

Project Administration Manual

Project Number: 50387-001
Loan Number: xxxx-KAZ
August 2019

Republic of Kazakhstan: Irrigation Rehabilitation Project

Important Note: This Project Administration Manual is an active document. It will be updated and revised progressively as and when necessary during each review mission. The contents herein are intended to assist and facilitate project management and implementation. If there is any conflict with any other legal agreement(s) related to this project, the provisions in the legal agreements will prevail.

ABBREVIATIONS

ADB	–	Asian Development Bank
APFS	–	audit project financial statement
DMF	–	design and monitoring framework
EMP	–	environment management plan
FMA	–	financial management assessment
GDP	–	gross domestic product
ha	–	hectare
km	–	kilometer
ICB	–	international competitive bidding
IEE	–	initial environmental examination
KVK	–	Republican State Enterprise KazVodKhoz
MOF	–	Ministry of Finance
O&M	–	operation and maintenance
OCB	–	open competitive bidding
PAM	–	project administration manual
PIU	–	project implementation unit
PMO	–	project management office
PSC	–	project steering committee
SCADA	–	supervisory control and data acquisition
SOE	–	statement of expenditures
SPS	–	Safeguard Policy Statement
T	–	tenge (currency)
TOR	–	terms of reference

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Project Administration Manual Purpose and Process

1. The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.
2. The executing and implementing agencies are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.
3. At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the loan agreement shall prevail.
4. After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

1. The project will support the rehabilitation of irrigation networks serving about 171,100 hectares (ha) land in the East Kazakhstan, Karaghandy, Kyzylorda, and Zhambyl provinces of the Republic of Kazakhstan. The project will promote diversification from traditional low-yielding and low-value grain crops into high value cash crops and horticulture crops. It will also build the capacity of farmers in water management and the Republic State Enterprise Kazvodkhoz (KVK)'s capacity in managing irrigation system and delivery.

2. Agriculture is an important, but neglect sector in Kazakhstan's national economy, employing 18.0% of the total labor force and contributing 4.4% of gross domestic product in 2017; Despite its economic potential, the sector contribution has been decreasing. Moreover, about 42% of the country's population is located in rural areas with living standards depending heavily on income generated from agricultural production. Kazakhstan has enormous underutilized agricultural potential that can help make the economic growth more diverse and inclusive. By the end of 2018, its agricultural area totaled 221.4 million ha, of which 25.8 million ha or 12% was classified as arable land and 186.2 million ha or 84% as pastureland. Kazakhstan's per capita arable land of about 1.65 ha is the second highest after Australia.

3. Before the breakup of the Soviet Union, Kazakhstan witnessed the construction of extensive, centrally planned irrigation systems that were managed and operated by region administration. After the breakup, between 1991 and 1999, 20.6 million ha of cropland were abandoned, according to an Asian Development Bank (ADB) diagnostic study. The irrigated area was estimated to be 2.3 million ha in 1991; however, by 2018 it had dwindled to about 1.4 million ha. ADB's diagnostic study identified the key challenges for the sector: (i) restructuring massive Soviet state farms into smaller, more efficient farms; (ii) enabling crop intensification to better match highly variable growing conditions; (iii) pricing water appropriately to manage its scarcity more effectively; (iv) improving public infrastructure for agriculture development; and (v) reducing value-chain fragmentation.

4. The further development of the irrigation subsector is a key element of government efforts to diversify Kazakhstan's economy, promote food security, and reduce poverty. The rehabilitation of irrigation schemes and renewed cultivation of abandoned land could help increase agricultural productivity and rural incomes. Maximizing the opportunity will depend on agricultural enterprises and small farmers responding to market incentives to diversify from traditional low-value and low-productivity cereal crops to higher-value crops such as oilseeds, vegetables, and fruit. The government's recent irrigated agriculture development plan has set ambitious targets to meet the economic development agenda, including the rehabilitation of 600,000 ha of irrigation systems by 2028.¹ To achieve this, the Ministry of Agriculture initiated large irrigation investment projects for support from international financial institutions such as ADB, with the primary aim to rehabilitate those irrigation schemes that had been poorly maintained and were subsequently abandoned.

5. KVK, established in 2011 by merging various state water enterprises, aims to improve the country's irrigation network performance, asset ownership, and operational responsibility. KVK is 100% owned by the Committee for Water Resources of the Ministry of Agriculture.² This structure is common among public sectors in Kazakhstan—semiautonomous entities with a more corporate

¹ Government of Kazakhstan, Ministry of Agriculture. 2018. [Irrigated Land Development Plan Until 2028](#). Astana.

