

The logo of the Asian Development Bank (ADB), consisting of the letters 'ADB' in a white serif font inside a black square.

ADB

## Project Concept Paper

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Project Number: 51157-001  
March 2018

### Proposed Loan Indonesia: Enhanced Water Security Investment Project

Asian Development Bank

## **CURRENCY EQUIVALENTS**

(as of 1 March 2018)

Currency unit	–	rupiah (Rp)
Rp1.00	=	\$0.0000732
\$1.00	=	Rp13,669

## **ABBREVIATIONS**

ADB	–	Asian Development Bank
DGWR	–	Directorate General of Water Resources
IFAD	–	International Fund for Agricultural Development
O&M	–	operation and maintenance
RBO	–	river basin organization
TRTA	–	transaction technical assistance

## **NOTE**

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

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## CONTENTS

## Page

PROJECT AT A GLANCE

PROBLEM TREE

I.	THE PROJECT	1
	A. Rationale	1
	B. Proposed Solutions	3
	C. Proposed Financing Plans and Modality	4
	D. Implementation Arrangements	5
II.	PROJECT PREPARATION AND READINESS	5
III.	DELIBERATIVE AND DECISION-MAKING ITEMS	5
	A. Risk Categorization	5
	B. Project Procurement Classification	6
	C. Scope of Due Diligence	6
	D. Processing Schedule and Sector Group's Participation	6
	E. Key Processing Issues and Mitigation Measures	6

APPENDIXES

1.	Preliminary Design and Monitoring Framework	7
2.	Project Procurement Classification	10
3.	Technical Assistance Subproject Report	11
4.	Initial Poverty and Social Analysis	34

## PROJECT AT A GLANCE

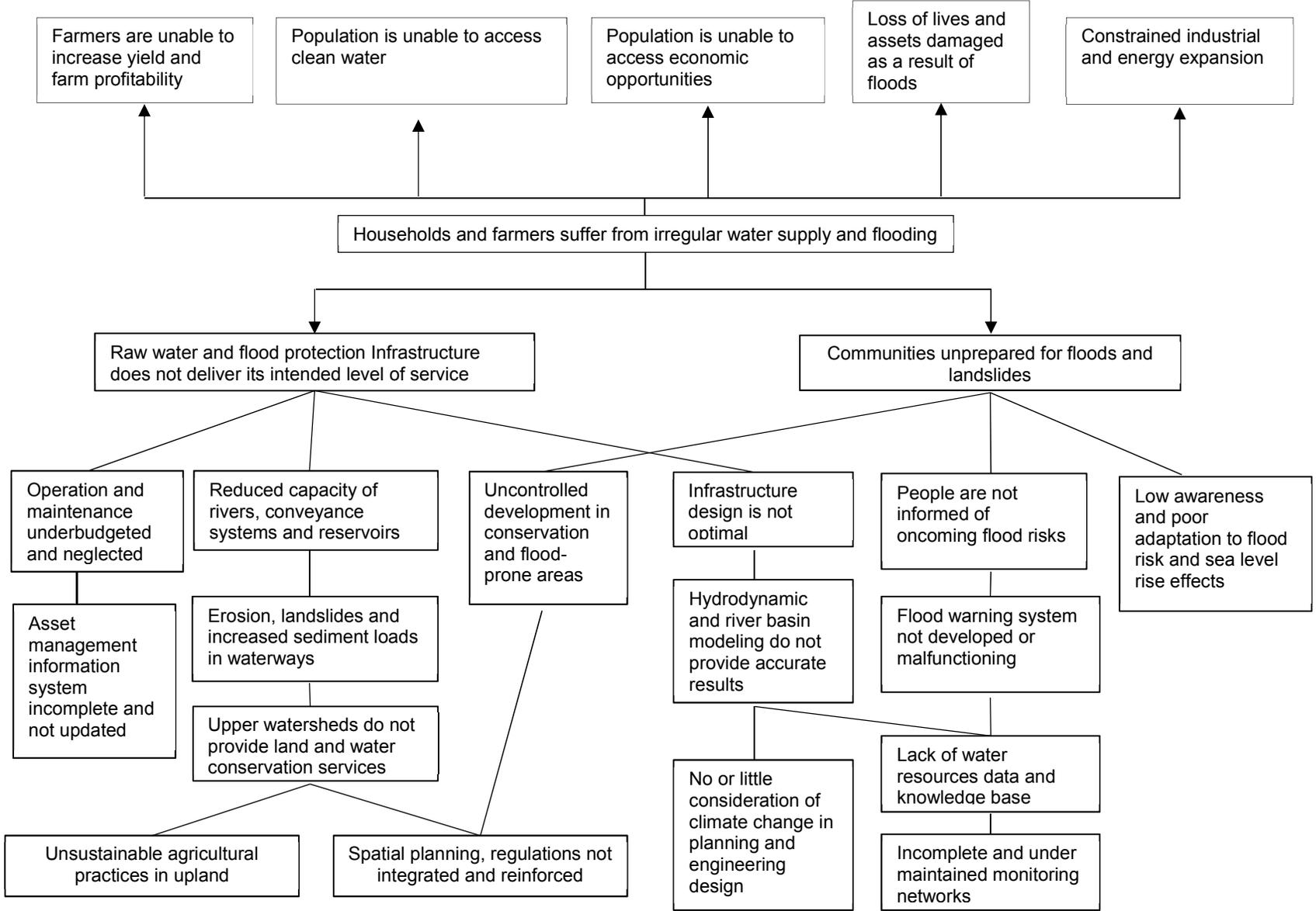
<b>1. Basic Data</b>		<b>Project Number:</b> 51157-001	
<b>Project Name</b>	Enhanced Water Security Investment Project	<b>Department /Division</b>	SERD/SEER
<b>Country</b>	Indonesia	<b>Executing Agency</b>	Directorate General of Water Resources, Ministry of Public Works & Housing, Republic of Indonesia
<b>Borrower</b>	Government of Indonesia		
<b>2. Sector</b>	<b>Subsector(s)</b>	<b>ADB Financing (\$ million)</b>	
✓ <b>Agriculture, natural resources and rural development</b>	Rural flood protection		300.00
	Water-based natural resources management		250.00
		<b>Total</b>	<b>550.00</b>
<b>3. Strategic Agenda</b>	<b>Subcomponents</b>	<b>Climate Change Information</b>	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Adaptation (\$ million)	54.00
Environmentally sustainable growth (ESG)	Disaster risk management Global and regional transboundary environmental concerns Natural resources conservation	Climate Change impact on the Project	High
<b>4. Drivers of Change</b>	<b>Components</b>	<b>Gender Equity and Mainstreaming</b>	
Governance and capacity development (GCD)	Organizational development	Some gender elements (SGE)	✓
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas		
<b>5. Poverty and SDG Targeting</b>		<b>Location Impact</b>	
Geographic Targeting	Yes	Rural	Medium
Household Targeting	No	Urban	Medium
SDG Targeting	Yes		
SDG Goals	SDG6, SDG13		
<b>6. Risk Categorization:</b>	Complex		
<b>7. Safeguard Categorization</b>	<b>Environment: A Involuntary Resettlement: A Indigenous Peoples: C</b>		
<b>8. Financing</b>			
<b>Modality and Sources</b>		<b>Amount (\$ million)</b>	
<b>ADB</b>		<b>550.00</b>	
Sovereign Project (Regular Loan): Ordinary capital resources		550.00	
<b>Cofinancing</b>		<b>0.00</b>	
None		0.00	
<b>Counterpart</b>		<b>55.00</b>	
Government		55.00	
<b>Total</b>		<b>605.00</b>	

# PROBLEM TREE

**Effects**

**Core Problem**

**Causes**



## I. THE PROJECT

### A. Rationale

1. The proposed Enhanced Water Security Investment Project will support the Government of Indonesia to improve selected dimensions of water security (economic water security and resilience to water-related disasters).<sup>1</sup> The project will promote an integrated water resources management approach to: (i) improve water resources planning and management to meet rising demands for irrigation and non-agricultural use; (ii) minimize spatial and temporal variations in water availability by improving water storage and conveyance; and (iii) increase resilience to climate change. The International Fund for Agricultural Development (IFAD) is expected to provide collaborative cofinancing to improve land management in upper river basins.<sup>2</sup>

2. Although the national water security index progressed from 40.9 (over a scale of 0–100) in 2013 to 49.8 in 2016, Indonesia is still at risk.<sup>3</sup> The country is deficient in certain dimensions of water security, especially in household water security, urban water security, and resilience to water-related disasters, for which progress has been slow.<sup>4</sup> This slow progress is affecting economic development and poverty reduction.

3. **Water resources planning is suboptimal.** Since 2004, the Directorate General of Water Resources (DGWR), Ministry of Public Works and Housing has improved its regulatory framework to manage water better. Integrated water resources management has been promoted through (i) the establishment of river basin organizations (RBOs),<sup>5</sup> and (ii) the formulation of basin development plans. However, effective screening, prioritization, and preparation of sound investment is lacking. Hydrological monitoring networks are incomplete and those in place, are prone to damage. River planning and basin modeling suffer from inadequate data acquisition and management, resulting in suboptimal water management and investment planning. Climate change and environmental constraints are often not considered in the design of infrastructure which tends to rely on a standard solution to fit all cases. Neglected infrastructure's operation and maintenance (O&M) accentuate the performance gaps.

4. **Provision of raw water supply doesn't cope with growing demand.** While Indonesia is blessed with an abundance of water resources, rainfall fluctuates by season and is distributed unevenly among the regions. Indonesia is urbanizing rapidly, with the percentage of Indonesians living in urban areas expected to increase to 65% by 2025. This will put further pressure on water resources to cope with population and industrial expansion.<sup>6</sup> Water for energy demand will increase by a factor of about eight from 2013 to 2050.<sup>7</sup> Agriculture uses 80% of the raw water and is expected to feed an expanding population. While construction of 49 new dams across the

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<sup>1</sup> ADB. 2016. *Asian Water Development Outlook 2016: Strengthening Water Security in Asia and the Pacific*. Manila.

<sup>2</sup> Under the following project entry from the 2nd Book – List of Medium Term Planned Loans – DRPLN-JM 2015-2019, 2016 Revision: Upland Development for National Food Security, Project No. BB-1519-R0-24-02-0, Book 2, pg 261.

<sup>3</sup> The national water security is the composite result of the five key dimensions (household water security, economic water security, urban water security, environmental water security, and resilience to water-related disasters) measured on a scale of 1–5. See <https://www.adb.org/publications/asian-water-development-outlook-2016>.

<sup>4</sup> Household water security progressed from 5 (over a scale of 20) in 2013 to 6 in 2016, urban water security from 5.6 to 6.3, and resilience to water-related disasters from 3.61 to 4.74. ADB. 2016. *Asian Water Development Outlook 2016: Strengthening Water Security in Asia and the Pacific*. Manila.

<sup>5</sup> RBOs are in charge of all water resources management aspects including flood management, raw water supply, irrigation, and operation and maintenance.

<sup>6</sup> The industrial demand is predicted to double from about 14 cubic meters per second (m<sup>3</sup>/s) in 2013 to 29 m<sup>3</sup>/s by 2030. ADB. 2016. *Indonesia Country Water Assessment*. Manila.

