Technical Assistance Subproject Report

PUBLIC

Project Number: 54026-013
Knowledge and Support Technical Assistance (C-KSTA)
September 2022

People's Republic of China: Strengthening Capacity, Institutions, and Policies for Enabling High-Quality, Green Development in the Yellow River Ecological Corridor
Subproject 12: Research of Ecological Water Security for Healthy River and Biodiversity Protection in the Lower Yellow River and Delta

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 5 September 2022)

Currency unit	–	Chinese yuan (CNY)
CNY1.00	=	$0.1445
$1.00	=	CNY6.9208

ABBREVIATIONS

ADB	–	Asian Development Bank
PRC	–	People’s Republic of China
TA	–	technical assistance
YRCC	–	Yellow River Conservancy Commission
YREC	–	Yellow River Ecological Corridor

NOTE

In this report, "$" refers to United States dollars.

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KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data

Project Number: 54026-013

Project Name	Research of Ecological Water Security for Healthy River and Biodiversity Protection in the Lower Yellow River and Delta	**Department/Division**	EARD/EAER
Nature of Activity	Research and Development	**Executing Agency**	Ministry of Water Resources
Modality	Subproject		
Country	China, People's Republic of		

2. Sector

	Sector	Subsector(s)	ADB Financing ($ million)
✓	Agriculture, natural resources and rural development	Agricultural policy, institutional and capacity development	0.050
		Water-based natural resources management	0.250
		Total	**0.300**

3. Operational Priorities

- ✓ OP2: Accelerating progress in gender equality
- ✓ OP3: Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability
- ✓ OP5: Promoting rural development and food security
- ✓ OP6: Strengthening governance and institutional capacity

Climate Change Information

GHG Reductions (tons per annum)	0
Climate Change impact on the Project	Low

ADB Financing

Adaptation ($ million)	0.000
Mitigation ($ million)	0.000

Cofinancing

Adaptation ($ million)	0.000
Mitigation ($ million)	0.000

Sustainable Development Goals

SDG 2.5
SDG 5.5
SDG 6.3

Gender Equity and Mainstreaming

Some gender elements (SGE) ✓

Poverty Targeting

General Intervention on Poverty ✓

4. Risk Categorization

Risk Categorization does not apply

5. Safeguard Categorization

Safeguard Policy Statement does not apply

6. Financing

Modality and Sources	Amount ($ million)
ADB	**0.300**
Knowledge and Support technical assistance: Technical Assistance Special Fund	0.300
Cofinancing	**0.000**
None	0.000
Counterpart	**0.000**
None	0.000
Total	**0.300**

Currency of ADB Financing: US Dollar

I. THE TECHNICAL ASSISTANCE SUBPROJECT

A. Overall Progress of the Technical Assistance Cluster

1. The knowledge and support technical assistance (TA) cluster was approved on 28 October 2020. The overall TA cluster amount is $3.88 million, out of which $3.73 million is financed on a grant basis from the Technical Assistance Special Fund (TASF-other sources) of the Asian Development Bank (ADB) and $0.15 million from the Climate Change Fund.[1] The Environment, Natural Resources, and Agriculture Division of ADB's East Asia Department is responsible for administration and coordination of the TA cluster. The National Development and Reform Commission, the leading agency for strategic development in the People's Republic of China (PRC), is the executing agency for the TA cluster to play a leading role to support knowledge sharing and coordinate with ADB for alignment of ADB lending and nonlending assistance in the Yellow River basin.

