP/BP 4.01 Environmental Assessment, OP/BP 4.04 Natural Habitats, OP/BP 4.10 Physical Cultural Resources, and OP/BP 4.36 Forests. Restructurings did not change the environmental safeguard category. Safeguards compliance was rated Satisfactory throughout implementation. The IAs’ E&S capacity was limited, requiring multiple reviews and updates of the E&S screening checklists, especially during the initial phase. During the restructuring, the initially proposed revised targets in Sindh entailed the complete removal of certain line items. Upon the Bank team’s advice, NDRMF’s E&S team ensured that no item was deleted entirely from the scope of the project so that the originally perceived E&S benefits to the communities could be ensured. Furthermore, in both Sindh and KP sub-projects, NDRMF ensured that reallocating targets did not disproportionately disadvantage marginalized groups and female beneficiaries. For the KP sub-project, the use of pesticides was disallowed and the NDRMF team prepared a detailed assessment for minimizing and controlling the use and release of fertilizers, which was approved by the Bank prior to initiating procurement. The assessment also considered less hazardous alternatives.

Social Safeguards: The project triggered OP/BP 4.12 Involuntary Resettlement. The Social Safeguards Expert position at NDRMF was vacant for many months. However, the E&S team ensured compliance after restructuring reduced scope of the project. A grievance redress mechanism (GRM) was established at all levels, registering a limited number of complaints, mostly related to employment and water availability. The ICR did not indicate that these were all satisfactorily resolved. Overall safeguards compliance was rated



Satisfactory throughout implementation but did not specify that if the unresolved complaints meant compliance was not assessed at closing.

b. Fiduciary Compliance

Financial Management: According to the ICR, the project maintained adequate financial management staffing. They submitted Interim Unaudited Financial Reports on time. However, staff turnover made the internal audit function ineffective for over two years. The use of the NDRMF internal audit department compromised the objectivity in reviewing the use of US\$150 million BISP advance. The project eventually resolved key documentation issues and complied with statutory audit requirements. Persistent delays and weak internal audit oversight were ongoing FM risks and performance was Moderately Satisfactory throughout implementation. The fund flow mechanism was noted to be inefficient and time-consuming: NDRMF transfer funds to provincial treasuries who then transfer funds to the Fund Implementing Partners (FIPs). The ICR did not indicate if there were any audit findings or if the financial management was in full compliance with World Bank financial management policies.

Procurement: The project complied with the World Bank Procurement Regulations (ICR, paragraph 85). A fragmented authorization process between the Aviation Ministry and PMD delayed procurement and contributed to cancelling the hydromet component.

c. Unintended impacts (Positive or Negative)

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons

The project offered the following lessons from the operation, adapted and adjusted by IEG:



- **Strengthening provincial participation may be useful for projects cut across institutional and geographical boundaries.** On April 8, 2010, the government adopted the 18th amendment to the Pakistan Constitution. Key sectors like climate, environment, and agriculture fell under provincial government authority. If federal entities, such as NDRMF, implement activities in these sectors, seamless coordination with the provincial governments would avoid implementation challenges and delays. Hydromet and large-scale climate resilience interventions are transboundary issues that may justify federal oversight but must establish provincial collaboration. Future projects may find adopting devolved or hybrid models useful where federal and provincial authorities share ownership of such endeavors. Investments that align national and provincial government priorities would strengthen impact, ensure consistency, and foster convergence toward shared goals.
- **Agreeing to a pre-approved list of subprojects may enhance efficient implementation when undertaking green investments.** Like traditionally prepared infrastructure investments, traditionally identify, validate, and . green investments may benefit from validating, approving a list of subprojects, or agreeing to a pre-approved list with the authorities before implementation. This strategy is useful when a range of partners participate in offering subproject proposals. Readiness to implement is bolstered by considering local needs, the policy environment, and reaching agreement on the type of interventions to be pursued. Implementation can then focus on execution rather than conceptualization and review.
- **Partnering with institutions that have procedures for service delivery may be useful when CERC is triggered.** In 2022, disaster management agencies and local administrations were overwhelmed by the need to expeditiously address the immediate needs of households affected by the devastating monsoon floods. For rapid implementation, the Bank turned to BISP's existing platforms to help identify eligible households and disburse cash transfers. The partnership with BISP enabled a swift and seamless distribution of CERC funds to flood-affected families.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR offers a clear and comprehensive overview of the project, effectively outlining the changes to the PDO in response to implementation challenges. It highlights key issues, particularly those arising from shifting government priorities, and provides supporting evidence through annexes. The report acknowledges weaknesses in M&E design and outcome indicators but demonstrates how corrective measures—such as third-party verification and additional surveys—helped justify a Substantial rating. It also details actions taken to restructure the project and revise the PDO twice rather than cancel it. Lessons emphasize operational challenges and underscore the value of partnering with BISP to expedite emergency cash transfers. Overall, the ICR is rated Substantial.



a. Quality of ICR Rating
Substantial