



# Report and Recommendation of the President to the Board of Directors

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Project Number: 47381-001  
June 2015

## Proposed Multitranche Financing Facility Democratic Socialist Republic of Sri Lanka: Mahaweli Water Security Investment Program

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Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 15 May 2015)

Currency unit	–	Sri Lanka rupee/s (SLRe/SLRs)
SLRe1.00	=	\$0.0075
\$1.00	=	SLRs133.60

## ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
DOI	–	Department of Irrigation
km	–	kilometer
m	–	meter
m <sup>3</sup>	–	cubic meter
MASL	–	Mahaweli Authority of Sri Lanka
MDP	–	Mahaweli Development Program
MFF	–	multitranches financing facility
MMDE	–	Ministry of Mahaweli Development and Environment
NCPCP	–	North Central Province Canal Program
OCR	–	ordinary capital resources

## NOTE

1. The fiscal year (FY) of the Government of Sri Lanka and its agencies ends on 31 December.
2. In this report, “\$” refers to US dollars.

<b>Vice-President</b>	W. Zhang, Operations 1
<b>Director General</b>	H. Kim, South Asia Department (SARD)
<b>Director</b>	T. Matsuo, Environment, Natural Resources and Agriculture Division, SARD
<b>Team leader</b>	L. Gore, Water Resources Specialist, SARD
<b>Team members</b>	M. Amerasinghe, Environment Specialist, SARD P. Bandara, Senior Project Officer (Environment), SARD C. Lapsansky, Communications Specialist, Department of External Relations E. Perera, Safeguards Officer, SARD Y. Seo, Counsel, Office of the General Counsel
<b>Peer reviewers</b>	E. Quincieu, Water Resources Specialist, Southeast Asia Department (SERD) J. Miller, Principal Transport Specialist, SERD

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INVESTMENT PROGRAM<sup>a</sup> AT A GLANCE

<b>1. Basic Data</b>		<b>Project Number:</b> 47381-001		
<b>Project Name</b>	Mahaweli Water Security Investment Program	<b>Department /Division</b>	SARD/SAER	
<b>Country</b>	Sri Lanka	<b>Executing Agency</b>	Ministry of Mahaweli Development & Environment	
<b>Borrower</b>	Democratic Socialist Republic of Sri Lanka			
<b>2. Sector</b>	<b>Subsector(s)</b>	<b>ADB Financing (\$ million)</b>		
✓ <b>Agriculture, natural resources and rural development</b>	Irrigation		45.00	
	Water-based natural resources management		408.00	
		<b>Total</b>	<b>453.00</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)	227.00	
Environmentally sustainable growth (ESG)	Disaster risk management	Climate Change impact on the Project	High	
	Global and regional transboundary environmental concerns			
	Natural resources conservation			
<b>4. Drivers of Change</b>	<b>Components</b>	<b>Gender Equity and Mainstreaming</b>		
Governance and capacity development (GCD)	Institutional development	No gender elements (NGE)	✓	
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas			
	Pilot-testing innovation and learning			
Partnerships (PAR)	International finance institutions (IFI)			
	Official cofinancing			
<b>5. Poverty Targeting</b>		<b>Location Impact</b>		
Project directly targets poverty	No	Rural	High	
		Urban	Low	
<b>6. Risk Categorization:</b>	Complex			
<b>7. Safeguards Categorization [Tranche 1]</b>	<b>Environment: A Involuntary Resettlement: B Indigenous Peoples: C</b>			
<b>8. Financing</b>				
Modality and Sources	Indicative Tranches (\$million)			Amount (\$million)
	I	II	III	
<b>ADB</b>				<b>453.00</b>
Sovereign MFF-Tranche (Loan): Asian Development Fund	74.00	50.00	67.00	191.00
Sovereign MFF-Tranche (Loan): Ordinary capital resources	76.00	80.00	106.00	262.00
<b>Cofinancing</b>				<b>114.00</b>
European Investment Bank	0.00	60.00	0.00	60.00
To Be Determined	0.00	54.00	0.00	54.00
<b>Counterpart</b>				<b>108.00</b>
Government	40.00	41.00	27.00	108.00
<b>Total</b>	<b>190.00</b>	<b>285.00</b>	<b>200.00</b>	<b>675.00</b>
<b>9. Effective Development Cooperation</b>				
Use of country procurement systems		No		
Use of country public financial management systems		Yes		

## INVESTMENT PROGRAM<sup>a</sup> AT A GLANCE

### 10. Country Operations Business Plan

CPS  
COBP

<http://www.adb.org/sites/default/files/institutional-document/34140/files/cobp-sri-2014-2016.pdf>

### 11. Investment Program Summary

The Mahaweli Water Security Investment Program will assist the government complete outstanding water conveyance investments under the Mahaweli Development Program (MDP). Completion of MDP is a key priority of the government and will maximize the productivity of Mahaweli River Basin water resources by transferring available water to the northern dry zone areas of Sri Lanka for irrigation, drinking and commercial purposes. This will accelerate local and national economic growth. The investment program follows the multitranche financing facility (MFF) modality.

**Impact and Outcome:** The impact (of the facility) is improved agricultural production and sustained economic growth in the North Central Province, Central Province, North Western Province and Eastern Province. The outcome (of the facility) is secured access to water resources for agricultural and drinking purposes in project areas

**Outputs:** (i) New and improved water conveyance and storage infrastructure constructed, (ii) Systems for improving water resources management and productivity developed, and (iii) Multidisciplinary investment program management operational

**Implementation Arrangements:** Ministry of Mahaweli Development & Environment will be the executing agency.

**Project Readiness:** A. Status of Compliance with Detailed Design - detailed designs will be completed and 25% of the loan amount will be contracted by loan effectiveness

B. Status of Recruitment of Consultants - Request for proposal issued in March 2015 - recruitment of PMDSC is delegated to ADB.