2. The TA cluster comprises a total of 13 subprojects, each focused on different aspects of river basin management. Ten subprojects are under implementation and three are under preparation. The TA cluster is part of ADB's Yellow River Ecological Corridor (YREC) program, a multisector approach which is aligned with the following impact: resilient ecological protection and security in the Yellow River basin achieved.[2] The TA cluster and YREC program are supporting the PRC's Yellow River Basin Ecological Protection and High-quality Development Program, 2021–2035, which aims to strengthen water resources management and sustainable development in the basin.[3]

3. **Subproject context.** Identifying the ecological water requirements of rivers is essential to maintaining river health.[4] The lower reaches of the Yellow River are located within two provinces of the PRC, Henan and Shandong, and support freshwater and estuarine wetlands, agricultural lands, and rural and urban development. The river drains into a large, branching estuarine delta. The lower Yellow River and delta support the livelihoods of millions of people and globally important freshwater and marine biodiversity values.[5] The continued maintenance of these values is largely dependent upon upstream flow and sediment inputs and are at risk from altered flows and water shortages, caused by multiple factors including excessive water extraction, dams and flow regulation, and climate change.[6] Regulation of water use in the Yellow River is managed through a framework of national and provincial policies, but which requires supporting data to help ensure adequate flow allocation for different needs.[7] There is a need to identify the ecological water requirements of the lower Yellow River and to develop technical and policy measures to achieve ecological water security in a balanced approach that considers multisector water needs.

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1 Established by ADB.
2 ADB. 2020. *People's Republic of China: Strengthening Capacity, Institutions, and Policies for Enabling High-Quality, Green Development in the Yellow River Ecological Corridor.* Manila.
3 Government of the PRC. 2021. *Yellow River Basin Ecological Protection and High-quality Development Program*. Beijing; and Government of the PRC. 2021. *Outline of the Yellow River Basin Ecological Protection and High-Quality Development Plan.* Beijing.
4 Ecological water requirements refer to the flow regime (quantity and timing of flows) as well as the water levels and water quality required to sustain water-dependent ecosystems. Government of Western Australia. 2022. Ecological Water Requirements.
5 For this subproject, the lower Yellow River and delta is defined as the section of river from the final mainstream dam (Xiaolangdi dam in Henan Province) to the delta (a distance of about 720 kilometers). The lower Yellow River and delta support provincial and national nature reserves and one Ramsar site (the Shandong Yellow River Delta Wetland).
6 ADB. 2019. *Technical Assistance for Achieving Water Sector Priorities in Asia and the Pacific under Strategy 2030.* Manila.
7 Government of the PRC. 2006. *Regulations for Water Scheduling in the Yellow River.* Beijing.

4. Two subprojects under implementation in the TA cluster are partly addressing these issues. Under subproject 1, a basin-wide water resources profile is under preparation, to document existing water demand, supply, allocation and regulation for multiple sectors and strategies and actions to strengthen water resources management. Under subproject 9, a biodiversity strategy and action plan is under preparation for the portion of the Yellow River basin within Henan Province, and which includes a preliminary review of environmental flows.[8] These works build upon long-term efforts by the government to strengthen water resources management of the Yellow River basin (footnote 6).

B. Subproject Outcome

5. The TA will have the following outcome: planning for ecological water security of the lower Yellow River and delta improved.[9] The TA is aligned with the expected outcome of the TA cluster: high-quality, green development opportunities in the Yellow River basin increased. The subproject will support the overall TA cluster outputs by (i) identifying the policy and institutional reforms and management actions required to strengthen ecological water security of the lower Yellow River and delta (TA cluster output 1), (ii) applying best practice methodologies to develop nature-positive solutions to address the identified issues (TA cluster output 2), and (iii) disseminating the TA results and strengthening the capacity of stakeholders to implement the management actions developed under the subproject (TA cluster output 3).