<sup>7</sup> Water is needed for cooling of power generation plants.

archipelago by 2019 is a government priority, this will not suffice to fill the gaps. Raw water storage capacity is estimated to be only 54 cubic meters (m<sup>3</sup>)/capita, far below the 1,975 m<sup>3</sup>/capita targeted in the 2005–2025 National Long-Term Development Plan<sup>8</sup> and below the threshold of 1,700 m<sup>3</sup>, denoting water stress internationally.<sup>9</sup> Existing reservoirs and conveyance systems are operating below their original capacity due to conflicting water allocation interests and operational modalities among users and high levels of siltation. Climate change is further exacerbating spatial and temporal disparities. The impact of deficient raw water supply is further accentuated by inefficiencies at end user level. Despite improvement, water utilities are underperforming.<sup>10</sup> Distribution of water in irrigation networks suffer from losses due to deteriorated infrastructure and suboptimal management. Environment flow in rivers is not maintained at the required level.

**5. Indonesia is highly prone to flooding due to its climate and topography.** Flooding, which occurs seasonally in most of the country, has been increasing in frequency and intensity due to climate change and land use change. The floods disrupt economic activities, accentuate economic inequalities, and disproportionately affect women. Between January to May 2017, 1.5 million people have been affected by 490 flood events.<sup>11</sup> Damages are estimated to cost \$2.3 billion annually.<sup>12</sup> With sea level rise and population growth, it is estimated that the number of people living in low-elevation coastal zones will rise to 93.7 million by 2060, from 39.3 million in 2000, while the population living in a flood plain with a 1 in 100 year risk will reach 14.5 million in 2060.<sup>13</sup> Scientists estimate that from 2000 to 2030, increases in exposure will elevate flood risk by, on average, 76% and 120% for river and coastal floods, respectively.<sup>14</sup> Some 20% of rice cultivation is on low lying coastal plains and reclaimed swamps and will be at increasing risk of frequent flooding, saline intrusion and coastal erosion affecting livelihoods and food security.

**6. Poor land management is impacting on the water cycle.** Inadequate spatial planning and land management has led to substantial uncontrolled development in conservation and flood-prone areas, reducing the potential for groundwater recharge and escalating flood damage to life, property and agricultural land. Deforestation and inappropriate agricultural practices—which result in erosion, landslides and increased sediment loads in waterways—are reducing the capacity of rivers, conveyance systems and reservoirs.<sup>15</sup>

**7. Government strategy.** Water security is a priority in the Government's 2005–2025 National Long-Term Development Plan (footnote 8) and 2015–2019 National Medium-Term Development Plan.<sup>16</sup> Indonesia's Strategic Plan for Water Resources, 2015–2019 of the Ministry of Public Works and Housing includes policy measures and priority investments for \$24.68 billion

<sup>8</sup> Government of Indonesia. 2005. *Rencana Pembangunan Jangka Panjang Nasional Tahun, 2005–2025*. Jakarta. (National Long-Term Development Plan).

<sup>9</sup> Technically termed as the annual per capita water endowment this is the notional volume of water available to each person on average based on the volume of accessible/reliable freshwater available each year.

<sup>10</sup> Non-revenue water account for 30% nationally in average. [http://www.bppspam.com/index.php?option=com\\_docman&task=cat\\_view&gid=51&Itemid=108](http://www.bppspam.com/index.php?option=com_docman&task=cat_view&gid=51&Itemid=108).

<sup>11</sup> United Nations Office for the Coordination of Humanitarian Affairs. *Indonesia: Jan–May 2017 Humanitarian Snapshot (as of 5 June 2017)*. [http://reliefweb.int/sites/reliefweb.int/files/resources/2017may-idn-humanitariansnapshot\\_final.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/2017may-idn-humanitariansnapshot_final.pdf).

<sup>12</sup> Global Assessment Report on Disaster Risk Reduction 2015. <http://www.preventionweb.net/english/hyogo/gar/2015/en/home/data.php?iso=IDN> (accessed 12 September 2017).

<sup>13</sup> ADB. 2017. *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific*. Manila.

<sup>14</sup> S. Muis et.al. 2015. *Flood risk and adaptation strategies under climate change and urban expansion: A probabilistic analysis using global data*. <http://www.sciencedirect.com/science/article/pii/S0048969715305714?via%3Dihub>.

<sup>15</sup> ADB. 2016. *Indonesia Country Water Assessment*. Manila. About 78 million hectares in Indonesia are degraded.

<sup>16</sup> Government of Indonesia. 2015. *Rencana Pembangunan Jangka Menengah Nasional, 2015–2019*. Jakarta. (National Medium-Term Development Plan).

nationwide.<sup>17</sup> The National Action Plan for Climate Change Adaptation further promotes improved water management.<sup>18</sup> The project will complement investments in improved irrigation services and water resources supported by the Asian Development Bank (ADB), the World Bank and the Japan International Cooperation Agency. The project will also capitalize on the ongoing ADB funded project that addresses flood risks in two river basins. The project will build on the partnership with IFAD to improve agriculture productivity through the Ministry of Agriculture.

## B. Proposed Solutions

8. The project will help the government to plan, design, implement and operate water infrastructure better to mitigate water shortages and the adverse effects of climate change. It will strengthen RBOs to review and prioritize river basin plans including climate resilient design features. To this end, water accounting using remote sensing technology will be introduced to assess water stresses and impacts of land use and climate change. To ensure sustainability of the infrastructure, the project will give special attention to building systems and capacity for O&M. The proposed IFAD investment will help reduce upland erosion and improve water conservation and efficiency through agricultural productivity in river basins targeted by the project. The project will have the following outputs.

9. **Output 1: Planning for water resources optimized.** The project will expand the networks of hydro-meteorological stations to improve real-time data acquisition at river basin level. The project will develop hydrological and hydrodynamic models to optimize allocation of water for energy, food and economic development. Both formulated and tailored solutions will fully incorporate urbanization and climate change trends, scenarios and uncertainty. This will help the RBOs to update their river basin plans. The project will prepare private investment schemes for water infrastructure where feasible. The project will also improve asset management, linkages between, sector budgeting, and planning to ensure that O&M budgets are adequately allocated. Performance based O&M might be introduced where feasible.

10. **Output 2: Raw water supply infrastructure and services improved.** The project will increase raw water supply capacity through a range of infrastructure options.<sup>19</sup> Those infrastructure measures will be complemented by river basin modeling to optimize operation of reservoirs to better adapt to current and future water demand for water supply, irrigation, and energy needs. To ensure that full benefits are achieved, the project will facilitate integration with investments in water treatment and distribution, and improved management of water utilities.<sup>20</sup>

11. **Output 3: Flood risks management enhanced.** The project will finance construction and upgrading of flood, coastal and urban drainage infrastructure to increase climate resilience. The project will promote river restoration approach and natural based solutions for river works. This will be complemented by flood warning systems. Community and women/women's groups will be engaged to support participatory and gender responsive flood risk management.

<sup>17</sup> Government of Indonesia, MPWH. 2015. *Rencana Strategis Sumber Daya Air, 2015–2019*. Jakarta.

<sup>18</sup> This includes: (i) infrastructure planning and climate proofing, (ii) enhancement of water conservation and reduction of hazard related to climate change, and (iii) improvement of water infrastructure for safeguarding water balance and disaster prevention. Government of Indonesia. 2014. *National Action Plan for Climate Change Adaptation*. Jakarta.

<sup>19</sup> These include: (i) improving capacity of storage facilities through dredging, reducing siltation, protecting infrastructure by raising spillway capacities, and constructing sediment traps; (ii) addressing deficit water storage by enabling inter-basin transfers where feasible; (iii) upgrading groundwater infrastructure where resources are sustainable; (iv) constructing small banded storage reservoirs to solve wet season flooding and dry season water supply shortages; and (v) providing water conveyance infrastructure needed to bring water to underutilized water supply plants.

<sup>20</sup> Idle capacity is estimated at 50.8 m<sup>3</sup>/sec nationally. <http://perpamsi.or.id/page/view/25/kinerja-pdam1>.

12. These solutions and other innovations will result in the following outcome: resilience to climate change for selected river basins enhanced.<sup>21</sup> The project will be aligned with the following impacts: water security enhanced and climate adaptation improved.

13. **Strategic fit and convergence.** The project is aligned with the government strategies and with the priorities of ADB country partnership strategy 2016–2019 for Indonesia. The project is included in the ADB’s country operations business plan, 2018–2020 for Indonesia.<sup>22</sup> The project is aligned with the Water Operational Plan 2011–2020<sup>23</sup> and to the Climate Change Operational Framework 2017–2030.<sup>24</sup> The project will help achieve sustainable development goals 6.4, 6.5 and 13. Convergence with ADB and other development partners’ initiatives to improve agricultural and urban water efficiency will be explored during project preparation.

14. **Lessons learned and value addition by ADB.** The project incorporates key lessons from past and ongoing operations in the sector: (i) an unwieldy project design involving multiple implementing agencies across a wide range of areas results to delays in implementation; (ii) the use of inaccurate spatial data hampers infrastructure design; (iii) the government should routinely collect and analyze water related data; (iv) sustainable long-term flood management concepts are needed; and (v) watershed management programs should be implemented to enhance sustainability of infrastructure. Through its partnerships, ADB will introduce innovations to inform the design of the project and to improve performance in the sector: (i) using geographic information systems to improve asset management; (ii) water accounting using satellite data to optimize water management and investments;<sup>25</sup> (iii) piloting benchmarking of land use change and erosion;<sup>26</sup> and (iv) improving engineering standards to better integrate climate resilience and natural based solutions.

### C. Proposed Financing Plans and Modality

15. The indicative investment cost of the project is estimated at \$605.0 million, including \$550.0 million loan from ADB’s ordinary capital resources, and \$55.0 million from the government as counterpart funding.<sup>27</sup> The modality (stand-alone project or sector modality) will be confirmed during due diligence. The amount of climate adaptation is estimated to cost \$60.0 million of which 90% will be finance by ADB.<sup>28</sup>

**Table 1: Indicative Financing Plan**

<b>Source</b>	<b>Amount (\$ million)</b>	<b>Share of Total (%)</b>
Asian Development Bank		
Ordinary capital resources (Regular loan)	550.0	91.0
Government	55.0	9.0
<b>Total</b>	<b>605.0</b>	<b>100.0</b>

Source: Asian Development Bank estimates.

<sup>21</sup> The design and monitoring framework is in Appendix 1.

<sup>22</sup> ADB. 2016. *Country Partnership Strategy: Indonesia, 2016–2019: Towards a Higher, More Inclusive and Sustainable Growth Path*. Manila; ADB. 2017. *Country Operations Business Plan: Indonesia, 2018–2020*. Manila.

<sup>23</sup> ADB. 2011. *Water Operational Plan, 2011–2020*. Manila.

<sup>24</sup> ADB. 2017. *Climate Change Operational Framework 2017–2030. Enhanced Actions for Low Greenhouse Gas Emissions and Climate-Resilient Development*. Manila.

<sup>25</sup> Through the knowledge partnership with UNESCO-Institute for Water Education.

<sup>26</sup> Under the European Space Agency initiative “Earth Observation for Sustainable Development”.

<sup>27</sup> It is estimated that output 1 will cost around \$20 million, while the remaining funds will be allocated between outputs 2 and 3 which mainly consist of civil works. This will be reconfirmed during preparation.

<sup>28</sup> This assumes 10% incremental cost to climate proof infrastructure. ADB. 2016. *Guidance Note on Counting Climate Finance in Urban and Water*. Manila. This will be further assessed during project preparation.

## D. Implementation Arrangements

16. DGWR is proposed as the executing agency and RBOs as implementing agencies.<sup>29</sup> The project will have works contracts and consulting services for management, engineering and supervision. Procurement (including consulting services) to be financed by the project will follow ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time). Advance actions for consultant recruitment and first-year procurement will be undertaken.