² The Committee for Water Resources is now under the Ministry of Ecology, Geology and Natural Resources newly established in June 2019.

structure than their parent committees and ministries, aiming to increase accountability and transparency in public financial management and reporting, and to operate infrastructure more sustainably. KVK is improving its governance and capacity by implementing projects financed by the European Bank for Reconstruction and Development and the Islamic Development Bank. KVK needs to further improve its internal governance in financial management, procurement, and information disclosure; extend its advisory services to farmers for better on-farm water management; and support the development of agricultural cooperatives.

6. The project is aligned with the government of Kazakhstan's long-term development strategy which focuses on improving the quality of life of its population and becoming one of the world's 30 most developed countries by 2050. The project is in line with ADB's Strategy 2030 for supporting priorities to promote rural development and food security, and address remaining poverty and reduce inequalities.³ The project is consistent with ADB's country partnership strategy, 2017–2021 for Kazakhstan, which supports Kazakhstan in achieving its medium-term development targets and climate change adaptation priorities identified in its national plans and commitments under the Paris Agreement on climate change.⁴ Specifically, ADB is committed to support the government in building a more economically diversified, socially inclusive, and environmentally sustainable Kazakhstan that enjoys high growth rates and stable macroeconomic conditions, including provisions of loans to rehabilitate aging irrigation systems and improve water use efficiency in farms.

A. Impact and Outcome

7. The project is aligned with the following impact: the share of agriculture production contribution to gross domestic production increased, as outlined in Strategy Kazakhstan 2050.⁵ The project will have the following outcome: farm productivity increased in the East Kazakhstan, Karaghandy, Kyzylorda, and Zhambyl province of Kazakhstan provinces.⁶

B. Outputs

8. **Output 1: Irrigation infrastructure rehabilitated and/or improved.** The output will support the rehabilitation and/or improvement of about 245 irrigation schemes in the four provinces. For canals, the works would involve desilting and removal of vegetation in the lined and unlined canals, re-sectioning of the unlined canals, and repair of damaged sections of the lined canals. The total length of new concrete lined canals will be about 1,064 km while the improved earth canals will be about 1,976 km. A total of about 4,185 hydraulic structures including water measuring devices will be constructed or rehabilitated. About 358 km drainage collectors will be rehabilitated and/or improved. A drip irrigation system to cover 9,300 ha will be established in Zhambyl province. In addition, about 24 sets of the supervisory control and data acquisition (SCADA) system will be installed in the main canals of the four provinces.

³ ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

⁴ ADB. 2017. *Country Partnership Strategy: Kazakhstan, 2017–2021*. Manila.

⁵ Official Site of the President of the Republic of Kazakhstan. Address by the President of the Republic of Kazakhstan, Leader of the Nation, N.A. Nazarbayev on Strategy "Kazakhstan-2050": New Political Course of the Established State. http://www.akorda.kz/en/addresses/addresses_of_president/address-by-the-president-of-the-republic-of-kazakhstan-leader-of-the-nation-nazarbayev-strategy-kazakhstan-2050-new-political-course-of-the-established-state.

⁶ The design and monitoring framework is in Appendix 1 of the Report and Recommendation of the President to the Board of Directors.

9. **Output 2: Water management improved and beneficiary capacity enhanced.** The project will support (i) pilot-testing a system to monitor water and agricultural productivity using remote sensing technology in selected irrigation schemes; (ii) assisting in organizing the beneficiaries into the agricultural cooperatives established on hydrological boundaries, and develop the capacity of the cooperatives with respect to their functioning as well as with physical inputs like office furniture and equipment; (iii) training farmers on using improved irrigation management and climate change-related aspects; and (iv) providing consulting services for capacity development. This output will help KVK to extend its advice services to farmers on on-farm water management and crop choices.

10. **Output 3: KVK's capacity strengthened.** The project will strengthen KVK's governance and support its internal reforms by providing consulting services for (i) capacity development and training of KVK staff on financial, procurement, and water management aspects; the (ii) formulation and implementation of an asset management plan. The project will also support (i) provision of machinery, equipment, and vehicles for the four KVK branch offices to carry out their O&M function and improve system performance; (ii) rehabilitation and/or construction of repair workshops; (iii) construction of the KVK headquarters building; (iv) construction of an office building for KVK's East Kazakhstan branch; (v) organization of a study tour for KVK staff and project beneficiaries to learn from advanced irrigation practices; and (vi) the operations of the project management office and project implementation units to ensure smooth implementation.

