Pakistan: Revitalizing the Ecosystem of Ravi River Basin

Project Name	Revitalizing the Ecosystem of Ravi River Basin
Project Number	51324-001
Country	Pakistan
Project Status	Active
Project Type / Modality of Assistance	Technical Assistance
Source of Funding / Amount	**TA 9463-PAK: Revitalizing the Ecosystem of Ravi River Basin** Technical Assistance Special Fund — US$ 460,000.00 Multi-Donor Trust Fund under the Water Financing Partnership Facility — US$ 200,000.00 People's Republic of China Poverty Reduction and Regional Cooperation Fund — US$ 550,000.00
Strategic Agendas	Environmentally sustainable growth Inclusive economic growth Regional integration
Drivers of Change	Governance and capacity development Knowledge solutions Partnerships
Sector / Subsector	**Agriculture, natural resources and rural development** - Water-based natural resources management **Health** - Health sector development and reform **Industry and trade** - Small and medium enterprise development **Public sector management** - Public administration **Water and other urban infrastructure and services** - Urban policy, institutional and capacity development
Gender Equity and Mainstreaming	Some gender elements
Description	1. The proposed knowledge and support technical assistance (TA) will operate for 18 months and will develop a plan to revitalize and build resilience in the Ravi River Basin in the province of Punjab, Pakistan. The river basin is being heavily polluted with urban, industrial, and agricultural waste, creating major human health, food, and water safety risks. These risks will continue to worsen without urgent action by the government and society. The TA will support activities to assess the pollution problem, identify and close institutional gaps, raise awareness, and develop a long-term plan to revitalize and build resilience in the basin, with detailed investment recommendations. 2. This TA is included in the country operations business plan, 2018-2020 of the Asian Development Bank (ADB) for Pakistan. It is in line with ADB's country partnership strategy, 2015-2019 for Pakistan, which includes support for wastewater treatment, river basin management, and pollution control. The TA was requested by the Punjab Environment Protection Department (EPD) through the Punjab Planning and Development Board and the Economic Affairs Division of the federal government in July 2017, and confirmed through an aide-memoire in November 2017. Support for the TA is included in the ADB Water Sector and Environment Thematic Group work plans.