C. Status of Bidding Process for Civil Works - ICB specimen bid docs have been reviewed by ADB and comments provided.

D. PMU established and core PMU staff designated - Yes

E. Status of Safeguard Clearances - Resettlement process is initiated for tranche 1 and environmental clearances are in progress.

F. Other

1. Status of local counterpart financing stage - pending subject to loan agreement being signed

2. Fund flow arrangements agreed between the line ministry/state govt. for central sector schemes only - No

3. Local permits and other clearances obtained - No

### 12. Milestones

Modality	Estimated Approval	Estimated Completion <sup>b</sup>
Multitranche financing facility	25 June 2015	31 December 2024
Tranche I	2 July 2015	31 December 2019
Tranche II	15 February 2017	31 December 2024
Tranche III	15 February 2018	31 December 2024

### 13. Project Data Sheet (PDS)

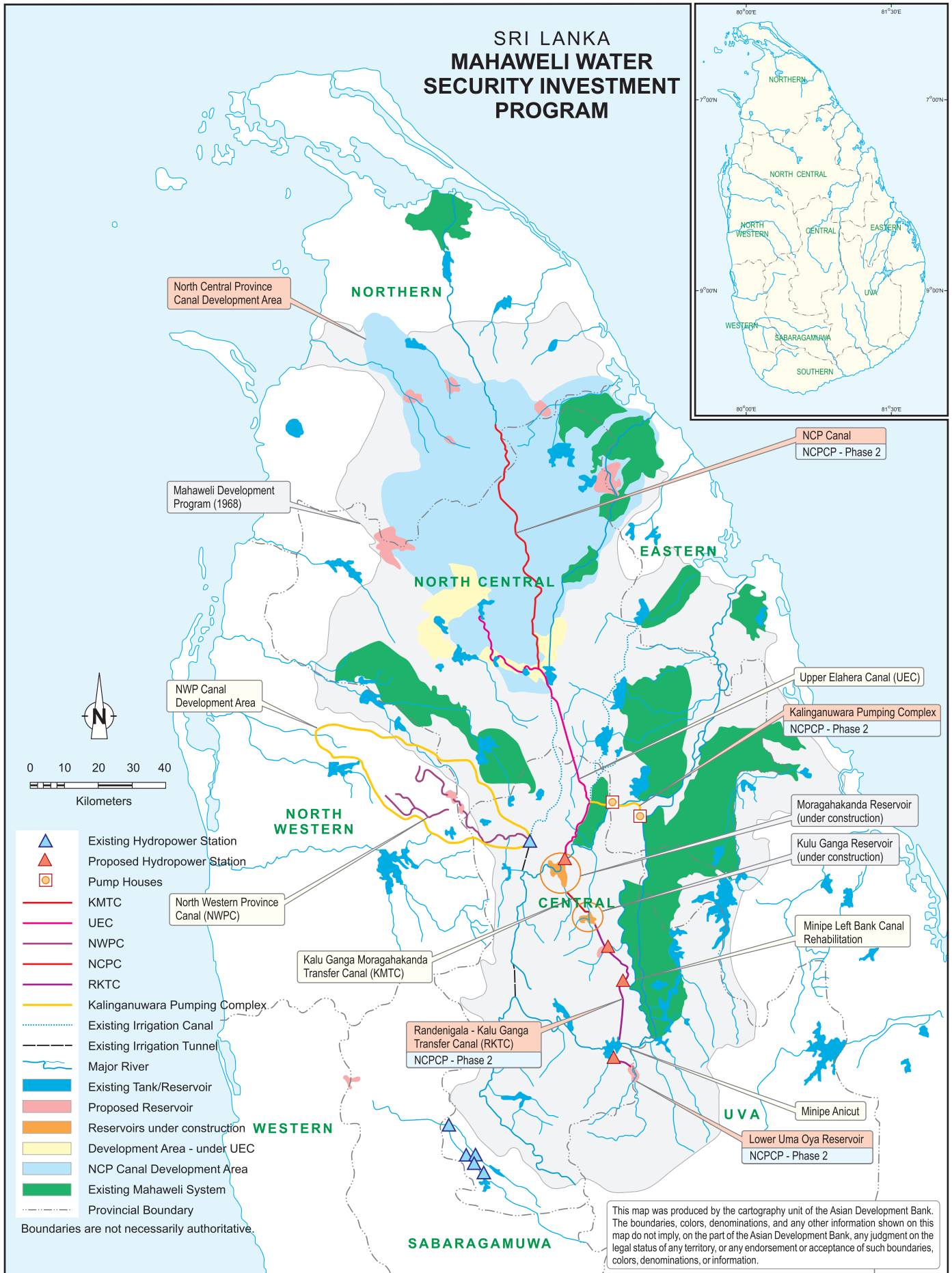
PDS<sup>c</sup> <http://www.adb.org/projects/47381-001/main>

<sup>a</sup> Multitranche Financing Facility (MFF).

<sup>b</sup> For MFF, this refers to the end of the availability period; for tranches, this refers to the tranche closing date.

<sup>c</sup> Safeguard documents can be viewed by clicking the Document's hyperlink in the Project Data Sheet (PDS) page.