11. The details of the irrigation schemes and areas are provided below in Table 1.

Table 1: Details of the Irrigation Schemes and Areas

Province/Subproject	District(s) / cities	Number of Schemes	Area	
			Total	Area to be Rehabilitated
A. East Kazakhstan		22	101,723	79,256
1 Kurchum Subproject	Kurchum	2	14,628	11,881
2 Kitaika Subproject	Kurchum	6	5,774	5,377
3 Tarbagaty Subproject	Tarbagaty	3	20,674	6,205
4 Urdzhar Subproject	Urdzhar	8	16,476	11,622
5 Zharma Subproject	Zharma	1	17,958	17,958
6 Zaisan Subproject	Zhysan	1	24,494	24,494
7 Chigilik River System Subproject	Kokpekty	1	1,719	1,719
B. Karaghandy		10	68,786	27,900
1 North Karaghandy Subproject	Abay, Bukhar-Zhyrau, Nurin, Osakarov, and Zhanaarka	9	63,274	24,872
2 Ulitau Subproject	Ulitau	1	5,512	3,028
C. Kyzylorda		11	228,394	28,974
1 Zhanakorgan-Shieli Subproject	Zhanakorgan and Shieli	2	56,882	2,213
2 Kyzylorda Subproject	Syrdariya, Zhalagash, Kyzylorda City, and Kamakchin	7	152,000	19,396
3 Kazalin-Aral Subproject	Kazalin and Aral	2	19,512	7,365
D. Zhambyl		202	63,191	34,977
1 Sarysu Subproject	Sarysu	18	12,218	629
2 Shu Subproject	Shu	127	29,363	20,361
3 Talas Subproject	Talas	43	13,485	9,317
4 T. Ryskulov Subproject	T. Ryskulov	14	8,125	4,670
16 PROJECT TOTAL	24	245	462,094	171,107

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 2: Project Readiness

Indicative Activities	2019										Responsibility
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Advance contracting and retroactive financing actions ^a										KVK	
Establish project implementation arrangements (PMO and PIUs)										KVK	
Government's State Expertise approval										GOK	
Government's Economic Expertise approval										GOK	
ADB management review										ADB	
Government's Coordination Council's approval										GOK	
Loan negotiations										ADB, MNE, MOF, KVK	
ADB Board consideration										ADB	
Loan signing										ADB, KVK, MOF	
Government legal opinion										KVK, MOF	
Government budget inclusion										GOK	
Loan effectiveness										ADB, KVK	

^a Advance action and retroactive financing will be used for (i) consulting services for the detailed design, construction supervision, and implementation support; (ii) goods and works (for design ready irrigation schemes; and (iii) project management office staff recruitment and provision of training.

ADB = Asian Development Bank, GOK = Government of Kazakhstan, MNE = Ministry of National Economy, MOF = Ministry of Finance, KVK = Republican State Enterprise Kazvodkhoz, PIU = project implementation unit, PMO = project management office.

Source: Asian Development Bank.

B. Overall Project Implementation Plan

12. The initial project implementation schedule is presented in Table 3 below. The chart will be updated annually with key implementation activities and submitted to ADB with contract and disbursement projections for the following year.

Indicative Activities	2019				2020				2021				2022				2023				2024			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Conduct annual audit of the project accounts within 6 months of the end of the previous fiscal year																								
Monitor project implementation performance and prepare quarterly progress report																								
Carry out key activities of the gender action plan																								
Conduct monitoring activities for environmental management plan and social safeguards																								
Conduct annual and midterm project reviews																								

KVK = Republican State Enterprise Kazvodkhoz, O&M = operation and maintenance, PIU = project implementation unit, PMO = project management office, Q = quarter.
Source: Asian Development Bank.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

13. The Republican State Enterprise Kazvodkhoz (KVK) will be the executing agency of the project and have overall responsibility of the project. A project management office (PMO) will be established to manage project implementation and coordinate project activities with all stakeholders. A project steering committee (PSC) will be set up to guide policy and strategic direction, review and evaluate project performance, and resolve issues affecting project implementation and facilitate inter-agency coordination. Project implementation units (PIUs) will be established in each of the four provinces to support the PMO.