C. Subproject Outputs, Methods, and Activities

6. **Output 1: Analysis of ecological water security requirements for the lower Yellow River and delta produced.** The output will prepare a comprehensive analysis of the ecological water requirements of the lower Yellow River and delta (the TA area), based on field surveys, modeling, review of national and international best practice and expert consultation. The TA will: (i) facilitate a participatory process to specify the minimum targets (ecological, biodiversity, and hydrological) that will define ecological water security for the TA area;[10] (ii) assess and quantify the key factors (including flow regimes and sediment loads) required to maintain and restore these targets under different modeling scenarios to account for seasonal and multi-year variation and climate change; (iii) compare existing and projected ecological water requirements for the TA area with dam operations and water allocation policies, and identify gaps especially for key wetland sites; (iv) design an independent river health monitoring program for the TA area including key indicators, and assess the status of these indicators;[11] (v) review water policies and plans and identify regulatory gaps affecting the ecological water security of the TA area; and (vi) develop draft policy and technical recommendations to achieve ecological water security for the TA area, including changes to existing dam operations and flow allocations as needed.

7. **Output 2: Ecological water security report for the lower Yellow River and delta prepared.** The report will describe the policy and technical actions needed to maintain and restore the ecological water values of the TA area and will be based on the findings of output 1. The plan

[8] ADB. 2020. *People's Republic of China: Strengthening Capacity, Institutions, and Policies for Enabling High-Quality, Green Development in the Yellow River Ecological Corridor. Subproject 1: Strategic Research of Promoting Ecological Protection and High-Quality Development in the Yellow River Basin through Economic and Intensive Water Use;* and ADB. 2021. *Subproject 9: Policy Research and Technical Study on Ecological Restoration and Biodiversity Conservation in the Yellow River Basin in Henan Province.* Manila.

[9] The design and monitoring framework is in Appendix 1.

[10] These targets will include key wetland sites including the Shandong Yellow River Delta Wetland Ramsar site.

[11] The program will complement existing government water monitoring programs in the TA area, which are insufficient to assess ecological water health as they focus on a relatively small number of parameters for localized areas.

will be structured in a format that will enable the government and sector agencies to adopt relevant sections within basin and provincial sector policies and plans. It will include: (i) recommended flow regimes and quantitative flow targets to help protect and restore water ecosystems and achieve ecological water security for the TA area under different climatic, development and impact scenarios (including 'emergency' water releases from dams in years of low flow); (ii) proposed revisions to water allocation polices, regulations, guidelines, and technical standards; (iii) actions tailored to Henan and Shandong provinces and individual dams, as needed; (iv) draft management strategy for ecological water security for at least one key wetland site in each of these provinces (footnote 10), including technical and policy requirements tailored to site-specific needs; (v) draft river health monitoring program for the TA area; and (vi) stakeholder roles and responsibilities and time-bound steps and budget to implement the recommended actions.

8. **Output 3: Institutional capacity and knowledge on ecological water security enhanced.** The output will: (i) implement a training program on ecological water security and the TA findings for government agencies, dam operators and other key stakeholders that influence water resources management in the TA area; (ii) procure water analysis equipment for the design and testing of the river health monitoring program (outputs 1 and 2); (iii) support a domestic study tour for key agencies to strengthen understanding of key issues concerning ecological water security; (iv) facilitate two seminars to disseminate the TA findings and best practice for ecological water security; and (v) prepare at least one knowledge product (e.g., a policy brief) that describes the TA deliverables and lessons. The training program will be gender-inclusive, participatory (including to seek feedback on the draft TA deliverables) and tailored to the roles and capacity of stakeholders identified under output 1. To facilitate information exchange and collaboration, research agencies and other stakeholders will be invited to co-facilitate the training and seminars. Expert workshops will be conducted to seek review and feedback on the TA findings, recommendations, and draft deliverables.