# MAP



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed multitranche financing facility (MFF) to the Democratic Socialist Republic of Sri Lanka for the Mahaweli Water Security Investment Program.<sup>1</sup>

2. The investment program will accelerate the economic activities of Sri Lanka's northern dry zone region by transferring surplus water of the Mahaweli river basin for irrigation, drinking, and commercial purposes.<sup>2</sup> It will develop bulk water conveyance and storage infrastructure planned under the North Central Province Canal Program (NCPCCP), a high priority development program of the government that will support completion of the Mahaweli Development Program (MDP), which started in 1970.<sup>3</sup>

## II. THE INVESTMENT PROGRAM

### A. Rationale

3. Sri Lanka has abundant water resources, with annual rainfall of about 1,860 millimeters. However, the water distribution is skewed over time and space. Most of the rain falls during two distinct monsoons: *Maha* season from December to February and *Yala* season from May to September.<sup>4</sup> The majority falls in the southwest and central highlands, called the wet zone, during both monsoons, with annual rainfall typically exceeding 5,000 millimeters. In comparison, the country's lowlands are dry—particularly in the northern dry zone region, where annual rainfall is less than 1,500 millimeters, and droughts occur regularly. About 6.2 million people live in the dry zone region, or about 30% of the total population. Their access to freshwater is only 1,200 cubic meters (m<sup>3</sup>) per person per annum.<sup>5</sup> This is less than half of the national average of 2,600 m<sup>3</sup> and below the stress threshold of 1,700 m<sup>3</sup>. Water scarcity in the region is expected to deteriorate because of increasing demand from population growth and a reduction in rainfall from anticipated climate change.

4. Over the past millennia, local communities have managed this water stress by constructing many small cascade systems of reservoirs, transfer canals, and irrigation schemes. These have been sufficient to provide supplementary irrigation for a single paddy crop only each year, and limited storage for drinking water supply. In many places, communities rely on groundwater, some of which is contaminated, causing high incidences of chronic kidney disease. Lack of year-round access to water resources constrains the agricultural and commercial production of the region, suppressing social and economic development. Agriculture contributes 19% to the local economy and provides livelihoods to 70% of the rural population. However, in 2012, average household incomes in the northern dry zone were 10% lower than other regions.<sup>6</sup>

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

<sup>2</sup> The northern dry zone region comprises mainly the North Central Province, North Western Province, and Eastern Province.

<sup>3</sup> The Asian Development Bank (ADB) provided project preparatory technical assistance for the Water Resources Development Program (TA 8633-SRI).

<sup>4</sup> These monsoon seasons are synonymous with the two cultivation seasons of Sri Lanka.

<sup>5</sup> This figure represents the annual per capita water endowment—the notional volume of water available each year—based on the accessible and reliable freshwater.

<sup>6</sup> Government of Sri Lanka, Department of Census and Statistics. 2014. *Household Income and Expenditure Survey – 2012/13*. Colombo. This excludes urban areas in the Western Province.

5. In the 1970s, under the MDP, the government initiated developments to increase water within these cascade systems using large transfer canals and reservoirs. These initiatives used available water resources from the Mahaweli River, the country's largest river, which starts in the wet zone and has abundant river flows exceeding the projected future water demand in its river basin. Key components of the MDP were finished by the mid-1980s, but program completion was halted as a result of resource constraints and prolonged conflict. Since then, the government has updated the MDP, taking into account socioeconomic changes and national development priorities. The government's latest priorities and investment road map for the irrigation and water-based natural resources management subsectors are described in the Public Investment Strategy, 2014–2016.<sup>7</sup> These focus on nonphysical and physical investments to ensure availability of adequate water quantities. Agricultural production from irrigation systems will be increased by (i) improving water management, productivity, and system efficiencies to meet rising demands; (ii) minimizing spatial variations in water availability by developing trans-basin diversions to transfer available water to dry zone areas; and (iii) increasing resilience to climate change. Providing additional and clean drinking water supplies to dry zone communities is also a key priority.

6. These priorities will be addressed by completing the NCPCP, which comprises outstanding MDP components, and is estimated to cost \$1.64 billion. The NCPCP will be implemented in two phases. The investment program will finance NCPCP Phase 1, which includes (i) key upstream investments of the NCPCP that will transfer water from the Mahaweli River to existing reservoirs in the Central Province, North Central Province, and North Western Province; (ii) rehabilitation of an existing irrigation system located in the lower reach of the Mahaweli River; and (iii) improved water management practices. The investment program also supports preparation of NCPCP Phase 2, which will develop additional transfer canals and reservoirs to allow more water to be diverted from the Mahaweli River, and will extend the system to additional existing reservoirs in the North Central Province. The NCPCP and other programs supported by the government and development partner that improve associated command areas and drinking water systems will complement each other.

7. The investment program will implement physical investments to address water scarcity, food security, and poverty issues in beneficiary areas by increasing and securing perennial access to water for irrigation and nonagricultural users. Irrigation water conveyed by the new infrastructure will service existing cultivated lands under existing major and minor irrigation schemes, to increase annual cropping intensities and minimize drought risk. The investment program also supports the government in addressing key nonphysical priorities, with a focus on improving water management, system efficiencies, policy, and institutional arrangements.

8. The investment program is in line with the government's development objectives of improving connectivity and service delivery to lagging regions. It also supports the government's sector objectives of attaining food self-sufficiency and increasing water productivity, and is aligned with the strategic and sector goals of the Asian Development Bank (ADB) as articulated in ADB's Strategy 2020 and its Midterm Review,<sup>8</sup> and the Water Operational Plan, 2011–2020 to reduce the water demand–supply gap in water-scarce areas, foster integrated water resources management, improve water governance and delivery of services, and improve resilience to climate change. The sector deviates from the key strategic focus of the current

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<sup>7</sup> Government of Sri Lanka, Ministry of Finance and Planning. 2013. *Public Investment Strategy, 2014–2016*. Colombo.

<sup>8</sup> ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020*. Manila; ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.



country partnership strategy.<sup>9</sup> An interim country partnership strategy for 2015-2016 that covers the agriculture and natural resource sector is being prepared.

9. The government requested ADB support for developing key components of its sector investment road map using the MFF modality, as it is suitable for time-sliced financing and implementation of large-scale investment projects. It also provides for a long-term partnership between ADB and the government for policy dialogue and capacity development, and ensures continuity in combining investments in physical infrastructure and nonphysical components for integrated water resources management.<sup>10</sup> This helps the investment program to observe recommendations from the earlier ADB-financed Water Resources Management Project that was rated *unsuccessful* because of incomplete implementation of sector reforms.<sup>11</sup> The preconditions for use of the MFF—a road map and strategy, policy framework, investment and financing plans, and reliable safeguard arrangements—are all in place.<sup>12</sup>

## B. Impact and Outcome

10. The investment program's impact will be improved agricultural production and sustained economic growth in the North Central Province, Central Province, North Western Province, and Eastern Province. Its outcome will be secured access to water resources for agricultural and drinking purposes in project areas.