Table 4: Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Republican State Enterprise KazVodKhoz (KVK) - Executing agency	<ul style="list-style-type: none"> - recruit project management office (PMO) staff for the project; - provide timely provision of agreed counterpart funds for the project; - conduct timely financial audit as per agreed timeframe and taking recommended actions; - comply with loan covenants (social, environmental, financial, economic, and others); - ensure the project sustainability after the implementation and reporting to Asian Development Bank (ADB) on the development impacts; and - responsible and accountable for financial management and use of funds for advance account and statement of expenditure (SOE) procedure.
Project Management Office - Project specific management body	<ul style="list-style-type: none"> - administrative and financial management; - coordinate with all relevant agencies; - project implementation; - preparation of bidding documents, evaluation of bids and award of contract; - procurement of materials, equipment, consulting services and civil works; - prepare and submit withdrawal applications; - project monitoring and evaluation; - preparation of periodic progress reports; and - ensure compliance with ADB and Government's environment and social safeguard's requirements.
Project Implementation Unit - Project specific management body	<ul style="list-style-type: none"> - implement project activities in accordance with the project design; - coordinate activities between PMO, KVK, agricultural cooperatives, and other stakeholders and agencies concerned; - ensure compliance with environmental and social safeguards requirements; - maintain appropriate accounts, including reports on withdrawal applications and disbursements; - develop sustainable management plans and asset management plans; - monitor, evaluate and report on project progress and disseminate project progress through a dedicated project website; and - preparation of quarterly progress reports.
Project steering committee	<ul style="list-style-type: none"> - guide policy and strategic direction; - resolve issues affecting project implementation; and

Asian Development Bank (ADB)	<ul style="list-style-type: none"> - facilitate inter-agency coordination. - assist the executing agency, PMO, and PIUs in providing timely guidance for smooth implementation of the project in accordance with the agreements made; - process and approve withdrawal applications submitted by the PMO and the PIUs; - review all the documents that require ADB approval; - conduct periodic loan review missions, midterm review, and project completion mission; - monitor compliance with loan covenants, social, gender and environmental safeguards, technical and financial requirements; - ensure compliance with financial audit recommendations; - process withdrawal applications on time and release eligible funds; - regularly update the project performance review reports with assistance from the PMO; and - regularly post on ADB website the updated project information documents for public disclosures including safeguards documents as per the disclosure requirements of the ADB's Safeguards Policy Statement, 2009.
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Source: Asian Development Bank.

B. Key Persons Involved in Implementation

Executing Agency

KazVodKhoz (KVK)

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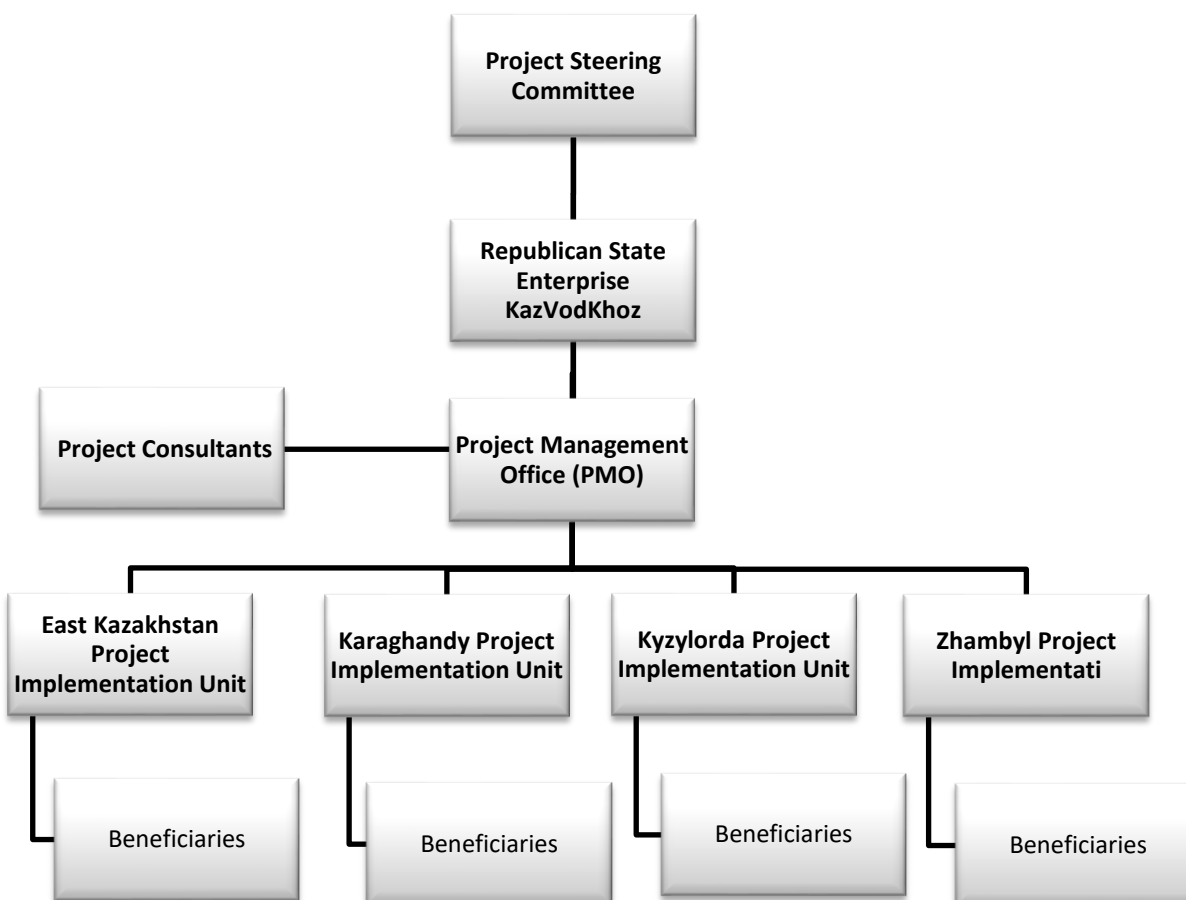
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C. Project Organization Structure