9. **Innovation, added value, and knowledge dissemination.** The TA will provide a detailed assessment of ecological water security for the lower Yellow River and delta. It will introduce and apply best practice methodologies and lessons to identify the ecological water requirements of the TA area; and provide a benchmark for the preparation of ecological water security assessments for other parts of the Yellow River basin. The results of the TA will complement the water resource assessments being conducted under subprojects 1 and 9 of the TA cluster. To maximize the resources and impact of the TA cluster, the TA stakeholder consultations, workshops, and seminars will be planned in coordination with subprojects 1 and 9 and where possible, training and knowledge events will be combined. Subproject 1 includes the establishment of a stakeholder engagement mechanism and expert review workshops, and these will be utilized by the TA to strengthen consultative and participatory review of the TA findings and draft recommendations. To scale up the TA benefits, the TA will also coordinate with other ADB programs under implementation, including the regional flyway initiative.[12] In addition to seminars and a knowledge product (output 3), the TA lessons will also be shared with ADB members through ADB-wide platforms, with guidance from ADB's media team to maximize dissemination to target audiences. Other opportunities for knowledge dissemination will be identified during TA implementation.[13]

[12] ADB. 2021. *Regional: Scaling Up the East Asian-Australasian Flyway Initiative*. Manila. The regional flyway initiative is supporting wetland and waterbird conservation in East and Southeast Asia. The Yellow River Delta contains some of the most important coastal wetlands for migratory waterbirds in Asia.

[13] E.g., presentations at meetings of the PRC's Yellow River Basin Network and dissemination through ADB blog posts, technical articles, and knowledge websites.

D. Subproject Cost and Financing

10. The TA subproject financing amount is $300,000, which will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-other sources). The key expenditure items are listed in Appendix 2. The following are ineligible expenditures: (i) purchase of vehicles, (ii) salaries for civil servants, (iii) foreign travel of civil servants, (iv) scholarships or long internships, (v) detailed engineering designs, (vi) civil works and other related expenses, and (vii) activities under ADB's List of Ineligible Items (or Negative List) and Prohibited Investment Activities List.[14]

11. The government will provide counterpart support in the form of remuneration and travel expenses of counterpart staff, available relevant government data and studies for the TA consultants' use, office accommodation and facilities, including use of meeting rooms, administrative assistance, and other in-kind contributions.

E. Subproject Implementation Arrangements

12. ADB will administer the TA. The Environment, Natural Resources and Agriculture Division of the East Asia Department will coordinate the implementation of the TA, including the selection, supervision, and evaluation of the TA consultants; organization of workshops; provision of ADB staff to act as resource persons for the TA; and management of the TASF-other sources financing.

13. The Ministry of Water Resources, acting through the Department of International Cooperation, Science and Technology of the Yellow River Conservancy Commission (YRCC), will provide oversight, coordination, and guidance for TA implementation. The deputy director general of the department will serve as the project director. A project management office will be established and will include representatives from other relevant departments of the YRCC. The project management office will be the main contact point for ADB and TA consultants and will support coordination of TA activities, delivery of outputs, and communication with national and provincial agencies.[15]

14. Implementation arrangements are summarized in the table.

Subproject Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	October 2022–September 2024		
Executing agency	Ministry of Water Resources, acting through the Yellow River Conservancy Commission		
Implementing agency	Department of International Cooperation, Science and Technology		
Consultants	To be selected and engaged by ADB		
	Firm: Quality- and cost-based	Consulting firm (simplified technical proposal with output-based contract).	$290,714
Disbursement	Disbursement of TA resources will follow ADB's *Technical Assistance Disbursement Handbook* (2020, as amended from time to time).		

[14] ADB. 2011. *Cost Sharing and Expenditure Eligibility: Policy Implementation Review*. Manila.
[15] The YRCC is also the lead agency for subproject 1 under the TA cluster.

Aspects	Arrangements
Asset turnover or disposal arrangement upon TA completion	ADB will turn over equipment procured under the TA to the executing agency upon completion of the TA.

ADB = Asian Development Bank, TA = technical assistance.
Source: Asian Development Bank.

15. **Consulting services.** ADB will engage a firm following ADB's Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions.[16] The TA requires a minimum of 1.0 person-month of international and 21.5 person-months of national consulting inputs. The firm will be engaged using the quality- and cost-based selection method, with a quality–cost ratio of 90:10 because of the assignment's technical complexity, by inviting simplified technical proposals. The contract will be output-based to ensure efficient contract management and to provide flexibility for mobilizing additional experts if needed. The firm will submit progress reports, which will be reviewed by ADB and the government. All reports will be available in English and Chinese. Resource persons may be engaged to review the consultants' outputs and share knowledge during workshops and conferences.