## C. Outputs

11. The outputs of the investment program will be (i) new and improved water conveyance and storage infrastructure constructed; (ii) systems for improving water resources management and productivity developed; and (iii) multidisciplinary investment program management operational. Each tranche of the MFF finances slices of each output. Output 1 will include the following three projects:

- (i) The Upper Elahera Canal Project comprises two components: (a) the 9 kilometer (km) Kalu Ganga–Moragahakanda Transfer Canal, including an 8 km tunnel that transfers water between the Kalu Ganga and Moragahakanda reservoirs that are under construction; and (b) the Upper Elahera Canal that connects Moragahakanda Reservoir to existing reservoirs (Huruluwewa, Manankattiya, Eruwewa, and Mahakanadarawa) via 82 km of canals (including a total of 28 km of tunnels), which supply existing irrigation and water supply schemes.
- (ii) The North Western Province Canal Project will construct 96 km of new and upgraded canals, including a 940 meter (m) tunnel, and two new 25 m tall earth gravity dams, impounding the new Mahakithula and Mahakirula reservoirs. It will transfer water from the Dambulu Oya River and the existing Nalanda and Wemedilla reservoirs to command existing irrigation and water supply reservoirs.
- (iii) The Minipe Left Bank Canal Rehabilitation Project, located in the downstream reaches of the Mahaweli River, will (a) add upstream storage by heightening the headwork's weir by 3.5 m; (b) construct new intake gates to the left bank canal and emergency spill weirs to both left and right bank canals; and (c) rehabilitate the 74 km Minipe Left Bank Canal to improve conveyance and reliability of service to existing farmers.

<sup>9</sup> ADB. 2011. *Country Partnership Strategy: Sri Lanka, 2012-2016*. Manila.

<sup>10</sup> Comparison of Financing Modality (accessible from the list of linked documents in Appendix 2).

<sup>11</sup> ADB. 2007. *Project Completion Report: Water Resources Management Project (Sri Lanka)*. Manila.

<sup>12</sup> The sector investment road map and policy framework are discussed in the Framework Financing Agreement (accessible from the list of linked documents in Appendix 2).

12. The first tranche of the investment program will implement (i) stage 1 of the Upper Elahera Canal Project, comprising the first 6.2 km of open canals and associated structures of the Upper Elahera Canal; (ii) stage 1 of the North Western Province Canal Project, comprising two new Mahakithula and Mahakirula reservoirs and 27 km of open canals linking these reservoirs with the existing Wemedilla reservoir, and a 940 m tunnel; and (iii) all of the Minipe Left Bank Canal Rehabilitation Project.

13. Output 2 will support the key nonphysical sector priorities through two consulting packages. Under the first tranche, the study on improving system efficiencies and water productivity will investigate inefficiencies within the existing conveyance and irrigation systems and constraints to improving water productivity, and recommend on-farm and system-wide improvements. Physical recommendations will be incorporated into civil works packages for implementation under subsequent tranches and potentially under NCPCP Phase 2. The second consulting package, strengthening institutions with integrated water resources management, will recommend programs for modernizing policy and governance frameworks, and institutional strengthening to improve national water resources planning and management, and operational and maintenance procedures. Output 3 will support program management for successful completion of the investment program.

#### **D. Investment and Financing Plans**

14. The cost of the investment program is estimated at \$675 million (Table 1). The government has requested an MFF in an amount up to \$453 million equivalent from ADB's ordinary capital resources (OCR) and Special Funds resources (Asian Development Fund [ADF]) to help finance part of the investment program. The MFF will consist of 3 tranches, subject to the government's submission of related periodic financing requests, execution of the related loan and project agreements for each tranche, and fulfillment of terms and conditions and undertakings set forth in the framework financing agreement.<sup>13</sup> Approval for the second tranche is scheduled in 2017 and approval for the third tranche is scheduled in 2018.

15. The MFF combines OCR and Asian Development Fund (ADF) financing up to the aggregate MFF amount. The provision of any ADF resources will be balanced by a corresponding reduction in available OCR financing (and vice versa), with total financing provided under the MFF not to exceed the aggregate MFF total of \$453 million equivalent. Any ADF allocation will be subject to (i) the availability of ADF resources; (ii) Sri Lanka's access to such resources pursuant to ADB's Graduation Policy<sup>14</sup> and the requirements of ADF donors; and (iii) the availability of such resources to Sri Lanka given ADB's policy on performance-based allocation of ADF resources.<sup>15</sup>

16. The first tranche will be financed, in part, from a loan from ADB's OCR (\$76 million) and a loan from ADB's Special Funds resources (\$74 million).<sup>16</sup> The OCR loan will have a 26-year term, including a grace period of 5 years, an annual interest rate determined in accordance with

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<sup>13</sup> Framework Financing Agreement (accessible from the list of linked documents in Appendix 2).

<sup>14</sup> ADB. 2008. *Review of the 1998 Graduation Policy of the Asian Development Bank*. Manila.

<sup>15</sup> ADB. 2004. *Review of the Asian Development Bank's Policy on the Performance-Based Allocation of Asian Development Fund Resources*. Manila; ADB. 2008. *Refining the Performance-Based Allocation of Asian Development Fund Resources*. Manila.

<sup>16</sup> Periodic Financing Request for Tranche 1 (accessible from the list of linked documents in Appendix 2).

ADB's London interbank (LIBOR) offered rate-based lending facility,<sup>17</sup> a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan agreement. The loan from ADB's Special Funds resources will have a 25-year term, including a grace period of 5 years, an interest rate of 2.0% per year, and such other terms and conditions set forth in the draft loan agreement. The financing plan for the investment program and tranche 1 is in Table 2.