Figure 1: Project Organization Structure



IV. COSTS AND FINANCING

14. The project is estimated to cost T121.29 billion (\$320.88 million equivalent). ADB will finance the expenditures in relation to civil works, goods, consulting services, project management costs, including recurrent project management costs, and 75% of contingency costs. KVK will contribute Z26.87 billion (\$71.08 million equivalent) to cover financial charges during implementation and 25% of contingency costs.

A. Cost Estimates Preparation and Revisions

15. The technical assistance (TA) consultants including a national design entity prepared the cost estimates in consultation with KVK, Committee for Water Resources, and ADB. Costing was completed using government costing standards, and costing information from site investigations, the TA consultants' project files, and queries with suppliers. During project implementation, KVK and PMO, together with the PIUs, will revise the cost estimates with the assistance of the project design, construction supervision, and implementation support consultants.

B. Key Assumptions

16. The following key assumptions underpin the cost estimates and financing plan:
- (i) Exchange rate: T378.00 = \$1.00.
 - (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

Table 5: Price Inflation

Item	2020	2021	2022	2023	2024	Average
Foreign rate of price inflation	-	-	-	-	-	
Domestic rate of price inflation	5.5%	4.5%	4.0%	4.0%	4.0%	4.4%

Source: Asian Development Bank.

- (iii) There are no in-kind contributions.

C. Summary Cost Estimates and Financing Plan

Table 6: Summary Cost Estimates

Item	Amount ^a	
	T (billion)	\$ (million)
A. Base Cost^b		
1. Irrigation infrastructure rehabilitated and/or improved	68.05	180.03
2. Water management improved and beneficiaries' capacity enhanced	0.95	2.51
3. Republican State Enterprise Kazvodkhoz's capacity strengthened	8.33	22.04
Subtotal (A)	77.33	204.58
B. Contingencies^c	22.79	60.29
C. Financial Charges During Implementation^d	21.17	56.01
Total (A+B+C)	121.29	320.88

^a Includes taxes and duties of T8.29 billion (\$21.92 million) to be financed from Asian Development Bank loan resources. Such amount does not represent an excessive share of the project cost.

^b In first quarter of 2019 prices as of 20 May 2019.

^c Physical contingencies computed at 10.0% for civil works, goods, and services. Price contingencies computed at an average of 4.4% on local currency costs.

^d Includes interest charges and commitment charges. Interest during construction for the tenge loan from ordinary capital resources has been computed at 9.5% per year (based on prevailing yield of comparable government-issued fixed-rate securities, plus an effective contractual spread of 0.5%). Commitment charge for the tenge loan is 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

17. The summary financing plan is in Table 7.

Table 7: Summary Financing Plan

Source	Amount		Share of the Total
	(T billion)	(\$ million)	(%)
Asian Development Bank			
Ordinary capital resources (local currency loan)	94.42	249.80	77.85
Republican State Enterprise Kazvodkhoz	26.87	71.08	22.15
Total	121.29	320.88	100.00

Source: Asian Development Bank estimate.