Project Rationale and Linkage to Country/Regional Strategy	3. The Ravi River is one of the six transboundary rivers of the Indus River system. It flows from the Himalaya in northwestern India through eastern Pakistan. The river merges into the Chenab River and then the Indus, which flows to the Arabian Sea. About 50 million people live in the basin within Pakistan. This includes 24 million urban dwellers in Punjab's major cities of Lahore (population 11 million) and Faisalabad (4 million), and in about 70 other urban areas. The basin experiences huge flow variations, ranging from 10 cubic meters per second in the dry season to 10,000 cubic meters per second in the wet season. 4. The river provides critical ecosystem services that support Punjab's economy. The river forms part of the Indus Basin Irrigation System within Punjab, the world's largest contiguous irrigation system, and irrigates 2.9 million hectares of agricultural lands that account for about 30% of Pakistan's agricultural cultivation. The river's previously rich biodiversity hosted at least 31 fish species, among other wildlife, that offered livelihoods for Punjab's rural poor. Its partial flow through the Lahore Canal also has recreational and cultural value to residents of Lahore. 5. Heavy pollution. Despite its economic value, the river basin has become heavily polluted since the 1990s. Punjab's cities, industries, and agricultural areas have developed without effective infrastructure to control, capture, and treat their discharges of polluted water, and without effective policies and regulations in place to reduce the pollution at source. This problem is not unique to the Ravi basin but is made worse there because of its large population and many farms, cities, and industries. Pakistan treats only about 1% of its urban wastewater. The country partnership strategy notes that Pakistan's environmental management is weak and ineffectual, with root causes including policy and regulatory gaps, insufficient monitoring and enforcement, technical and capacity constraints, low public awareness, and low levels of investment. 6. Pollution of the river basin and its health risks are not well documented. The river is biologically dead (i.e., lacking dissolved oxygen) along much of its reach downstream of Lahore, according to a 2009 report by the Punjab EPD. The report noted major pollution sources as household wastewater, industrial effluent, agricultural runoff, and solid waste. A 2014 report by the World Wide Fund for Nature Pakistan (WWF-Pakistan) assessed the situation of the river near Lahore, mapping major urban drains and industrial discharges, and concluded that the Ravi is Punjab's most polluted river. 7. Major risks. Notwithstanding lack of data, experts agree that pollution has been creating major health, environmental, food, and water safety risks that hurt Punjab's economy and worsen its poverty. Poor sanitation and wastewater management in Pakistan cost 3.9% of gross domestic product in 2006, of which about 90.0% was health related. In 2015, more than 50% of all reported diseases in Punjab were waterborne. Pakistan has insufficient water resources, and poor water quality makes this worse. Farmers, for instance, are forced to use polluted water to irrigate their crops, which creates scarcity of safe food as heavy metals and harmful chemicals can accumulate in crops irrigated with polluted water. Fish and other wildlife cannot live in a dead river, depriving rural poor people of a critical food source and livelihood. The river's recreational and cultural value has also declined, with media reports characterizing it as a "dumping pit" and "sludge carrier." Pollution has a direct economic impact on local water suppliers as well. The Water and Sanitation Agency in Lahore, for example, reportedly needs to draw groundwater from depths of about 200 meters - with major pumping costs - to avoid pollutant contamination at shallower depths. 8. Pakistan is among the world's most climate-vulnerable countries, and climate change may alter the river's flow and increase floods and droughts that worsen pollution risks. Regional climate change models project that, by mid-century, the river's seasonal flow variations may increase because of rainfall variability, glacial melt, and rising water demand from higher temperatures. Climate change could raise the risk of extreme floods or droughts, which pose major economic threats to the basin's 50 million people. Droughts and reduced flows can concentrate pollutants in the river, while floods can create pollution spikes by washing polluted soil and solid waste into the river. 9. Required actions. Risks will worsen without urgent action by the government and society. The government needs to strengthen its policies, institutions, and regulations to improve water quality management in the basin. Punjab's cities, industries, and agricultural areas need to invest in pollution control infrastructure and services. Policies and investments also need to be resilient to reduced river flows and increased flow variability that may be caused by climate change. 10. Punjab has requested ADB support to ensure that its actions avoid repeating past failures. Pollution in the Ravi River has been a known problem since at least 1995, though past clean-up efforts rarely moved beyond the concept stage. Two national water sector strategies from 2002 and 2012 highlighted the need to clean up the river and included investment proposals, but these have not materialized. A government-endorsed wastewater treatment feasibility study prepared with financial support from the Japan International Cooperation Agency in 2009 recommended a $413 million investment, while a similar study by a French consultant in 2011 recommended a $118 million investment. Neither project went ahead (footnote 13). In 2012, the Lahore High Court ordered the establishment of the Ravi River Commission to help clean up the river. The commission reviewed the situation and prepared a report recommending a low-cost ($500,000) bioremediation plant in Lahore as a first step (footnote 13). Soon after, however, the Lahore Development Authority proposed a $3 billion waterfront urban development project for the river that could preclude the treatment plant and pose further environmental risks. These organizations have been debating the issue in court and progress has stalled. 11. Technical and institutional constraints prevented the success of these efforts. The government has struggled to prioritize pollution risks to date because of lack of data and awareness on the risks and impacts of pollution, and cost-effective ways to reduce pollution. Solving the problem also needs a coordinated, multistakeholder response to reduce pollution at different sources, including local governments, industries, and urban service providers in basin cities and towns. The Ravi lacks a river basin management agency or its equivalent that could coordinate its many stakeholders and decide on issues such as the conflicting bioremediation and waterfront development projects mentioned in para. 10. 12. With growing public awareness of the pollution crisis, the government of Punjab has appointed new environmental managers in the EPD and committed to take actions for the river basin with ADB assistance. The EPD has already budgeted for a contribution of up to PRs200 million to support this effort. The proposed TA aims to contribute to addressing the pollution crisis by improving monitoring and enforcement capacity, filling regulatory and institutional gaps, raising awareness on pollution risks and cost-efficient ways to reduce pollution, and increasing levels of investment and public priority toward this crisis.
Impact	Water quality in the Ravi River Basin in Pakistan improved