**Table 2: Indicative Implementation Arrangements**

Aspects	Arrangements
Indicative implementation period	January 2020– January 2026
Indicative completion date	31 January 2026
Management	
(i) Executing agency	Directorate General of Water Resources – MPWH
(ii) Key implementing agencies	River Basin Organizations – MPWH

MPWH = Ministry of Public Works and Housing.

Source: Asian Development Bank estimates.

## II. PROJECT PREPARATION AND READINESS

17. The project is listed in the Government’s Blue Book.<sup>30</sup> The project will finance construction of selected infrastructure subprojects that will be designed under the Accelerating Infrastructure Delivery through Better Engineering Services Project<sup>31</sup> and under the Flood Management in Selected River Basins Sector Project.<sup>32</sup> Environment and social safeguards documents, permits, and bidding documents will be prepared for those subprojects prior to Board approval. Therefore, the project will be able to meet the high readiness criteria before loan approval. A transaction technical assistance (TRTA) will be required for project preparation and due diligence. The TRTA will also support technical preparation for subprojects not designed under ongoing projects. The TRTA will cost \$1.1 million with \$1.0 million to be financed on a grant basis by the Government of Australia under the cluster technical assistance on Sustainable Infrastructure Assistance Program.<sup>33</sup> The government will finance the remaining balance in-kind. The government was advised that approval of the TRTA does not commit ADB to finance any ensuing project.

## III. DELIBERATIVE AND DECISION-MAKING ITEMS

### A. Risk Categorization

18. A “complex” categorization is proposed, as (i) the loan amount exceeds \$200 million, and

<sup>29</sup> The project will target several river basins tentatively including the (i) Seluna and Cimanuk Cisanggarung River Basins in Java island; and (ii) Deli-Percut-Belawan and Seputih-Tulang Bawang river basins in Sumatra island.

<sup>30</sup> This combines the following project entries from the 2nd Book – List of Medium Term Planned Loans – DRPLN-JM 2015-2019, 2016 Revision: (i) Project Flood Management in Selected River Basins (Additional Financing) No. BB-1519-R0-11-07-0, and (ii) Enhanced Water Security Investment Program Project No. BB-1519-R0-12-02-0.

<sup>31</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Technical Assistance Loan to the Republic of Indonesia for the Accelerating Infrastructure Delivery through Better Engineering Services Project*. Manila. (Loan 3455-INO).

<sup>32</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Indonesia for the Flood Management in Selected River Basins Sector Project*. Manila. (Loan 3440-INO).

<sup>33</sup> ADB. 2013. *Cluster Technical Assistance to the Republic of Indonesia: Sustainable Infrastructure Assistance Program*. Manila. (C-TA0013-INO). This technical assistance cluster, amounting AU\$20 million is financed by the Government of Australia, through the Department of Foreign Affairs and Trade, and administered by ADB. The available balance is \$3,045,777 including funds available after closure of TAs and contracts.

(ii) safeguards categorization is expected to be A for environment and involuntary resettlement.<sup>34</sup>

## B. Project Procurement Classification

19. Procurement risk is assessed as low because (i) DGWR and the RBOs have sufficient experience in procurement; and (ii) contract packages are not complex. The overall project procurement categorization is recommended to be Category A (Appendix 2).

## C. Scope of Due Diligence

Due Diligence Outputs	To be undertaken by
Development coordination	Staff
Technical	Staff, TRTA
Economic analysis and financial due diligence	Staff, TRTA
Gender analysis and gender action plan	Staff, TRTA
Safeguard screening and categorization results	Staff
Financial management and procurement assessments	Staff, TRTA
Project administration manual	Staff, TRTA
Risk assessment and management plan	Staff, TRTA
Safeguard documents in compliance with ADB's Safeguard Policy Statement	Staff, TRTA
Sector assessment	Staff, TRTA
Summary poverty reduction and social strategy	Staff, TRTA

TRTA = transaction technical assistance

Source: Asian Development Bank estimates.

## D. Processing Schedule and Sector Group's Participation

**Table 3: Processing Schedule by Milestone**

Milestones	Expected Completion Date
1. Project Concept Paper and TRTA Approval	March 2018
2. Loan Fact-Finding Mission	November 2018
3. Management Review Meeting	March 2019
4. Loan Negotiations	April 2019
5. Board Consideration	June 2019

Source: Asian Development Bank estimates.

## E. Key Processing Issues and Mitigation Measures

**Table 4: Issues, Approaches and Mitigation Measures**

Key Processing Issues	Proposed Approaches and/or Mitigation Measures
Delay in selection of target river basins might delay project preparation	The government will establish a technical working group to provide guidance on the design of the project.
Lengthy approval processes for Green Book entry might delay loan negotiations	The processing team has mobilized a national specialist to support the green book process to enable loan negotiations.
Delay in preparation of subprojects under the Technical Assistance (TA) loan might affect readiness at effectiveness <sup>a</sup>	Asian Development Bank and Ministry of Public Works and Housing agreed to monitor on weekly basis the progress under the TA loan to address issues and delay

<sup>a</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Technical Assistance Loan to the Republic of Indonesia for the Accelerating Infrastructure Delivery through Better Engineering Services Project*. Manila.

<sup>34</sup> Category A for environment and involuntary resettlement is proposed based on the nature of the works and ongoing operations in the sector such as Flood Management in Selected River Basins Sector Project.

## PRELIMINARY DESIGN AND MONITORING FRAMEWORK

<b>Impacts the Project is Aligned with</b>			
Water security enhanced (National Medium-Term Development Plan, 2015–2019 and National Long-Term Development Plan, 2005–2025) <sup>a</sup>			
Climate adaptation improved (National Action Plan for Climate Change Adaptation) <sup>b</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting</b>	<b>Risks</b>
<b>Outcome</b>	By 2027:		
Resilience to climate change for selected river basins enhanced	<p>a. Raw water delivery for domestic, municipal, industrial and agriculture uses increased by xxx m<sup>3</sup>/sec (2018 baseline: 30.60 m<sup>3</sup>/sec)<sup>c</sup></p> <p>b. Land with reduced flood risks increased by xxx ha (2018 baseline: 11,800 ha)<sup>c</sup></p>	a–b. PPMS, river basin databases	Climate change impacts on water supply exceed projections which may reduce the benefits of the project
<b>Outputs</b>	For the selected river basins, by 2026:		
1. Planning for water resources optimized	<p>1a. Water monitoring equipment installed as per rationalization plans. (2018 baseline: none)</p> <p>1b. River basin wide hydrological and hydrodynamic models calibrated. (2018 baseline: none)</p> <p>1c. Updated river basin plans with climate considerations endorsed by water councils. (2018 baseline: not endorsed)</p> <p>1.d. Asset management information system for river assets established. (2018 baseline: none)</p> <p>1.e. Knowledge and skills in climate-resilient infrastructure design/planning of xx RBO staff, of which xx% are women, strengthened. (2018 baseline: 0)</p> <p>1.f. Private public partnership scheme for water resources infrastructure established for 1 river basin. (2018 baseline: 0)</p>	1a–e. RBO hydrology reports	
2. Raw water supply infrastructure and services improved	2a. Water storage is increased by xxx m <sup>3</sup> . (2018 baseline: 2,392.5 million m <sup>3</sup> )	2a–c. Construction reports, PPMS	Worse than expected ground conditions may cause implementation delays

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	<p>2b. Additional xxx km of bulk water conveyance facilities built or upgraded and climate proofed. (2018 baseline: xxx)</p> <p>2c. Additional xxx groundwater wells built or upgraded. (2018 baseline: xxx)</p>		
3. Flood risks management enhanced	<p>3a. Early flood warning systems operational. (2018 baseline: 0)</p> <p>3b. Flood protection infrastructure rehabilitated or upgraded and climate proofed. (2018 baseline: 176 km)</p> <p>3c xxx km coast protection infrastructures rehabilitated or upgraded and climate proofed. (2018 baseline: xxx)</p> <p>3d. xxx ha of urban drainage rehabilitated or upgraded and climate proofed. (2018 baseline: xxx)</p> <p>3e. At least xx stakeholders, of which xx% are women, have increased awareness of risk-informed and gender-responsive emergency plans and procedures. (2018 baseline: xx%)</p>	3a–e. Construction reports and DGWR registers	Unexpected ground conditions cause implementation delays

### Key Activities with Milestones

#### 1. Planning for water resources optimized

- 1.1 Prepare a rationalization and improvement plan for the networks of hydro meteorological and flow monitoring instruments. (Q2 2020)
- 1.2 Install and calibrate expanded networks of hydro-meteorological stations. (Q4 2020)
- 1.3 Run hydrological and hydrodynamic models to optimize water management for DMI, irrigation and energy needs taking into account land use change and climate change scenarios. (Q2 2020)
- 1.4 Update, consult and formalize updated river basins plans giving greater emphasis on complementary multi-purpose use and climate proofing. (Q4 2020)
- 1.5 Upgrade the river asset management information system to an online GIS based system. (Q2 2020)
- 1.6 Strengthen capacity of RBOs in modeling, climate resilient infrastructure design and planning, asset management and IWRM. (Q3 2020)

#### 2. Raw water supply infrastructure and services improved

- 2.1 Select, appraise, and prepare remaining subproject summary reports for candidate subprojects. (Q1 2020)
- 2.2 Prepare climate resilient DEDs for the remaining subprojects, including environment and social safeguards documents and tender documents. (Q4 2020)
- 2.3 Implement LAR and civil works for non-core subprojects. (Q2 2021)

<p>2.4 Construct or upgrade bulk water facilities (reservoirs, ponds, bunded reservoirs, groundwater wells, conveyance) including climate resilient design features. (Q1 2022)</p> <p><b>3. Flood risks management enhanced</b></p> <p>3.1 Select, appraise, and prepare subproject summary reports for candidate subprojects. (Q1 2020)</p> <p>3.2 Prepare climate resilient DEDs for the non-core subprojects, including environment and social safeguards documents and tender documents. (Q4 2020)</p> <p>3.3 Implement LAR and civil works for candidate subprojects. (Q2 2021)</p> <p>3.4 Construct or upgrade flood infrastructure, coast protection and urban drainage systems including climate resilient design features. (Q1 2022)</p> <p>3.5 Design and conduct gender-inclusive awareness raising campaigns (Q4 2020)</p> <p>3.6 Develop flood warning systems and raise awareness of floodplains communities through gender-inclusive approach and outreach strategy. (Q4 2020)</p> <p><b>Project management activities</b></p> <p>Establish management structures by Q4 2019.</p> <p>Engage project implementation team (consulting firm and individual consultants) by Q1 2020.</p> <p>Establish monitoring and evaluation system by Q2 2020.</p> <p>Prepare government project completion report by Q2 2026.</p>
<p><b>Inputs</b></p> <p>ADB: \$550.0 million loan (ordinary capital resources)</p> <p>Government of Indonesia: \$55.0 million</p>
<p><b>Assumptions for Partner Financing</b></p> <p>Outputs not administered by ADB that are necessary to reach the outcome include: Improved upland management (IFAD)<sup>d</sup></p> <p>ADB = Asian Development Bank, DED = detailed engineering design, DGWR = Directorate General of Water Resources, DMI = domestic municipal industrial, GIS = geographic information system, ha = hectare, IFAD = International Fund for Agricultural Development, IWRM = integrated water resource management, km = kilometer, LAR = land acquisition and resettlement, m<sup>3</sup>/sec = cubic meter per second, PPMS = project performance management system, Q = quarter, RBO = river basin organization.</p> <p><sup>a</sup> Government of Indonesia. 2015. <i>Rencana Pembangunan Jangka Menengah Nasional, 2015–2019</i>. Jakarta (National Medium-Term Development Plan); and Government of Indonesia. 2005. <i>Rencana Pembangunan Jangka Panjang Nasional Tahun, 2005–2025</i>. Jakarta (<i>Long-Term National Development Plan</i>).</p> <p><sup>b</sup> Government of Indonesia. <i>National Action Plan for Climate Change Adaptation</i>.</p> <p><sup>c</sup> Targets will be set when the design of all subprojects has been completed.</p> <p><sup>d</sup> Under the following project entry from the 2nd Book – List of Medium Term Planned Loans – DRPLN-JM 2015-2019, 2016 Revision: Upland Development for National Food Security, Project No. BB-1519-R0-24-02-0, Book 2, pg 261. Source: Asian Development Bank.</p>