**Table 1: Investment Program**

Item	Investment Program	Amount <sup>a</sup> (\$ million)		
		Tranche 1	Tranche 2	Tranche 3
<b>A. Base Cost<sup>b</sup></b>				
1. New and improved water conveyance and storage infrastructure constructed	465.0	116.0	228.0	121.0
2. Systems for improving water resources management and productivity developed	4.0	2.0	0.0	2.0
3. Multidisciplinary investment program management operational	46.0	31.0	0.0	15.0
<b>Subtotal (A)</b>	<b>515.0</b>	<b>149.0</b>	<b>228.0</b>	<b>138.0</b>
<b>B. Contingencies<sup>c</sup></b>	<b>134.0</b>	<b>32.0</b>	<b>48.0</b>	<b>54.0</b>
<b>C. Financing Charges during Implementation<sup>d</sup></b>	<b>26.0</b>	<b>9.0</b>	<b>9.0</b>	<b>8.0</b>
<b>Total (A+B+C)<sup>e</sup></b>	<b>675.0</b>	<b>190.0</b>	<b>285.0</b>	<b>200.0</b>

<sup>a</sup> Includes taxes and duties to be financed from government resources (\$15 million for the first tranche and \$54 million for the investment program) as cash contributions. Amounts for the second and third tranches are indicative.

<sup>b</sup> In mid-2014 prices. Costs comprise about 84% civil works, 3% equipment and 7% consulting services.

<sup>c</sup> Physical contingencies computed at 10% for civil works and equipment. Price contingencies computed at 0.3%–1.4% on foreign exchange costs and 6.0% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

<sup>d</sup> Includes interest and commitment charges. Interest during construction for the ordinary capital resources loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.50%, plus maturity premium of 0.10%. Commitment charges for the ordinary capital resources loan are 0.15% per year to be charged on the undisbursed loan amount. Interest during implementation for the Special Funds resources loan has been computed at an interest rate of 2% per year.

<sup>e</sup> Any incidental expenditure relating to bank charges, local transport, freight, and insurance are eligible for ADB financing.

Source: Asian Development Bank estimates.

**Table 2: Financing Plan**

Source	Investment Program		Tranche 1	
	Amount (\$ million)	Share of Total (%)	Amount (\$ million)	Share of Total (%)
Asian Development Bank				
Ordinary capital resources (loan)	262.0	39.0	76.0	40.0
Special Funds resources (loan)	191.0	28.0	74.0	39.0
Cofinanciers <sup>a</sup>	114.0	17.0	0.0	0.0
Government of Sri Lanka	108.0	16.0	40.0	21.0
<b>Total</b>	<b>675.0</b>	<b>100.0</b>	<b>190.0</b>	<b>100.0</b>

<sup>a</sup> To be confirmed. Initial discussions are taking place with potential cofinancier(s).

Source: Asian Development Bank estimates.

## E. Implementation Arrangements

17. The implementation arrangements are summarized in Table 3 and described in detail in the facility administration manual.<sup>18</sup>

<sup>17</sup> The interest includes a maturity premium of 10 basis points. This is based on the above loan terms and the government's choice of repayment option and dates.

<sup>18</sup> Facility Administration Manual (accessible from the list of linked documents in Appendix 2).

**Table 3: Implementation Arrangements**

Aspects	Arrangements		
Implementation period	July 2015–December 2024		
Estimated completion date	31 December 2024		
Management			
(i) Oversight body	A program steering committee will provide policy direction on matters relating to the investment program. The committee, chaired by the secretary, MMDE, will comprise representatives of key collaborating agencies. It will review implementation and provide guidance.		
(ii) Executing agency	MMDE		
(iii) Implementation unit	A central program management unit responsible for coordination, management, monitoring, and supervision of the investment program has been established by MMDE with a minimum of 33 staff. Individual project implementation units for each of the three investment projects will assist project implementation and monitor day-to-day construction works. Each unit will have a minimum of 31 staff.		
Procurement	ICB	9 contracts	\$493,340,000
	NCB	14 contracts	\$69,410,000
	Force Account	Various	\$600,000
	Shopping	Various	\$1,875,000
Consulting services, indicative for the investment program	QCBS (90:10)–PMDSC	International: 350 person-months; National: 4,100 person-months	\$40,000,000
	QCBS (90:10)–ISEWP	To be identified	\$2,500,000
	QCBS (90:10)–SIWRM	To be identified	\$2,500,000
	ICS	Various	\$1,000,000
PMDSC	The PMDSC will be engaged for the first tranche and may be extended for subsequent tranches, at the request of the executing agency or the government, subject to satisfactory performance of the team. This is to ensure continuity of project implementation.		
Retroactive financing and/or advance contracting	For each tranche, ADB may, subject to its policies and procedures, allow upon request advance contracting of civil works, equipment and materials, and consulting services. For each tranche, retroactive financing may be considered for eligible expenditures incurred for consulting services and procurement of goods, services and civil works, project management, and project administration up to 12 months before the relevant loan signing date, and not exceeding 20% of the relevant loan amount.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank; ICB = international competitive bidding; ICS = individual consultant selection; ISEWP = improving system efficiencies and water productivity; MMDE = Ministry of Mahaweli Development and Environment; NCB = national competitive bidding; PMDSC = program management, design, and supervision consultants; QCBS = quality- and cost-based selection; SIWRM = strengthening integrated water resources management.

Source: Asian Development Bank.