Project Outcome	
Description of Outcome	Environmental water management in the Ravi River Basin improved
Progress Toward Outcome	
Implementation Progress	
Description of Project Outputs	1. Comprehensive situation assessment of the river basin completed 2. Environmental water management plan for the river basin completed
Status of Implementation Progress (Outputs, Activities, and Issues)	
Geographical Location	Punjab, Ravi River

Summary of Environmental and Social Aspects
Environmental Aspects
Involuntary Resettlement
Indigenous Peoples

Stakeholder Communication, Participation, and Consultation	
During Project Design	The following stakeholders were consulted and participated in TA conceptualization, among others: Pakistan EAD, Pakistan Planning Commission, Pakistan EPA, Pakistan Commission for Indus Waters, Punjab PP&DB, Punjab EPD, PID, PAD, Punjab HUD&PHED, Punjab LG&CD, Punjab P&SHD, PFD, Punjab ICID, Punjab PWD, LDA, LWMC, Lahore WASA, Urban Unit, WWF-Pakistan, NIBGE, Fast University Lahore, NEC, IWMI, World Bank, EU
During Project Implementation	A knowledge partnership agreement was signed with the World Wide Fund (Pakistan) in February 2018 and the international consultants mobilized in May 2018. The first steering committee meeting was held on 7 September 2018 and the inception workshop is planned in October 2018

Business Opportunities	
Consulting Services	ADB will select an international consulting firm to lead the two TA outputs using the quality-based selection method; a full technical proposal; output-based terms of reference; and a performance-based contract with lump-sum, milestone-based payments according to the quantity of outputs delivered at the required level of quality. ADB may reduce or retain payments for lower-quality outputs and pay a premium for higher-quality outputs, which will be negotiated with the first-ranked bidder. The winning firm will act as a credible scientific assessment center and as a change management agent to facilitate the planning process, liaising regularly with the government and other key stakeholders. ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions. TASF 6, the PRCF, and the WFPF will finance the cost of engaging the firm (Appendix 2). The consulting firm may propose to include in its contract its procurement of small, low-value goods or fixed assets using the shopping method, such as office equipment or pollution sampling equipment. Any procurement will follow the ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).
Procurement	The consulting firm may propose to include in its contract its procurement of small, low-value goods or fixed assets using the shopping method, such as office equipment or pollution sampling equipment. Any procurement will follow the ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

Responsible ADB Officer	Tayyab, Ahsan
Responsible ADB Department	Central and West Asia Department
Responsible ADB Division	Environment, Natural Resources & Agriculture Division, CWRD
Executing Agencies	*Punjab Environment Protection Department* *Gate No. 8, National Hockey Stadium,* *Qaddafi Stadium, Ferozepur Road, Lahore,* *Pakistan*

Timetable	
Concept Clearance	27 Oct 2017
Fact Finding	08 Oct 2017 to 13 Oct 2017
MRM	-

Approval	12 Dec 2017
Last Review Mission	-
Last PDS Update	26 Sep 2018

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Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
12 Dec 2017	11 Jan 2018	11 Jan 2018	30 Sep 2019	-	-

Financing Plan/TA Utilization							Cumulative Disbursements	
ADB	Cofinancing	Counterpart				Total	Date	Amount
		Gov	Beneficiaries	Project Sponsor	Others			
460,000.00	750,000.00	0.00	0.00	0.00	0.00	1,210,000.00	12 Dec 2017	79,263.00

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