### PROJECT PROCUREMENT CLASSIFICATION

Characteristic	Assessor's Rating:
Is the procurement environment risk for this project assessed to be <i>high</i> based on the country and sector and/or agency risk assessments?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are multiple (typically more than three) and/or diverse executing agencies and/or implementing agencies envisaged during project implementation? Do they lack prior experience in implementation under an ADB-financed project?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Implementing agencies envisaged for the project have extensive experience in implementing ADB funded projects
Are multiple contract packages and/or complex and high-value contracts (compared with recent externally financed projects in the developing member country [DMC]) expected?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Multiple contracts but not high value and not complex
Does the project plan to use innovative contracts (public-private partnership, performance-based, design and build, operation and maintenance, etc.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
Are contracts distributed in more than three geographical locations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Are there significant ongoing contractual and/or procurement issues under ADB (or other externally) financed projects? Has misprocurement been declared in the DMC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
Does the DMC have prolonged procurement lead times, experience implementation delays, or otherwise consistently fail to meet procurement time frames?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown The main cause of delays is due to non-alignment of ADB procurement guidelines and government regulations
Do executing and/or implementing agencies lack capacity to manage new and ongoing procurement? Have executing and/or implementing agencies requested ADB for procurement support under previous projects?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown Capacity is adequate
<b>Regional department's overall recommendation</b>	
Overall project categorization recommended	<input checked="" type="checkbox"/> Category A <input type="checkbox"/> Category B
OSFMD support will be required to address the divergent view on applying ADB's procurement guidelines with the government.	
<b>PPFD's recommendation (c/o Jesper Pedersen, Senior Procurement Specialist, PFP2)</b>	
The classification is supported.	



## Technical Assistance Report

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Project Number: 46380-028  
Transaction Technical Assistance Cluster (C-TRTA)  
March 2018

### Indonesia: Sustainable Infrastructure Assistance Program

Subproject Number 15: Preparation of the Enhanced  
Water Security Investment Project  
(Financed by the Government of Australia)

This document is being disclosed to the public in accordance with ADB's Public Communications Policy 2011.

Asian Development Bank

**CURRENCY EQUIVALENTS**  
(as of 1 March 2018)

Currency unit	–	rupiah (Rp)
Rp1.00	=	\$0.0000732
\$1.00	=	Rp13,669

**ABBREVIATIONS**

ADB	–	Asian Development Bank
SIAP	–	Sustainable Infrastructure Assistance Program
TAC	–	technical assistance cluster
TRTA	–	transaction technical assistance
UNESCO-IHE	–	Institute for Water Education of the United Nations Educational, Scientific and Cultural Organization

**NOTE**

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

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## CONTENTS

	<b>Page</b>
I. THE ENSUING PROJECT	14
II. THE TECHNICAL ASSISTANCE	15
A. Overall Progress of the TA cluster	15
B. Subproject Scope	16
C. Subproject Outputs and Activities	16
D. Subproject Cost and Financing	17
E. Subproject Implementation Arrangements	17
 APPENDIXES	
1. Cost Estimates and Financing Plan	19
2. List of Linked Documents	20

## I. THE ENSUING PROJECT

1. The proposed Enhanced Water Security Investment Project will support the Government of Indonesia to improve selected dimensions of water security (economic water security and resilience to water-related disasters).<sup>1</sup> The project will promote an integrated water resources management approach to: (i) improve water resources planning and management to meet rising demands for irrigation and non-agricultural use; (ii) minimize spatial and temporal variations in water availability by improving water storage and conveyance; and (iii) increase resilience to climate change. The International Fund for Agricultural Development is expected to provide collaborative financing to improve land management in upper river basins.

2. The project will help the government to plan, design, implement and operate water infrastructure better to mitigate water shortages and the adverse effects of climate change. It will strengthen river basin organizations to review and prioritize river basin plans including climate resilient design features. To this end, water accounting using remote sensing technology will be introduced to assess water stresses and impacts of land use and climate change. The project will develop adaptive and integrated management strategies for reservoir operations to cope with water supply, irrigation and energy needs and priorities. To ensure sustainability of the infrastructure, the project will give special attention to building systems and capacity for operation and maintenance. The proposed International Fund for Agricultural Development investment will help reduce upland erosion and improve water conservation and efficiency through agricultural productivity in river basins targeted by the project. The project will have the following outputs:

- (i) **Output 1: Planning for water resources optimized.** The project will expand the networks of hydro-meteorological stations to improve real-time data acquisition at river basin level. The project will develop hydrological and hydrodynamic models to optimize allocation of water for energy, food and economic development. Both formulated and tailored solutions will fully incorporate urbanization and climate change trends, scenarios and uncertainty. This will help the river basin organizations to update their river basin plans that integrate infrastructure investment with supporting software measures. The project will identify potential for private investment for water infrastructure, and where feasible, the project will prepare private investment schemes. The project will also improve asset management, linkages between, sector budgeting, and planning to ensure that operation and maintenance budgets are adequately allocated. Performance-based operation and maintenance might be introduced where feasible.
- (ii) **Output 2: Raw water supply infrastructure and services improved.** The project will increase raw water supply capacity through a range of infrastructure options.<sup>2</sup> Those infrastructure measures will be complemented by river basin modeling to optimize operation of reservoirs to better adapt to current and future water demand for water supply, irrigation and energy needs. To ensure that full benefits are achieved, the project will facilitate integration with investments in water treatment and distribution, and improved management of water utilities.<sup>3</sup>

<sup>1</sup> ADB. 2016. *Asian Water Development Outlook 2016: Strengthening Water Security in Asia and the Pacific*. Manila.

<sup>2</sup> These include: (i) improving capacity of storage facilities through dredging, reducing siltation, protecting infrastructure by raising spillway capacities, and constructing sediment traps, (ii) addressing deficit water storage by enabling inter-basin transfers where feasible; (iii) upgrading groundwater infrastructure where the resources are sustainable; (iv) constructing small diurnal storages consisting of bunded storage reservoirs to solve wet season flooding and shortage of water supply in dry season; and (v) providing water conveyance infrastructure needed to bring water to underutilized water supply plants.

<sup>3</sup> Idle capacity is estimated at 50.8 m<sup>3</sup>/sec nationally. <http://perpamsi.or.id/page/view/25/kinerja-pdam1>.

- (iii) **Output 3: Flood risks management enhanced.** The project will finance construction and upgrading of flood, coastal and urban drainage infrastructure to increase climate resilience. The project will promote river restoration approach and natural based solutions for river works. This will be complemented by flood warning systems. Community and women/women's groups will be engaged to support participatory and gender responsive flood risk management.

3. These solutions and other innovations will result in the following outcome: resilience to climate change for selected river basins enhanced.<sup>4</sup> The project will be aligned with the following impacts: water security enhanced and climate adaptation improved.

4. The indicative investment cost of the project is estimated at \$605.0 million, including \$550.0 million loan from ADB's ordinary capital resources, and \$55.0 million from the government as counterpart funding.<sup>5</sup> The modality (stand-alone project or sector modality) will be confirmed during due diligence. The amount of climate adaptation is estimated to cost \$60.0 million of which 90% will be finance by ADB.<sup>6</sup>

5. **Strategic fit.** The project is aligned with the government strategies and with the priorities of the Asian Development Bank (ADB) country partnership strategy 2016–2019 for Indonesia. The project is included in the ADB's country operations business plan, 2018–2020 for Indonesia.<sup>7</sup> The project is aligned with the Water Operational Plan 2011–2020<sup>8</sup> and to the Climate Change Operational Framework 2017–2030.<sup>9</sup> The project will help achieve sustainable development goals 6.4, 6.5, and 13.

## II. THE TECHNICAL ASSISTANCE

### A. Overall Progress of the TA Cluster

6. The Technical Assistance Cluster (TAC) for Sustainable Infrastructure Assistance Program (SIAP) is financed by the Government of Australia through the Department of Foreign Affairs and Trade and administered by ADB.<sup>10</sup> The TAC was approved on 17 June 2013 and is due to close on 30 June 2019. As of 19 January 2018, total commitments are \$11,108,237 against time elapsed of 75% and disbursements are 66% of commitments. This technical assistance proposal is one of those subprojects. The SIAP Steering Committee also approved additional financing for two existing subprojects for a total value of \$2.435 million. Assistance under SIAP has focused on energy; urban services, water, and sanitation; rural infrastructure; transport; and infrastructure reform. SIAP is on track to meet its outcome and outputs. To date, SIAP has supported the preparation of approved projects and programs valued at nearly \$3 billion (\$1.75 billion in OCR and \$1.13 billion in cofinancing). SIAP has contributed to the preparation and

<sup>4</sup> The design and monitoring framework is in Appendix 1.

<sup>5</sup> It is estimated that output 1 will cost around \$20 million, while the remaining funds will be allocated between outputs 2 and 3 which mainly consist of civil works. This will be reconfirmed during preparation.

<sup>6</sup> This assumes 10% incremental cost to climate proof infrastructure. ADB. 2016. *Guidance Note on Counting Climate Finance in Urban and Water*. Manila. This will be further assessed during project preparation.

<sup>7</sup> ADB. 2016. *Country Partnership Strategy: Indonesia, 2016–2019: Towards a Higher, More Inclusive and Sustainable Growth Path*. Manila. ADB. 2017. *Country Operations Business Plan: Indonesia, 2018–2020*. Manila.

<sup>8</sup> ADB. 2011. *Water Operational Plan, 2011–2020*. Manila.

<sup>9</sup> ADB. 2017. *Climate Change Operational Framework 2017–2030. Enhanced Actions for Low Greenhouse Gas Emissions and Climate-Resilient Development*. Manila.

<sup>10</sup> ADB. 2013. *Technical Assistance Cluster for Sustainable Infrastructure Assistance Program*. Manila. (TAC 0013-INO). This technical assistance cluster, amounting AU\$20 million is financed by the Government of Australia, through the Department of Foreign Affairs and Trade, and administered by ADB.

implementation of approved projects and programs valued at nearly \$5 billion. As of 19 January 2018, TAC 0013–INO: SIAP has an available balance of \$3,045,777, including the ADB management fee.

**B. Subproject Scope**

7. The transaction technical assistance (TRTA) is a subproject under the TAC 0013-INO: SIAP as agreed with the Department of Foreign Affairs and Trade. The TRTA will support the Ministry of Public Works and Housing to prepare the project. More specifically, the TRTA will provide support to (i) conduct consultations with the Ministry of Public Works and Housing and river basins stakeholders to finalize the scope of the project, and to ensure that innovations are built into the investment; (ii) undertake due diligence of technical, social, financial, environmental, gender, and economic aspects of the project; and (iii) ensure that subprojects designed under the Accelerating Infrastructure Delivery through Better Engineering Services Project and Flood Management in Selected River Basins Sector Project, are complying with ADB’s technical, environment and social safeguards and fiduciary requirements.<sup>11</sup> The TRTA is included in ADB’s country operations business plan, 2018–2020 for Indonesia (footnote 7).