### III. DUE DILIGENCE

#### A. Technical

18. Technical due diligence included a comprehensive review and updating of the projects' feasibility studies, and preparation of detailed designs and cost estimates, based on site investigations. All aspects of the detailed feasibility studies were examined during the design process, including (i) confirming that the NCPCP water balance is sufficient in the long term and that the projects avoid adverse downstream impacts to existing users and the environment; (ii) considering a range of technical alternatives and their technical and economic viability; (iii) assessing the capital and operating costs, and achievable cost savings; (iv) reviewing the rationale for the proposed design, specific components, and operational modes; (v) maximizing the beneficiary areas and communities; (vi) minimizing adverse environmental and social

impacts; and (vii) optimizing timescales for project implementation. The results from the technical evaluations are detailed in (i) a sector analysis and assessment; (ii) a water balance assessment; (iii) a climate risk and vulnerability assessment; (iv) individual technical review summaries for the three projects and a specific geotechnical design assessment of the tunnel and dam components; (v) an institutional and policy assessment; and (vi) detailed project construction cost estimates.

19. The investment program is inherently a climate change adaptation measure because it will increase water storage and transfer water from wet to dry areas. However, the infrastructure designs include additional adaptation measures, such as provision for increased flows in canals and cross-drainage structures. The investment program also includes soft components for climate resilience that will assist (i) irrigation managers to improve system water management; (ii) farmers to increase agriculture water productivity; and (iii) the government to improve its policies and institutions based on integrated water resources management principles.

## **B. Economic and Financial**

20. Economic and financial analyses undertaken for the investment program indicate that the NCPCP is economically viable and financially sustainable. Increased agricultural production is the most important quantifiable economic benefit, accounting for about 90% of total benefits. Other quantifiable benefits include increased provision of raw water for domestic, municipal, and industrial uses; and increased hydropower generation. The indirect benefits of induced economic activities and investments by the NCPCP's upstream water infrastructure were not quantified, although expected to be significant. These include broader regional economic growth and improved food and political security. The economic internal rate of return is estimated at 13.1%. The economic internal rate of return is sensitive to changes to the investment cost and level of project benefits. An 11% increase in total cost or decrease in benefits reduces the economic internal rate of return to 12%, implying the need to monitor factors that may affect the cost and benefits.<sup>19</sup> The government has committed to financing the operation and maintenance costs and periodical replacement cost of the investment program infrastructures from its own resources; these will not exceed 2.3% of the total annual budget of the Ministry of Mahaweli Development and Environment (MMDE) and the Department of Irrigation (DOI).<sup>20</sup>

## **C. Governance**

21. Financial management and procurement capacity assessments have been undertaken for MMDE; the Mahaweli Authority of Sri Lanka (MASL), an agency under MMDE; and the DOI under the Ministry of Irrigation. MASL and DOI will be responsible for managing, operating, and maintaining the infrastructure after its commissioning. The total annual budget allocation for MMDE, MASL, and DOI is over \$400 million for capital works. MMDE, MASL, and DOI are experienced in implementing large hydropower and water resources development initiatives. The financial management assessment concludes that MMDE has sufficient experience and capacity to manage the project funds as well as adequate fund flow, accounting, and budgeting arrangements. The overall pre-mitigation financial management risk and procurement risk are both rated *substantial*. The financial management and procurement arrangements are

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<sup>19</sup> Although farmers' incomes are expected to increase, no revenue will flow directly to MMDE or the Mahaweli Authority of Sri Lanka (MASL) from the project. Accordingly, an assessment of the financial internal rate of return of the project and its comparison against the weighted average cost of capital is not meaningful. An incremental recurrent cost analysis was performed instead to ensure that adequate budget provisions can be made to operate and maintain project assets.

<sup>20</sup> Financial Management Assessment (accessible from the list of linked documents in Appendix 2).

considered adequate. Improvements required are (i) commitment for adequate counterpart fund allocation; (ii) preparing a detailed procedural manual, and training in ADB's rules and regulations in disbursement and procurement; and (iii) developing 5-year corporate plans. A detailed financial management action plan is in the facility administration manual (footnote 20).

22. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and the MMDE. The result of the financial management and procurement capacity assessment, and the specific policy requirements and supplementary measures are described in the facility administration manual.

#### **D. Poverty and Social**

23. The investment program will improve socioeconomic conditions in the northern dry zone. By providing secured and increased irrigation water supplies, it will improve the livelihoods of more than 70% of investment program-affected beneficiaries who cultivate land with irregular and uncertain irrigation water supplies. Since most paddy lands are cultivated in both *Maha* and *Yala* cultivation seasons, the rural poor who depend largely on occasional agricultural labor for their livelihood, will benefit from more opportunities to improve their household incomes. By employing the rural poor in construction activities, the investment program will help to reduce rural poverty in the short term. The investment program will supply domestic water to about 358,000 people and thereby improve health conditions of people in beneficiary areas, where acute kidney diseases are prevalent. It will benefit men and women alike. The investment program will ensure women's participation in consultation processes that determine compensation entitlements, and income generation and improvement programs. During consultations held in investment program-affected areas, most respondents stated the investment program will improve their living standards and employment opportunities.

24. Contractors will be required to implement appropriate measures regarding the health and safety of men and women who work at the construction sites. Contractors, in close coordination with the program management unit, will conduct awareness programs on the prevention of sexually transmitted infections, drug use, gender issues, and core labor standards. The investment program is classified as general intervention, since it supports poverty reduction indirectly. Although tranches 1 and 2 will provide the same opportunities for women to work in the construction activities as men, they are classified as no gender elements because the activities will be limited to construction of major infrastructure for conveying and storing water. Tranche 3 could be classified as some gender benefits, since investments may improve secondary and tertiary distribution systems with farmers' organizations.

#### **E. Safeguards**

25. **Involuntary resettlement.** The first tranche is categorized B for involuntary resettlement impacts. Land acquisition is required for only the North Western Province Canal Project, and a resettlement plan has been prepared. It will require 11.8 hectares of land from 128 households, with 448 project-affected people. Of those, nine households with 27 project-affected people will be physically displaced. The remaining 119 households will lose 2%–9% of their lands. All physically displaced households have opted for self-relocation. No land acquisition is required for the Upper Elahera Canal Project or Minipe Left Bank Canal Rehabilitation Project under the first tranche. A resettlement framework for the investment program has been prepared to guide the formulation of resettlement plans for all tranches. Subsequent tranches are likely to be categorized A for involuntary resettlement. Each tranche will implement comprehensive income restoration and improvement programs for the project-affected people. The investment program

will also establish a project-level grievance redress mechanism to resolve problems with compensation calculation and payment, resettlement assistance, and income generation and improvement. MMDE has adequate capacity to implement the resettlement plans, as it has implemented several resettlement programs under the MDP.