16. Water monitoring equipment will be procured for the TA, by the consultants, under one or two contract packages and using the request for quotation method. Procurement will follow ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions and Procurement Regulations for ADB Borrowers (2017, as amended from time to time) (footnote 16).

[16] Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

SUBPROJECT DESIGN AND MONITORING FRAMEWORK

Impact the TA is Aligned with Resilient ecological protection and security in the Yellow River basin achieved (PRC's Outline of the Rural Vitalization Plan, 2018−2022; and ADB Strategy 2030)[a]			
Results Chain	**Performance Indicators**	**Data Sources and Reporting Mechanisms**	**Risks and Critical Assumptions**
Outcome Planning for ecological water security of the lower Yellow River and delta improved	By 2025: a. At least three management actions listed in the ecological water security report incorporated in sector and provincial programs for at least three key sites in the lower Yellow River and delta and actions have been initiated (2022 baseline: 0 actions) (OP 3.3.4)	a. Annual public progress reports and announcements of the Yellow River Conservancy Commission	A: Ecological protection and restoration remain a high priority for the government for the Yellow River basin
Outputs 1. Analysis of ecological water security requirements for the lower Yellow River and delta produced	By 2024: 1a. Baseline quantitative and qualitative values, indicators, modeling scenarios and draft management actions to define and address ecological water security of the lower Yellow River and delta developed (2022 baseline: not developed)	1a. TA consultants' inception, midterm, and final reports; workshop attendance forms; ADB inception, midterm, and final review missions	R: Limited inter-sector cooperation and data sharing among key sectors
2. Ecological water security report for the lower Yellow River and delta prepared	2a. Draft ecological water security report with policy and technical recommendations for the Lower Yellow River and delta prepared (2022 baseline: not prepared) 2b. Ecological water security report finalized (2022 baseline: not prepared)	2a–b. TA consultants' inception, midterm, and final reports; workshop attendance forms; ADB inception, midterm, and final review missions	R: Agencies unable to achieve consensus on the identified management actions
3. Institutional capacity and knowledge on ecological water security enhanced	3a. At least 150 trainees (30% women) comprising government officials and sector representatives report improved knowledge and understanding on ecological water security for the lower Yellow River and delta (2022 baseline: 0) (OP 2.2, OP 6.1.1) 3b. At least one knowledge product describing the TA deliverables, approaches, and lessons published (2022 baseline: 0)	3a.–3c. TA consultants' inception, midterm, and final reports; workshop and training attendance forms; survey of training participants; ADB inception, midterm, and final review missions; completed knowledge product	R: Trainees are transferred elsewhere, and the new skills are not retained in departments

Key Activities with Milestones

1. Analysis of ecological water security requirements for the lower Yellow River and delta produced.

1.1 Compile available technical and policy data for TA area and conduct field surveys by Q3 2023.
1.2 Review regulatory framework and identify gaps by Q3 2023.
1.3 Develop river health monitoring indicators for TA area by Q3 2023.
1.4 Complete modeling and data analysis by Q3 2023.
1.5 Conduct stakeholder review workshops on the draft TA findings during Q2–Q3 2023.
1.6 Prepare review with recommendations by Q4 2023.

2. Ecological water security report for the lower Yellow River and delta prepared.

2.1 Prepare draft report by Q1 2024.
2.2 Complete at least two expert review workshops of draft report by Q1 2024.
2.3 Finalize the draft report by Q3 2024.

3. Institutional capacity and knowledge on ecological water security enhanced.

3.1 Conduct domestic study tour by Q2 2023.
3.2 Design and implement training program between Q2 2023 and Q3 2024.
3.3 Prepare and implement two seminars on ecological water security by Q3 2024.
3.4 Finalize knowledge product (e.g., policy brief) by Q3 2024.