8. Through its partnerships, ADB will introduce innovations to inform the design of the project: (i) water accounting using satellite data to predict water availability, adjust engineering design, and improve water allocation planning through the partnership between ADB and UNESCO-IHE;<sup>12</sup> and (ii) piloting benchmarking and monitoring of land use change and erosion through the partnership between ADB and the European Space Agency.<sup>13</sup> Funding from the Climate Change Fund will be explored for preparing the climate risk vulnerability assessments for the selected river basins.

**C. Subproject Outputs and Activities**

9. The major outputs and activities are summarized in Table 1.

**Table 1: Summary of Major Outputs and Activities**

Major Outputs	Delivery Dates	Key Activities with Milestones
1. Project scope finalized	Q2 2018	1.1 Update existing or develop hydrological and hydrodynamic models to optimize water resources and investments 1.2 Based on the models, river basin plans, water accounting assessments, Climate Risk Vulnerability Assessments, and available feasibility studies, prioritize investments in the selected river basins 1.3 Carry out investigations and feasibility studies of schemes identified under recent studies that enhance existing infrastructure function or address multipurpose water security needs 1.4 Conduct consultations with river basins stakeholders to review and confirm proposed investments

<sup>11</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Technical Assistance Loan to the Republic of Indonesia for the Accelerating Infrastructure Delivery through Better Engineering Services Project*. Manila. (Loan 3455-INO); ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Indonesia for the Flood Management in Selected River Basins Sector Project*. Manila. (Loan 3440-INO).

<sup>12</sup> The Asian Development Bank manages a knowledge partnership with Institute for Water Education of the United Nations Educational, Scientific and Cultural Organization which is part of the RETA 6498: Knowledge and Innovation Support for ADB’s Water Financing Program.

<sup>13</sup> Under the European Space Agency initiative “Earth Observation for Sustainable Development.”

Major Outputs	Delivery Dates	Key Activities with Milestones
		1.5 Identify infrastructure investments suitable for private public partnership and performance-based operation and maintenance 1.6 Review best practices (climate adaptation, water efficiency) relevant to the project and formulate activities to be part of the investment
2. Design of ensuing project prepared	Q4 2018	2.1 Review and confirm feasibility studies prepared under L3455 and L3440 from technical, environment, social and economic perspectives 2.2 Prepare costs estimates, financing plan, and implementation arrangements including fund flow mechanisms 2.3 Prepare the economic and financial analysis for the overall project 2.4 Prepare the financial management, procurement and institutional assessment 2.5 Prepare project subcomponents including detailed description, implementation schedule and related terms of reference 2.6 Prepare communication strategy, gender action plan 2.7 Support the preparation of the required linked documents attached to the Report and Recommendation of the President to the Board of Directors.
3. Readiness as per Asian Development Bank (ADB) standards complied	Q1 2019	3.1 Update the L3440 Land Acquisition and Resettlement Framework and Environment Assessment Review Framework to be used as reference for preparation of subprojects under L3455 3.2 Review compliance of the resettlement plans, and initial environment examination studies or environment impact assessments prepared under L3455 and L3440 with ADB Safeguards Policy Statement 2009 3.3 Review quality and technical soundness of the detailed engineering designs for subprojects prepared under L3455 and L3440 3.4 Ensure that climate change resilience measures are incorporated in engineering designs

Source: Asian Development Bank.

#### D. Subproject Cost and Financing

10. The TRTA is estimated to cost \$1.1 million, of which \$1.0 million will be financed from the TAC on a grant basis by the Government of Australia, administered by ADB as a subproject of TAC 0013-INO: SIAP (footnote 10). The TRTA is within the purpose and fit for TA cluster financing. The key expenditure items are listed in Appendix 1. The government will provide counterpart support in the form of counterpart staff, office accommodation, and other in-kind contributions. The government was informed that approval of the TA does not commit ADB to finance any ensuing project.

#### E. Subproject Implementation Arrangements

11. ADB through the Southeast Asia Department will administer the TRTA including evaluation and supervision of consultants. Activities will be coordinated with relevant agencies such as the Ministry of Home Affairs, the Ministry of Agriculture, the National Planning Agency (BAPPENAS) and the Ministry of Finance. The Directorate General of Water Resources will establish a technical working group to provide guidance. The TRTA consultants will organize and implement workshops, trainings and public consultations and provisions for those will be included in their contract as provisional sums.

**Table 2: Implementation Arrangements**

Aspects	Arrangements		
Indicative implementation period	March 2018– June 2019		
Executing agency	Directorate General of Water Resources, Ministry of Public Works and Housing		
Consultants	To be selected and engaged by ADB in accordance with the ADB Procurement Policy (2017, as amended from time to time)		
	ICS	57.50 person-months	\$633,840
Procurement	ADB will engage consulting firms and individual consultants and all TA financed Goods shall be procured in accordance with ADB Procurement Policy (2017, as amended from time to time) and the associated Project Administration Instructions/TA Staff Instructions.		
	Shopping <sup>a</sup>	1 contract	\$2,000
	Surveys	2 contracts	\$100,000
	Studies	2 contracts	\$100,000
Disbursement	The TA resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2010, as amended from time to time).		
Asset turnover upon TA completion	Assets purchased under the transaction TA will be handed over to the Ministry of Public Works and Housing.		

ADB = Asian Development Bank, ICS = individual consultant selection, TA = technical assistance.

<sup>a</sup> This includes printers and scanner.

Source: Asian Development Bank estimates.

12. **Consulting services.** Consultants will be recruited on an intermittent basis (over a period of 16 months). Expertise will range from technical, social and environment safeguards and fiduciary. The TRTA will require services of five international consultants (totaling 28.50 person-months) and four national consultants (totaling 29.00 person-months). The consultants will be engaged by ADB using the individual consultant selection. Consultant contracts will be input-based contracts. Workshops, surveys and studies will be organized at key stages of the TRTA. Equipment, training, workshops and surveys will be procured or organized by ADB or by the consultants in accordance with ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

13. **Financier requirements.** Regular progress reports will be submitted to the Department of Foreign Affairs and Trade as per agreement in the umbrella TAC 0013-INO: SIAP (footnote 10).

## F. Governance

14. The TRTA will support assessment of financial management capacity, procurement capacity, and risk assessment and management of the executing and implementing agencies. Based on the assessments, measures to address the capacity gaps and risks will be suggested in three separate documents that will form part of the loan documents.

**APPENDIX 1: COST ESTIMATES AND FINANCING PLAN**  
(\$'000)

Item	Amount
<b>Government of Australia<sup>a</sup></b>	
1. Consultants	
a. Remuneration and per diem	
i. International consultants (28.5 person-months)	516.69
ii. National consultants (29 person-months)	117.15
b. Out-of-pocket expenditures	
i. International and local travel	51.65
ii. Reports and communications	4.15
2. Workshops, training, seminars, and conferences <sup>b,c</sup>	
a. Workshops	76.00
3. Equipment <sup>d</sup>	2.00
4. Studies and surveys	132.36
5. Contingencies	100.00
<b>Total</b>	<b>1,000.00</b>

Note: The TRTA is estimated to cost \$1.1 million of which contributions amounting to \$1.0 million financed on a grant basis by the Government of Australia and administered by ADB as a subproject of TAC 0013-INO: SIAP are presented in the table above. The Ministry of Public Works and Housing (MPWH) will provide counterpart support in the form of counterpart staff, office accommodation and supplies, furniture, equipment, utilities, internet connection, and other miscellaneous support. The value of MPWH's contribution is estimated to account for 9.1% of the total cost of the TRTA.

<sup>a</sup> Administered by the Asian Development Bank.

<sup>b</sup> Includes rent of venue and other facilities, food and beverages (excluding alcoholic beverages), promotion and training materials, and other related costs. All travel to and from conference/event shall be arranged by the most economical direct route possible. Subsistence allowances payable to out-of-town event participants shall be adjusted if meals are provided as part of the accommodation booking or conference package.

<sup>c</sup> This includes travel costs of ADB staff when engaged as resource persons, as well as support services as per the Strategy, Policy and Review Department and Budget, Personnel and Management Systems Department memo dated 26 June 2013.

<sup>d</sup> This includes printers and scanner.

Source: Asian Development Bank estimates.

**LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/LinkedDocs/?id=46380-028-TARreport>

1. Terms of Reference for Consultants

## TERMS OF REFERENCES FOR CONSULTANTS

### I. Objective and Purpose of the Assignment

1. The Asian Development Bank (ADB) is providing technical assistance to the Government of Indonesia to prepare the Enhanced Water Security Investment Project. The project will support the Government to improve selected dimensions of water security (economic water security and resilience to water-related disasters) for which Indonesia lacks. The project will promote an integrated river basin management approach with the following objectives: (i) improving water resources planning and management to meet rising demands for irrigation and non-agricultural users; (ii) minimizing spatial and temporal variations in water availability by improving water storage facilities and conveyance; and (iii) increasing resilience to climate change. The International Fund for Agricultural Development (IFAD) is expected to provide parallel collaborative cofinancing to improve land management in upper river basins.

2. The project will implement selected infrastructure subprojects that will be designed under the Accelerating Infrastructure Delivery through Better Engineering Services Project including four flood risk management and one bulk water supply subprojects.<sup>1</sup> It will also implement two flood risks management subprojects to be prepared under Flood Management in Selected River Basins Sector Project.<sup>2</sup> Detailed engineering designs, environment and social safeguards documents and permits, and bidding documents will be prepared as per ADB standards for those selected subprojects.

3. Through its partnerships, ADB will introduce innovations to inform the design of the project: (i) water accounting using satellite data to predict water availability, adjust engineering design, and improve water allocation planning through the partnership between ADB and UNESCO-IHE;<sup>3</sup> and (ii) piloting benchmarking and monitoring of land use change and erosion through the partnership between ADB and the European Space Agency.<sup>4</sup> Funding from the climate change fund will be explored for preparing the climate risk vulnerability assessments for the selected river basins.

### II. Scope of Work

4. The services will provide support to (i) conduct consultations with the Ministry of Public Works and Housing (MPWH) and river basins stakeholders to finalize the scope of the project, and to ensure that innovations are built into the investment; (ii) undertake due diligence of technical, social, financial, environmental, gender, and economic aspects of the project; and (iii) ensure that subprojects designed under the Accelerating Infrastructure Delivery through Better Engineering Services Project (footnote 1) and Flood Management in Selected River Basins Sector Project (footnote 2), are complying with ADB's technical, environment and social safeguards and fiduciary requirements. The major outputs and activities are summarized in Table 1.

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<sup>1</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Technical Assistance Loan to the Republic of Indonesia for the Accelerating Infrastructure Delivery through Better Engineering Services Project*. Manila.

<sup>2</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Indonesia for the Flood Management in Selected River Basins Sector Project*. Manila. (Loan 3440-INO).

<sup>3</sup> The Asian Development Bank manages a knowledge partnership with UNESCO-Institute for Water Education which is part of the RETA 6498: Knowledge and Innovation Support for ADB's Water Financing Program.

<sup>4</sup> Under the European Space Agency initiative "Earth Observation for Sustainable Development."