26. **Indigenous people.** Research and field surveys undertaken during project preparation found that no indigenous people communities or individuals will be affected by the investment program. Hence, all tranches are category C for indigenous peoples impacts.

27. **Environment.** All tranches of the investment program are categorized A for environment in accordance with ADB's Safeguard Policy Statement (2009). Individual environmental assessments have been undertaken for the three projects. Environmental impact assessments for the North Western Province Canal Project and the Upper Elahera Canal Project, each categorized A, and an initial environmental examination for the Minipe Left Bank Canal Rehabilitation Project were prepared. Since the investment program is time-sliced and implementation of all three projects will begin under the first tranche, the environmental assessments cover the entire investment program. An environmental assessment and review framework has also been developed for the investment program. Stakeholders have been consulted and will continue to be consulted during implementation as described in the stakeholder communications strategy. A grievance redress mechanism to address both social and environmental issues will be established prior to project implementation.

28. Based on the findings of a strategic environment assessment undertaken by the government for the updated MDP, the cumulative impacts on two key areas of biodiversity and hydrology were assessed for the investment program and the Kalu Ganga and Moragahakanda reservoirs (associated facilities under construction).<sup>21</sup> For these combined investments, about 11,600 hectares of natural habitat (moist semi-evergreen, dry mixed evergreen, and riverine forests and scrublands) will be impacted, but the projects under the investment program affect only about 1,100 hectares, or about 0.0005% of the natural habitat available in Sri Lanka. Several alternative options were considered in designing the canal routes to minimize adverse impacts to communities, biodiversity, and natural resources. The final routes include about 36 km of tunnels, primarily to minimize impacts to forest and wildlife reserves. Appropriate offset measures have also been included in the investment program, such as compensatory planting of degraded forest areas. The water balance study also demonstrates that downstream water uses and environmental flows will not be impacted by the planned water diversions.

## F. Risks and Mitigating Measures

29. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.<sup>22</sup> The integrated benefits and impacts of the investment program are expected to outweigh the costs.

**Table 4: Summary of Risks and Mitigating Measures**

Risks	Mitigating Measures
Inherent risks associated with construction of dams and tunnels	Comprehensive ground investigations have been undertaken during the design process. A tunnel boring machine will be used to construct the 26 km tunnel, which will help expedite implementation and minimize construction risks. The contracts for tunnel construction may also include performance and penalty clauses. During

<sup>21</sup> Government of Sri Lanka, Ministry of Agriculture Development and Agrarian Services. 2012. *Dam Safety and Water Resources Planning Project: Strategic Environmental Assessment–Mahaweli Systems*. Colombo.

<sup>22</sup> Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Risks	Mitigating Measures
	implementation, a systematic risk management program will be used to identify risks and advise on mitigation actions. MMDE will engage a panel of independent technical experts to advise MMDE and ADB during implementation.
Benefits of the investment program will be reduced if water management is not improved and if the government does not implement NCPCP Phase 2	The investment program will support MMDE in improving water management, with pilot testing of initiatives. MMDE assures that recommendations from the pilots are scaled up for the entire Mahaweli system. The government has also committed to complete the NCPCP, and include it in the Public Investment Strategy as a high priority project. The PMDSC will support preparation of the remaining NCPCP components, and will prepare due diligence reports (technical, economic, financial, safeguards) and documentation for possible ADB financing of NCPCP Phase 2.
Insufficient counterpart funding	Commitment for adequate annual budgetary allocation will be obtained in the legal agreements for both implementation and sustainable operation and maintenance of the investments.

ADB = Asian Development Bank; km = kilometer; MMDE = Ministry of Mahaweli Development and Environment; NCPCP = North Central Province Canal Project; PMDSC = program management, design, and supervision consultants.

Source: Asian Development Bank.

#### IV. ASSURANCES

30. The government and MMDE have assured ADB that implementation of the investment program shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the facility administration manual and loan documents.

31. The government and MMDE have given ADB certain undertakings for the MFF, which are set forth in the framework financing agreement. Specific covenants agreed by the government and MMDE with respect to individual tranches under the MFF are set forth in the loan and project agreements for the respective tranches.

#### V. RECOMMENDATION

32. I am satisfied that the proposed multitranche financing facility would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the multitranche financing facility to the Democratic Socialist Republic of Sri Lanka for the Mahaweli Water Security Investment Program in an aggregate principal amount not exceeding the equivalent of \$453,000,000, which comprises:

- (i) the provision of loans from ADB's Special Funds resources, with interest and other terms to be determined in accordance with ADB's applicable policies relating to Special Funds resources; and
- (ii) the provision of loans from ADB's ordinary capital resources, with interest and other terms to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility

and is subject to such other terms and conditions as are substantially in accordance with those set forth in the framework financing agreement presented to the Board.