Project Management Activities

Recruit and mobilize TA consultant firm by Q4 2022.
Prepare TA consultant quarterly progress reports and semiannual workplans (2023–2024), TA inception report (by Q1 2023), TA midterm report (by Q4 2023), and TA final report (by Q4 2024).
Conduct ADB inception, midterm, and final review missions (2023–2024).
Monitor and evaluate progress for the project outcome and outputs, including sex-disaggregated performance monitoring, through the TA consultant reports and ADB review missions.
Submit the project technical completion report by 2025.

Inputs

ADB: $300,000 (Technical Assistance Special Funds-other sources)

Note: The government will provide counterpart support in the form of remuneration and travel expenses of counterpart staff, local transport for TA consultants at project sites, government data and studies for TA consultants' use, office accommodation and access to the internet, administrative services, and other in-kind contributions.

A = assumption, ADB = Asian Development Bank, OP = operational priority, PRC = the People's Republic of China, Q = quarter, R = risk, TA = technical assistance.

[a] Government of the PRC. 2018. *Outline of the Rural Vitalization Plan, 2018−2022*. Beijing; and ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

Contribution to Strategy 2030 Operational Priorities:

The expected values and methodological details for all OP indicators to which the TA will contribute results are detailed in the Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 3 of the TA report). In addition to the OP indicators tagged in the design and monitoring framework, this TA will contribute results for the following:

OP 3.3.3 Terrestrial, coastal, and marine areas conserved, restored, and/or enhanced (hectares)
OP 5.1 People benefiting from increased rural investment (number)

Source: Asian Development Bank.

SUBPROJECT COST ESTIMATES AND FINANCING PLAN
($'000)

Item	Amount
A. **Asian Development Bank**[a]	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	19.0
ii. National consultants	149.6
b. Out-of-pocket expenditures	
i. International and local travel	12.9
ii. Goods (purchase)[b]	10.0
iii. Surveys	19.5
iv. Training, seminars, and conferences[c]	57.0
v. Reports and communications[d]	2.7
vi. Miscellaneous administration and support costs[e]	15.0
2. Contingencies	14.3
Total	**300.0**

Note: The technical assistance (TA) is estimated to cost $330,000, of which contributions from the Asian Development Bank (ADB) are presented in the table. The government will provide counterpart support in the form of remuneration and travel expenses of counterpart staff, local transport for the TA consultants to government offices within the city, government data and studies for TA consultants' use, office accommodation and access to the internet, administrative services, and other in-kind contributions. The value of the government contribution is estimated to account for 9.1% of the total TA cost.

[a] Financed by the ADB's Technical Assistance Special Fund-other sources.

[b] Includes water monitoring equipment. Equipment will be turned over to the implementing agency upon TA completion.

[c] Includes the cost of physical (in person) and virtual (online) training workshops, one domestic study tour, two conferences, and resource persons, including costs for ADB staff to act as resource persons for workshops when required. The consultants will administer training, seminars, and conferences in the national capital (Beijing) and/or the provinces the TA is being implemented in, including stakeholder consultation and training workshops and inception, interim, and final workshops. Costs are anticipated to include translation and interpretation costs for workshops.

[d] Includes printing of the Chinese-language versions of the TA final report (about 30 copies) and the knowledge product (anticipated to be a policy brief) (about 100 copies). The printing of the Chinese-language versions of the deliverables will expedite knowledge dissemination to domestic agencies. The English-language versions of the TA reports and knowledge materials will be disseminated in electronic format.

[e] Costs are anticipated to include translation and interpretation for meetings and the TA inception, midterm, and final review missions; office supplies; administration; and other logistics costs.

Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/LinkedDocs/?id=54026-013-TAReport

1. Terms of Reference for Consultants
2. Contribution to Strategy 2030 Operational Priorities