**Table 1: Summary of Major Outputs and Activities**

<b>Major Outputs</b>	<b>Delivery Dates</b>	<b>Key Activities with Milestones</b>
1. Project scope finalized	Q2 2018	1.1 Update existing or develop hydrological and hydrodynamic models to optimize water resources and investments 1.2 based on the models, river basins plans, water accounting assessments, Climate Risk Vulnerability Assessments, and available feasibility studies, prioritize investments in the selected river basins 1.3 Carry out investigations and feasibility studies of schemes identified under recent studies that enhance existing infrastructure function or address multipurpose water security needs. 1.4 Conduct consultations with river basins stakeholders to review and confirm proposed investments 1.5 Identify infrastructure investments suitable for private public partnership and performance-based operation and maintenance 1.6 Review best practices (climate adaptation, seismic risk proofing, water efficiency) relevant to the project and formulate activities to be part of the investment
2. Design of ensuing project prepared	Q4 2018	2.1 Review and confirm feasibility studies prepared under L3455 and L3440 from technical, environment, social and economic perspectives 2.2 Prepare costs estimates, financing plan, and implementation arrangements including fund flow mechanisms 2.3 Prepare the economic and financial analysis for the overall project 2.4 Prepare the financial management, procurement and institutional assessment 2.5 Prepare project subcomponents including detailed description, implementation schedule and related terms of reference 2.6 Prepare communication strategy, gender action plan 2.7 Support the preparation of the required linked documents attached to the Report and Recommendation of the President to the Board of Directors.
3. Readiness as per Asian Development Bank (ADB) standards complied with	Q1 2019	3.1 Update the L3440 Land Acquisition and Resettlement Framework and Environment Assessment Review Framework to be used as reference for preparation of subprojects under L3455 3.2 Review compliance of the resettlement plans, and initial environment examination studies or environment impact assessments prepared under L3455 and L3440 with ADB Safeguards Policy Statement 2009 3.3 Review quality and technical soundness of the detailed engineering designs for subprojects prepared under L3455 and L3440 3.4 Ensure that climate change resilience measures are incorporated in engineering designs

Source: Asian Development Bank.

5. The following consultants will be engaged on an intermittent basis (over a period of 16 months) using the individual consultant selection (ICS) method in accordance with ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time):

**Table 2: Consulting Services Inputs**

<b>Positions</b>	<b>Person-Months Required</b>
<b>International</b>	
River basin modeler/planner	14.0
Water resources infrastructure specialist	5.0
Economist	1.5
Environment safeguards specialist	4.0
Social safeguards specialist	4.0
<b>National</b>	
Financial management specialist	4.0
Social development/gender specialist	3.0
Hydrologist modeler	11.0
Water resources infrastructure specialist	11.0

Source: Asian Development Bank.

6. Workshops, surveys and studies will be organized at key stages of the project preparation. Equipment, training, workshops and surveys will be procured or organized by ADB in accordance with ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

### III. Specific Scope of Work

#### A. River basin modeler/planner (International, 14 person-months)

##### 1. Detailed Tasks

- (i) Supervise and coordinate with relevant agencies the water accounting study supported by UNESCO-IHE, the land use study supported by the European Space Agency and climate risk and vulnerability assessment (CRVA) works to ensure technical soundness and applicability for the project.
- (ii) Review hydrological assessment; water allocations plans; and optimization of (large and small) dams' operations (including multi-purpose, hydropower, irrigation, flood attenuation and domestic water storage dams).
- (iii) As needed, run modelling flood routing, water allocations for optimized supplies to various users and dam operations optimization, including climate change adaptation impacts, and recommend adjustments of allocations for other users and dams operations for more sustainable use of water resources, including identifying interdependencies and linkages water users across sectors particularly energy and domestic supplies.
- (iv) Conduct consultations with river basins stakeholders to review and confirm proposed investments in selected river basins.
- (v) Review feasibility studies and engineering design for infrastructure subprojects prepared under the Accelerating Infrastructure Delivery through Better Engineering Services Project (four flood risk management and one bulk water supply subprojects)<sup>5</sup> and two flood risks management under the Flood Management in Selected River Basins Sector Project.<sup>6</sup>

<sup>5</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Technical Assistance Loan to the Republic of Indonesia for the Accelerating Infrastructure Delivery through Better Engineering Services Project*. Manila.

<sup>6</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Indonesia for the Flood Management in Selected River Basins Sector Project*. Manila. (Loan 3440-INO).

- (vi) Identify best practices (climate adaptation, seismic risk proofing, water efficiency) relevant to the project and formulate activities to be part of the investment.
- (vii) In consultation with proposed implementing agencies, prepare (a) detailed activities, logical frameworks and cost estimates for project components, (b) detailed implementation plans, (c) component profiles, and (d) terms of reference for consulting services and procurement packages.
- (viii) Prepare the Program Administration Manual (PAM) including implementation arrangements, role and responsibilities of each agencies, procurement plan, and subproject screening and appraisal.
- (ix) Update as required the readiness documentation in close coordination with the Directorate of Planning and Programming, Directorate General of Water Resources (DGWR), and the Directorate of Multilateral Funding, BAPPENAS.
- (x) Prepare documents necessary for procurement of consulting and other services for all component projects and support advance procurement for priority component projects.
- (xi) For each selected river basins, prepare a technical and institutional assessment for data acquisition and management, and modeling; a hydrometeorological network rationalization plan, capacity development program for river basin modeling; and data management including transfer of knowledge and technical support from relevant institutes such as the National Research Center for Water Resources.
- (xii) Support the preparation of the linked documents attached to the Report and Recommendation of the President to the Board of Directors (RRP).
- (xiii) Facilitate focus group discussions to review project preparation progress.

## **2. Minimum Qualification Requirements**

The consultant must have a higher degree (M.Sc. or equivalent), in civil engineering or water resources. The consultant must have at least 10 years of relevant experience in developing infrastructure projects covering flood risks management, large and small dams with strong focus on operational and technical matters. Experience in designing and operational optimization of dams including hydrological assessments, and mathematical modelling for flood routing, institutional and policy aspects of dam management, and operational efficiencies in terms of climate change adaptation and socio-environmental aspects is essential. Experience in hydrological review to optimize basin water resources and climate change vulnerability assessment of water projects is also essential. Knowledge of the government planning cycle, procurement procedures and financial management mechanisms would be an advantage. He/she must have excellent written and oral communications skills.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 7 years

Regional/Country Experience: Required

## **3. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- (i) Technical reviews for selected river basins of (a) water allocations, data management, and modeling, (b) feasibility studies prepared under L3455 and L3440;

- (ii) Loan documentation including but not limited to (a) detailed activities, logical frameworks and cost estimates for project components, (b) detailed implementation plans, (c) component profiles, and (d) terms of reference for consulting services and procurement package;
- (iii) PAM including implementation arrangements, role and responsibilities of each agencies, and procurement plan;
- (iv) Monthly administrative reports following ADB template (monthly); and
- (v) Working Group materials and discussion and technical notes as required.

## **B. Economist (International, 1.5 person-months)**

### **1. Detailed Tasks**

- (i) Contribute to the detailed sector assessment and feasibility studies for the proposed project.
- (ii) Review and provide guidance for improvements of the economic and financial analysis for infrastructure subprojects prepared under the Accelerating Infrastructure Delivery through Better Engineering Services Project (four flood risk management and the one bulk water supply subprojects) and two flood risks management under the Flood Management in Selected River Basins Sector Project.
- (iii) Develop economic and financial spreadsheet models that are in compliance with conventional financial modelling standards.
- (iv) Prepare financial sustainability analysis for the proposed project.
- (v) Prepare the economic and financial analyses for the proposed project in compliance with ADB's relevant guidelines.
- (vi) Complete any other tasks as may be reasonably requested by ADB or the government.

### **2. Minimum Qualification Requirements**

The Economist must have an advanced degree in economics, finance, or in a related discipline. He/she has at least 10 years relevant professional international experience and strong technical background in preparing financial and economic analysis, the design and the management of projects funded by ADB and other international financial institutions. Having a recognized professional accountancy qualification would be an advantage. Likewise, he/she must have good water sector experience in ADB's developing member countries. He/she must have experience working with key government officials, and representatives of key aid agencies in preparing and implementing ADB projects. He/she must have excellent written and oral communications skills

To aid consultant recruitment, applicants should submit a sample of spreadsheet financial and economic analysis model for review.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 7 years

Regional/Country Experience: Required

### **3. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- a. Economic and financial analysis of the proposed loan.

**C. Environment safeguards specialist (International, 4.0 person-months)**

**1. Detailed Tasks**

- (i) Update the L3440 Environment Assessment Review Framework (EARF) to be used as reference for preparation of subprojects under L3455.
- (ii) Review compliance of initial environment examination studies or environment impact assessments prepared under L3455 and L3440 with ADB Safeguards Policy Statement 2009.
- (iii) Assess the institutional capacity to implement the environmental management plan (EMP) and develop measures to strengthen the capacity.
- (iv) Other tasks as may be required to support environmental safeguard activities under the project.

**2. Minimum Qualification Requirements**

The specialist must have a postgraduate degree in environmental science, environmental management or equivalent and at least 10 years of experience in environmental safeguards of water resources development and related projects. This shall include experience in environment impact assessment (EIA). He/she must have experience in the preparation of EIA reports and AMDAL studies. Familiarity with the ADB environmental safeguard system is essential. He/she must have excellent written and oral communications skills in the English language.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 7 years

Regional/Country Experience: Required

**3. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- (i) Updated EARF;
- (ii) Project Administration Manual sections;
- (iii) Institutional capacity assessment on EMP implementation; and
- (iv) Progress reports on IEE/EIA prepared under L3455 and L3440.

**D. Social safeguards specialist (International, 4.0 person-months)**

**1. Detailed Tasks**

- (i) Update the L3440 Land Acquisition and Resettlement Framework to be used as reference for preparation of subprojects under L3455.
- (ii) Review compliance of the resettlement plans prepared under L3455 and L3440 with ADB Safeguards Policy Statement 2009.
- (iii) Assess the institutional capacity to implement the resettlement plans and develop measures to strengthen the capacity.

- (iv) Coordinate with the executing agency the preparation of annual work plans to ensure that budget will be allocated for LARP implementation and indigenous people plan (IPP) implementation (as required).
- (v) Provide capacity building to counterpart on the ADB and government land acquisition and resettlement policies and guidelines.
- (vi) Provide support for the preparation of the government land acquisition and resettlement plans as necessary.
- (vii) Check the results of survey and ensure that data adequately recorded.
- (viii) Identify consultations gap and suggest consultation plan and schedule for all social safeguards documents.
- (ix) Facilitate consultations with various stakeholders including interest groups, local governments and affected people.
- (x) Oversight the gender action plan preparation and tasks of the Social development/gender specialist.
- (xi) Other tasks as may be required to support resettlement and indigenous people activities under the project.

## **2. Minimum Qualification Requirements**

The specialist must have qualifications for social development, and at least 8 years experience in resettlement and land acquisition programs. The specialist must have demonstrated experience in directly managing or leading the execution of the preparation and implementation of resettlement plans and resettlement frameworks for the ADB, World Bank or other development partner with similar resettlement requirements and a good knowledge of the current Indonesian regulations including the new Land Law 2/2012 and on indigenous people. The expert must have strong interpersonal and communication skills, be fluent in written and spoken English, and have proven ability in report writing for professional purposes.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 8 years

Regional/Country Experience: Required

## **3. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment project:

- (i) Updated LARF;
- (ii) Project Administration Manual sections;
- (iii) Institutional capacity assessment on social safeguards implementation; and
- (iv) Progress reports on resettlement plans prepared under L3455 and L3440.