Takehiko Nakao  
President

3 June 2015



## DESIGN AND MONITORING FRAMEWORK FOR THE INVESTMENT PROGRAM

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> Improved agricultural production and sustained economic growth in the North Central Province, Central Province, North Western Province, and Eastern Province</p>	<p>By 2030: Annual growth of at least 8% in provincial GDP (baseline: 9.7% weighted average in 2010–2012)</p> <p>Agricultural production increases from SLRs270 billion in 2012 to SLRs575 billion (in 2012 prices)</p>	<p>Central Bank of Sri Lanka Annual Report</p> <p>Department of Agriculture and MASL annual reports</p>	<p><b>Assumptions</b> Government completes NCPCP Phase 2 and associated command area improvement, and implements programs to improve productivity of water.</p> <p>Government continues to maintain irrigation infrastructure in the investment program’s beneficiary command areas.</p>
<p><b>Outcome</b> Secured access to water resources for agricultural and drinking purposes in project areas</p>	<p>By 2024: 974 mcm/year of water available from the Mahaweli system in North Central Province, inclusive of 70 mcm/year of raw water for 358,000 people (baseline = 60 mcm/year with 0 mcm/year for drinking in 2014)</p> <p>130 mcm/year water available from Mahaweli System in North Western Province (baseline = 0 mcm)</p> <p>Storage capacity of Minipe Anicut is increased to 1.25 mcm (baseline = 0.18 mcm in 2014)</p> <p>Irrigated area serviced by Mahaweli System increases to 162,000 ha with cropping intensity of 191% (baseline = 146,000 ha and 188% in 2014)</p>	<p>For all indicators: MASL and DOI annual reports</p>	<p><b>Risk</b> Climate change impacts water availability and water demand by crops exceed projections.</p>
<p><b>Outputs</b> 1. New and improved water conveyance and storage infrastructure constructed</p>	<p>By 2024: Kalu Ganga–Moragahakanda Transfer Canal (9 km) and Upper Elahera Canal commissioned (82 km)</p>	<p>For all indicators: MASL and DOI progress reports</p>	<p><b>Assumption</b> Cofinancing will be secured on time.</p> <p><b>Risk</b> Unexpected ground</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	<p>By 2024: North Western Province canal (96 km), two new reservoirs, and associated infrastructure commissioned</p> <p>By 2019: Minipe Anicut heightened by 3.5 m, and Left Bank Canal and associated infrastructure rehabilitated (74 km)</p>		conditions cause implementation delays.
2. Systems for improving water resources management and productivity developed	<p>Recommendations from ISEWP plan implemented during 2019–2024</p> <p>Recommendations from SIWRM plan approved by the government by 2024</p>	<p>MASL and DOI project and investment program progress and completion reports</p> <p>MMDE annual reports</p>	
3. Multidisciplinary investment program management operational	<p>Timely submission of periodic financing requests for subsequent tranches</p> <p>Program outputs delivered on time and within budget</p>	For all indicators: MMDE financial records and progress reports	

Activities with Milestones	Inputs
<p><b>1. New and improved water conveyance and storage infrastructure constructed</b></p> <p>1.1 For tranche 1, finalize detailed designs and procurement documents, and award first contract of tranche 1 works package in Q4 2015 and last works package by Q1 2017</p> <p>1.2 Commence works for tranche 1 in Q4 2015</p> <p>1.3 Tender and award tranche 2 works package in Q4 2016</p> <p>1.4 Complete construction of tranche 1 works by Q4 2019</p> <p>1.5 Tender and award the first works packages for tranche 3 by Q4 2017 and last works package by Q4 2021</p> <p>1.6 Complete construction of tranche 2 works by Q4 2021</p> <p>1.7 Complete construction of tranche 3 works by Q4 2024</p> <p><b>2. Systems for improving water resources management and productivity developed</b></p> <p>2.1 Award ISEWP consulting package and mobilize consultants by Q3 2016</p> <p>2.2 Complete ISEWP consulting package by Q2 2018</p> <p>2.3 Award SIWRM consulting package and mobilize consultants by Q4 2020</p> <p>2.4 Complete SIWRM consulting package by Q4 2022</p>	<p><b>Asian Development Bank: \$453 million</b></p> <p><b>Government: \$108 million</b></p> <p><b>Cofinancing: \$114 million to be confirmed</b></p>

Activities with Milestones	Inputs
<p><b>3. Multidisciplinary investment program management operational</b></p> <p>3.1 Mobilize PMDSC by Q3 2015</p> <p>3.2 Prepare the detailed designs, cost estimates, and contract documents for tranche 2 and 3 packages by December 2016</p> <p>3.3 Finalize the feasibility study for NCPCP Phase 2 and prepare necessary documents for possible funding by Q2 2017</p> <p>3.4 Finalize documents for consulting services package for SIWRM by Q4 2019</p> <p>3.5 Prepare necessary reporting documents for the government and ADB (continuous)</p>	

ADB = Asian Development Bank; DOI = Department of Irrigation; GDP = gross domestic product; ha = hectare; ISEWP = improving system efficiencies and water productivity; km = kilometer; m = meter; MASL = Mahaweli Authority of Sri Lanka; mcm = million cubic meters; MMDE = Ministry of Mahaweli Development and Environment; NCPCP = North Central Province Canal Program; PMDSC = program management, design, and supervision consultants; Q = quarter; SIWRM = strengthening integrated water resources management.

Source: Asian Development Bank.

### **LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/RRPs/?id=47381-001-3>

1. Framework Financing Agreement
2. Periodic Financing Request for Project 1
3. Sector Assessment (Summary): Irrigation and Water-Based Natural Resources Management
4. Facility Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Economic and Financial Analysis
8. Country Economic Indicators
9. Summary Poverty Reduction and Social Strategy
10. Environmental Impact Assessment: Upper Elahera Canal Project
11. Environmental Impact Assessment: North Western Province Canal Project
12. Initial Environmental Examination: Minipe Left Bank Canal Rehabilitation Project
13. Environmental Assessment and Review Framework
14. Resettlement Plan: North Western Province Canal Project
15. Resettlement Framework
16. Risk Assessment and Risk Management Plan

### **Supplementary Documents**

17. Investment Program Climate Risk Assessment and Management
18. Climate Risk and Vulnerability Assessment
19. Comparison of Financing Modality
20. Water Balance Assessment
21. Economic Assessment
22. Financial Management Assessment
23. Procurement Capacity Assessment
24. Poverty and Social Assessment
25. Stakeholder Communication Strategy