## **E. Financial management specialist (National, 4.0 person-months)**

### **1. Detailed Tasks**

The expert will conduct a financial due diligence (FDD) in accordance with ADB's requirements. Relevant guidance is available at <http://www.adb.org/projects/operations/financial-management-resources>. The FDD will include:

- (i) conducting a financial management assessment of the executing and implementing agencies taking into account previous experiences with ADB, including (a) assessing whether previous financial management assessments have been conducted by ADB or other agencies and, if so, reviewing the results and ascertaining whether these can be used as input, (b) assessing capacity for planning and budgeting, management and financial accounting, reporting, auditing, internal controls, and information systems (c) reviewing proposed disbursement and funds-flow arrangements, and (d) concluding on the financial management risk rating and identifying and confirming measures for addressing identified deficiencies;
- (ii) supporting the preparation and agreement of cost estimates and a financing plan, which are based on verifiable data and are sufficient to support project implementation;
- (iii) preparing financial projections and conducting financial analyses of the executing and implementing agencies, and incremental recurrent costs, to determine financial sustainability, and reviewing proposed cost-recovery and tariff policies, including affordability;
- (iv) conducting financial evaluations (financial cost-benefit analyses) including sensitivity analyses of project components that have a cost-recovery objective;
- (v) where significant risks are identified to project financial sustainability or viability, proposing relevant financial performance indicators to be incorporated in financial covenants;
- (vi) Identify infrastructure investments suitable for private public partnership and performance-based O&M and prepare related documentation; and
- (vii) assessing and reaching agreement on financial reporting, auditing and public disclosure arrangements for the project, and, as appropriate, identifying and agreeing arrangements for receiving financial statements from executing and/or implementing agencies.

The expert will also:

- (i) prepare standardized costing templates to be used for subprojects to be designed under L3455 and L3440;
- (ii) review quality and provide guidance for improvement for the cost estimates for subprojects prepared under L3455 and L3440;
- (iii) prepare the overall project cost estimates as per ADB's requirements and guidelines;
- (iv) support the economist in the preparation of the project economic analysis and financial sustainability analysis;
- (v) draft the overall work plans for the project components;
- (vi) review operation and maintenance expenditures for river infrastructure, fiscal capacity of river basin organizations and recommend actions to align operations and maintenance (O&M) budget allocation with needs and prepare an assessment of expenditures for O&M, including review of planned, allocated and utilized O&M budget;
- (vii) prepare the project implementation arrangement, funds flow, procurement, and auditing arrangements that reflect appropriate linkages at central and local level with other ministries and stakeholder participating in the project, and describe using the format in the project administration manual;
- (viii) provide other inputs to ensure ADB and the government can finalize all loan documents of the proposed project;

- (ix) provide briefing to implementing agencies on ADB financial management requirement; and
- (x) Prepare procedure and templates for financial management reports during the loan implementation.

### **1. Minimum Qualification Requirements**

The specialist must have a post-graduate degree in accounting, financial management or economics, or equivalent, and must have a recognized professional accountancy qualification with at least 7 years of professional experience in supporting financial management preferably within the water resources management sector. Experience in ADB or other externally assisted programs will be taken as an advantage. Knowledge of the government planning cycle, procurement procedures and financial management (including financial reports) mechanisms is essential. He/she must have excellent written and oral communications skills.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 7 years

Regional/Country Experience: Required

### **2. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- (i) Financial management assessment;
- (ii) Progress reports on cost estimates prepared under L3455 and L3440;
- (iii) Overall project costs estimates;
- (iv) PAM sections (i.e. cost and financing; financial management; and others related to financial management) and government readiness documentation; and
- (v) Procedure and templates for financial management.

## **F. Social development/gender specialist (National, 3.0 person-months)**

### **1. Detailed Tasks**

- (i) Prepare a gender sensitive stakeholder analysis and consultation and participation plan.
- (ii) Ensure and coordinate a full range of participatory workshops and meetings, including (a) formal public consultation workshops to present/discuss assessment of development issues, (b) focus group discussion with stakeholders in key parts of the basin impacted by the program including 'gender stakeholders' (women's groups and civil society organizations dealing with gender and/or women beneficiaries); and (c) meetings/interviews with government officials (at national, provincial and district levels), as well as key informants (water utility executives, NGOs, personnel working on related projects in the basin), potential female and male beneficiaries, and those who may be affected by the works.
- (iii) Prepare records of all interviews and discussions, include information on sex, age and other relevant factors of respondents, with a summary of the major points of discussion and the views of the group concerned.
- (iv) Conduct a short time use survey to see the extent to which this project will affect women and men's time use. This will allow for setting the baseline and

- benchmarking;
- (v) Prepare the poverty, social and gender analysis. Analysis should include the following: gender related information and data to assist in the formulation of solutions for water security and resilience to water related disasters; outline the gendered impacts of flooding and disaster risk management (including information on key gender issues pre-floods, during floods and post floods); women's and men's perceptions and responses to risk management; possible entry points for engaging women in flood management and emergency planning; recommendations on how to engender early warning system in four core components—risk knowledge, monitoring and warning, communication and dissemination, and response capacity.
  - (vi) Collect HR sex-disaggregated data of river basin organization (RBO) staff by level of professional category to identify possible entry points for gender employment quotas among RBO staff;
  - (vii) Conduct survey, collect data and information on women's vulnerability as well as expertise and areas of knowledge that can support the implementation of the project, women's specific needs and include information on additional factors that may contribute to women's vulnerability such as place of residence, minority status, age and other relevant data for poverty, social and gender analysis.
  - (viii) Prepare the gender action plan and necessary interventions across the project outputs, including actions to support the roles of men and women before, during and after floods in the target areas, and recommendations for strategies and activities to reduce the economic burden of women during and after floods in accordance with ADB gender checklist on gender and disaster risk management.
  - (ix) Work in close collaboration with the other experts hired under this TA and provide inputs where relevant.
  - (x) Prepare the Summary Poverty Reduction and Social Strategy (SPRSS); Gender Action Plan; and provide gender inputs where relevant to the Environmental Assessment and Review Framework; Resettlement Framework; Indigenous Peoples' Planning Framework.
  - (xi) If required, prepare the indigenous people framework and action plan.
  - (xii) Prepare gender sensitive information and communication materials on flood warning and emergency response. Prepare a checklist on gender sensitive flood protection and early warning systems to guide the other experts hired under this TA.

## **2. Minimum Qualification Requirements**

The consultant must have qualifications in a relevant social discipline and have 7 years of experience in gender and social development, preferably in the concerned sector. The specialist must have demonstrated experience in the preparation and implementation of projects for the ADB, World Bank or other donor organization with similar gender and social requirements. The specialist must have strong interpersonal and communication skills, fluent in written and spoken English, and have proven ability in report writing for professional purposes.

Minimum General Experience: 10 Years

Minimum Specific Experience (relevant to assignment): 7 Years

Regional/Country Experience: Required

### 3. Output/Reporting Requirements

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- (i) Gender sensitive stakeholder analysis report and consultation and participation plan;
- (ii) Poverty and social analysis and gender analysis reports including data disaggregated by sex and other relevant factors whenever possible;
- (iii) Gender action plan;
- (iv) Summary Poverty Reduction and Social Strategy (SPRSS);
- (v) Contribution to the EARF, IPF, IPP, IEEs, LARF and LARPs;
- (vi) Relevant inputs for the PAM; and
- (vii) Gender sensitive information and communication materials on flood warning and emergency response, including a checklist to help guide the TA team.

### G. Hydrologist modeler (National, 11 person-months)

#### 1. Detailed Tasks

- (i) Review hydrological assessment; water allocations plans; and optimization of (large and small) dams' operations (including multi-purpose, hydropower, irrigation, flood attenuation and domestic water storage dams).
- (ii) Support the development of flood routing, water allocations for optimized supplies to various users and dam operations optimization, including climate change adaptation impacts, and recommend adjustments of allocations for other users and dams operations for more sustainable use of water resources, including identifying interdependencies and linkages water users across sectors particularly energy and domestic supplies.
- (iii) Review soundness of hydrological computations for infrastructure subprojects prepared under the Accelerating Infrastructure Delivery through Better Engineering Services Project (four flood risk management and the one bulk water supply subprojects) and two flood risks management under the Flood Management in Selected River Basins Sector Project.
- (iv) For each selected river basins, support the preparation of a technical and institutional assessment for data acquisition and management, and modeling; a hydrometeorological network rationalization plan, capacity development program for river basin modeling and data management including transfer of knowledge and technical support from relevant institutes such as the National Research Center for Water Resources.
- (v) Facilitate focus group discussions to review project preparation progress.

#### 2. Minimum Qualification Requirements

The consultant must have a higher degree (M.Sc. or equivalent), in civil engineering or water resources. The consultant must have at least 10 years of relevant experience in preparing hydrological analysis and hydrodynamic modeling for flood risks management, large and small dams with strong focus on operational and technical matters. Experience in designing and operational optimization of dams including hydrological assessments, and mathematical modelling for flood routing, institutional and policy aspects of dam management, and operational efficiencies in terms of climate change adaptation and socio-environmental aspects is essential.

Experience in hydrological review to optimize basin water resources and climate change vulnerability assessment of water projects is also essential. Knowledge of the government planning cycle, procurement procedures and financial management mechanisms would be an advantage. He/she must have excellent written and oral communications skills.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 7 years

Regional/Country Experience: Required

### **3. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- (i) Technical reviews for selected river basins of (a) water allocations, data management, and modeling, (b) feasibility studies prepared under L3455 and L3440;
- (ii) Hydrodynamic models for selected subprojects developed and calibrated;
- (iii) Monthly administrative reports following ADB template (monthly); and
- (iv) Working Group materials and discussion and technical notes as required

## **H. Water resources infrastructure specialists (International, 5 person-months, National, 11 person-months)**

### **1. Detailed Tasks**

- (i) Support the review of feasibility studies and engineering design for infrastructure subprojects prepared under the Accelerating Infrastructure Delivery through Better Engineering Services Project (four flood risk management and the one bulk water supply subprojects) and two flood risks management under the Flood Management in Selected River Basins Sector Project.
- (ii) Support the preparation of feasibility studies for infrastructure subprojects that are not designed under L3455 and L3440
- (iii) Review government planning and design guidelines for river infrastructure and recommend improvements for complying with international best practices on climate resilience, bioengineering and seismic risk proofing.
- (iv) Review the operation and maintenance data collection, information system maintenance and budgeting processes and capacity of river basins organizations for river assets and formulate project components to address gaps.
- (v) Identify infrastructure investments suitable for private public partnership and performance-based O&M and prepare related documentation
- (vi) Contribute to the formulation of project components, cost estimates, terms of reference.
- (vii) Contribute to the preparation of the linked documents.

### **2. Minimum Qualification Requirements**

The consultant must have at least 10 years of experience in designing and supervising water infrastructure works, and a master's degree or equivalent in civil engineering. The consultant must have a robust knowledge base on asset management, operation and maintenance using information systems. Knowledge of the government planning cycle, procurement procedures and

financial management mechanisms is essential. He/she must have excellent written and oral communications skills.

Minimum General Experience: 10 years

Minimum Specific Experience (relevant to assignment): 7 years

Regional/Country Experience: Required

### **3. Output/Reporting Requirements**

The consultant will prepare the following formal reports, in addition to any necessary working papers or reports required for the preparation of the proposed investment projects:

- (i) Technical notes to support upgrading of planning and engineering guidelines;
- (ii) Report on O&M processes, information system and budgeting;
- (iii) Inputs to review of feasibility studies prepared under L3455 and L3440; and
- (iv) Working Group materials and discussion and technical notes as required.



## Initial Poverty and Social Analysis

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March 2018

### Indonesia: Enhanced Water Security Investment Project

This document is being disclosed to the public in accordance with ADB's Public Communications Policy 2011.

Asian Development Bank

**CURRENCY EQUIVALENTS**

(as of 1 March 2018)

Currency unit	–	rupiah (Rp)
Rp1.00	=	\$0.0000732
\$1.00	=	Rp13,669

**ABBREVIATIONS**

ADB	–	Asian Development Bank
EWS	–	early warning system
GDP	–	gross domestic product
ha	–	hectare
RPJMN	–	<i>Rencana Pembangunan Jangka Menengah Nasional</i> (National Medium-Term Development Plan, 2015–2019)
TRTA	–	transaction technical assistance

**NOTE**

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

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## INITIAL POVERTY AND SOCIAL ANALYSIS

Country:	Indonesia	Project Title:	Enhanced Water Security Investment Project
Lending/ Financing Modality:	Sector/project loan	Department/ Division:	SERD/SEER

### I. POVERTY IMPACT AND SOCIAL DIMENSIONS

#### A. Links to the National Poverty Reduction Strategy and Country Partnership Strategy

The National Medium-Term Development Plan (RPJMN), 2015–2019 focuses on making the growth process more inclusive. Key targets for 2019 include (i) annual GDP growth of 8%; (ii) a Gini index of 0.36; (iii) GDP per capita of Rp72.2 million, compared with Rp43.4 million in 2014; (iv) a poverty incidence of 7%–8% compared with 11% in 2014; and (v) improvement in the environmental quality index to 66.5–68.5, compared with 63.0–64.0 in 2014. To achieve its economic growth and poverty reduction targets, the RPJMN identifies a total infrastructure investment of \$430 billion in 2015–2019. Water security is a development priority to support economic growth and reduce poverty. The RPJMN aims to improve water security by, among others: (i) increasing bulk water supply from 51.0 cubic meter per second (m<sup>3</sup>/s) to 118.6 m<sup>3</sup>/s; (ii) developing raw water supply systems for 50 small islands; (iii) increasing hydropower capacity from 3.94 GW to 6.88 GW; (iv) improving management for 5.0 million hectare (ha) of degraded land; (v) reducing sediment transport in reservoirs to a rate of 0.3% per year; (vi) reducing flood prone areas by 200,000 ha through integrated flood management; (vii) providing protection for 663.44 kilometer of coast; and (viii) improving monitoring, modeling and forecasting systems. Those targets are aligned with and contribute to the National Action Plan for Climate Change Adaptation. The Asian Development Bank's (ADB) Country Partnership Strategy, 2016–2019 for Indonesia is aligned with the RPJMN by supporting interventions that will (i) enhance the sustainability and resilience of increasingly scarce water resources; and (ii) reduce the risks of climate change associated natural disasters.<sup>1</sup>

The project will directly contribute to the water security objectives listed above. The project will promote an integrated water resources management approach to: (i) improve water resources planning and management to meet rising demands for irrigation and non-agricultural use; (ii) minimize spatial and temporal variations in water availability by improving water storage and conveyance; and (iii) increase resilience to climate change. The project is included in the Country Operations Business Plan, 2018–2020 for Indonesia and will build on ADB's extensive recent engagement in the sector.

#### B. Poverty Targeting

General Intervention  Individual or Household (TI-H)  Geographic (TI-G)  Non-Income MDGs (TI-M1, M2, etc.)

The project will help the government to supply additional water for agriculture, domestic, municipal and industrial development in selected river basins. This will directly benefit poor and vulnerable groups by: (i) providing more reliable water supply to farmers; (ii) reducing water borne diseases due to consumption of unclean water; and (iii) providing employment opportunities through expanding industry. At the same time, the project will protect communities who are highly vulnerable to and at greater risk of loss of life and assets from more frequent and intense floods and enhance knowledge and build community capacity and resilience for flood risk management, including flood monitoring, warning, preparedness, response and post flood recovery activities. Income poverty indicator and geographic spread will be assessed during preparation.

#### C. Poverty and Social Analysis

1. Key issues and potential beneficiaries. Improving bulk water supply infrastructure will support economic growth, health conditions and industrial development. Beneficiaries will be (i) farmer communities, including women who will benefit from improved irrigation water supply; (ii) rural and urban population who will benefit from improved domestic water supply; and (iii) industries and their employees who will benefit from more reliable water supply to support industrial processes.

Improving climate resilience through flood risks management will benefit agricultural households and residences located in the floodplains.

<sup>1</sup> ADB. 2016. *Country Partnership Strategy: Indonesia, 2016–2019: Towards a Higher, More Inclusive and Sustainable Growth Path*. Manila.

The number of poor population, their poverty level and other socio-economic characteristics will be collected once the target river basins be confirmed with the government.

2. Impact channels and expected systemic changes.

Reliable water supply will encourage farmers to diversify crops, which will provide access to higher incomes. Reduced vulnerability to climate change risks will improve economic conditions of floodplains communities, which are generally lower income groups. Improving reliability for industrial development will increase income generation and employment opportunities. Direct employment opportunities will arise in the project area during construction of community-level infrastructure investments; and subsequent regular operations and maintenance.

3. Focus of (and resources allocated in) the TRTA or due diligence.

A social development specialist and a gender specialist will be among the TRTA team to conduct poverty and social assessment and provide recommendations for ensuring that project benefits accrue to the poor and vulnerable, women lessen negative impacts, and ensure ownership.

4. Specific analysis for policy-based lending.

Social economic analysis and potential of alternative livelihoods for farmer communities in selected provinces will be conducted to design the project components. Meaningful consultation with local governments and representatives of farmer communities will be carried out and recorded.

## II. GENDER AND DEVELOPMENT

1. What are the key gender issues in the sector/subsector that are likely to be relevant to this project or program? Women are also usually responsible for domestic water provision and are highly affected by poor access to quality water supply as they are primarily responsible for tasks related to household water and sanitation, taking care of sick children affected by water-borne diseases and community environment improvements. Key gender issues relate to the level of vulnerability of women, and their active economic roles in securing outside assistance and managing household domestic needs during flood events. Women and girls are often most vulnerable to extreme weather events and disasters. Despite significant and increasing decision-making power and responsibility women generally do not own productive resources and have lesser access to information and formal decision-making structures. Women can also play a crucial role in communicating and developing emergency response capacity in communities. The integration of a gender perspective into early warning systems (EWS) can ensure that both women's and men's disaster risk is reduced and that EWS respond to the needs of all members of the community. Gender analysis will be conducted as the basis for the gender action plan.

2. Does the proposed project or program have the potential to make a contribution to the promotion of gender equity and/or empowerment of women by providing women's access to and use of opportunities, services, resources, assets, and participation in decision making?

Yes  No Please explain.

The investment in infrastructure does not involve irrigation at field level or water supply which has a direct linkage to the gender issues. The nature of this project is such that it does not directly or indirectly affect gender equity and is not likely to deliver tangible benefits to women. Gender analysis and action plan will be prepared and key actions be reflected in the gender measures. The gender measures will support the gender strategy set forth in the RPJMN.

3. Could the proposed project have an adverse impact on women and/or girls or widen gender inequality?

Yes  No Please explain

The activities will be implemented and monitored in accordance with the gender action plan.

Indicate the intended gender mainstreaming category:  SGE (some gender elements)

At this stage, the SGE category is considered the most appropriate gender category given the nature of the project, which focuses on improving storage facilities, transferring water from reservoir to the irrigation canals or water treatment plants, building flood protection infrastructure and does only involve directly the communities under output 3 in relation to the flood warning system. Nevertheless, the possibility to elevate this project to the effective gender mainstreaming (EGM) category will be further assessed during due diligence.

## III. PARTICIPATION AND EMPOWERMENT

1. Who are the main stakeholders of the project, including beneficiaries and negatively affected people? Identify how they will participate in the project design.

The main stakeholders are local floodplains, farmer communities and urban and rural residents – who will benefit from the overall improved water supply; local suppliers and investors; district, provincial, and national government officials. They will be involved during project design, implementation, and after project.

2. How can the project contribute (in a systemic way) to engaging and empowering stakeholders and beneficiaries, particularly, the poor, vulnerable and excluded groups? What issues in the project design require participation of the poor and excluded?

Meaningful consultations will be conducted during preparation and they will continue throughout the project cycle. The criteria and priorities for infrastructure projects should be discussed with beneficiaries through the consultation process for the updating of the river basin plans. and flood protection infrastructure.

3. What are the key, active, and relevant civil society organizations in the project area? What is the level of civil society organization participation in the project design?

Information generation and sharing  Consultation  Collaboration  Partnership

CSOs will be kept informed and involved in consultations during the updating of the river basin plans. The upland conservation program to be supported by the International Fund for Agriculture Development that will complement the project, will have a high of engagement with farmers communities and non-government organizations (NGOs) active in land management.

4. Are there issues during project design for which participation of the poor and excluded is important? What are they and how shall they be addressed?  Yes  No

The project design ensures that the poor and the excluded among the project affected families participate in the resettlement planning exercise. The resettlement plans will outline the responsibilities and resources to strengthen the participation of CSOs and the poor and vulnerable.

## 2. SOCIAL SAFEGUARDS

**A. Involuntary Resettlement Category**  A  B  C  FI

1. Does the project have the potential to involve involuntary land acquisition resulting in physical and economic displacement?  Yes  No

The construction or upgrading of bulk water supply and flood control facilities can cause resettlement and loss of land. The extent of this will be assessed during preparation under the Loan 3455-INO: Accelerating Infrastructure Delivery through Better Engineering Services Project (ESP) and reconfirmed by the TRTA.

2. What action plan is required to address involuntary resettlement as part of the TRTA or due diligence process?

Resettlement plan  Resettlement framework  Social impact matrix  
 Environmental and social management system arrangement  None

**B. Indigenous Peoples Category**  A  B  C  FI

1. Does the proposed project have the potential to directly or indirectly affect the dignity, human rights, livelihood systems, or culture of indigenous peoples?  Yes  No

2. Does it affect the territories or natural and cultural resources indigenous peoples own, use, occupy, or claim, as their ancestral domain?  Yes  No

3. Will the project require broad community support of affected indigenous communities?  Yes  No

The program will not involve commercial development of indigenous people cultural resources and knowledge, physical displacement of indigenous people from their land, and commercial development of natural resources within customary land

4. What action plan is required to address risks to indigenous peoples as part of the TRTA or due diligence process?

Indigenous peoples plan  Indigenous peoples planning framework  Social Impact matrix  
 Environmental and social management system arrangement  None

## 3. OTHER SOCIAL ISSUES AND RISKS

1. What other social issues and risks should be considered in the project design?

Creating decent jobs and employment  Adhering to core labor standards  Labor retrenchment  
 Spread of communicable diseases, including HIV/AIDS  Increase in human trafficking  Affordability  
 Increase in unplanned migration  Increase in vulnerability to natural disasters  Creating political instability  
 Creating internal social conflicts  Others, please specify \_\_\_\_\_

1. How are these additional social issues and risks going to be addressed in the project design?

Priority for labor will be conditioned for local communities

## VI. TRANSACTION TA OR DUE DILIGENCE RESOURCE REQUIREMENT

1. Do the terms of reference for the TRTA (or other due diligence) contain key information needed to be gathered during TRTA or due diligence process to better analyze (i) poverty and social impact; (ii) gender impact, (iii) participation dimensions; (iv) social safeguards; and (v) other social risks. Are the relevant specialists identified?  
 Yes  No If no, please explain why.

2. What resources (e.g., consultants, survey budget, and workshop) are allocated for conducting poverty, social and/or gender analysis, and participation plan during the TRTA or due diligence?

Social safeguard Specialists (involuntary resettlement and indigenous peoples) and social development/gender specialist will be engaged under the ESP for each of the subprojects. A budget for consultation especially for community groups and government officials is allocated.