18. KVK has requested a regular loan of up to T94.42 billion from ADB's ordinary capital resources to help finance the project. The loan, to be guaranteed by the Republic of Kazakhstan, in tenge will have a term of 20.5 years, including a grace period of 5 years; an interest rate equal to the sum of ADB's cost of funding, plus an effective contractual spread for sovereign-guaranteed

loans of 0.50% per year; and a commitment charge of 0.15% per year on the undisbursed loan amount. The loan is expected to be disbursed in 8–10 tranches, each for \$20 million minimum in tenge equivalent. Subject to market conditions, ADB will provide tenge financing to fund the loan by amortized bonds with maturities of up to 10 years. ADB will also be able to provide financing in currencies where it can effectively intermediate, such as United States dollar. Based on straight-line repayment method, the average loan maturity is 13 years, and there is no maturity premium payable to ADB. ADB will finance the expenditures in relation to civil works, goods, consulting services, and project management, including recurrent project management costs and 75% of contingency costs, inclusive of taxes and duties. KVK will contribute the balance to cover financial charges and 25% of contingencies costs.

D. Detailed Cost Estimates by Expenditure Category

Table 8: Estimated Costs by Expenditure Category

			Cost		% of Total
Item			T million	\$ million	Base Cost
A. Investment Costs					
1	Civil works				
	a.	Irrigation network and associated structures	43,650.10	115.48	56.45%
	b.	Wells and pumps for irrigation	789.84	2.09	1.02%
	c.	Drainage network	636.60	1.68	0.82%
	d.	Sprinkler irrigation, SCADA, and other works	8,573.19	22.68	11.09%
	e.	Construction of workshops, field offices, and Water Center	2,715.20	7.18	3.51%
2	Mechanical, equipment, and furniture		-	-	
	a.	Irrigation and drainage related	7,856.13	20.78	10.16%
	b.	Support for capacity development of beneficiaries and KVK	3,359.78	8.89	4.34%
	c.	Equipment, furniture, and vehicles for PMO and PIUs	93.85	0.25	0.12%
3	Irrigation system performance (remote sensing)		42.34	0.11	0.05%
4	KVK staff capacity development including overseas study tour		60.48	0.16	0.08%
5	Socio-economic survey		42.34	0.11	0.05%
6	Consultants		-	-	0.00%
	a.	Studies, design, construction supervision, and project management	6,747.19	17.85	8.73%
	b.	Capacity development	973.89	2.58	1.26%
	Subtotal (A)		75,540.94	199.84	97.69%
B. Recurrent Costs			-	-	
1	PMO and PIUs remuneration costs		1,426.02	3.77	1.84%
2	PMO and PIUs offices rents		100.80	0.27	0.13%
3	Office and equipment operation and maintenance		220.64	0.58	0.29%
4	Annual audit of project accounts		42.34	0.11	0.05%
	Subtotal (B)		1,789.80	4.73	2.31%
	Total Base Cost (A+B)		77,330.74	204.58	100.00%
C. Contingencies			-	-	
1	Physical		7,733.07	20.46	10.00%
2	Price		15,055.27	39.83	19.47%
	Subtotal (C)		22,788.35	60.29	29.47%
D. Financial Charges During Implementation			-	-	
1	Interest during implementation		20,790.13	55.00	26.88%
2	Commitment charges		379.90	1.01	0.49%
	Subtotal (D)		21,170.03	56.01	27.38%
Total Project Cost (A+B+C+D)			121,289.12	320.88	156.84%

Notes: Numbers may not add up precisely because of rounding.

Source: Asian Development Bank.

E. Allocation and Withdrawal of Loan Proceeds

Table 9: Allocation and Withdrawal of Loan Proceeds

No.	Item	Amount Allocated (T)	Percentage and Basis for Withdrawal from Loan Account
1	Works, goods, and consulting services including training	75,542,600,000	100% of total expenditure claimed.
2	Project management recurring costs	1,789,800,000	100% of total expenditure claimed.
3	Unallocated	17,091,600,000	
	TOTAL	94,424,000,000	

Source: Asian Development Bank.

F. Detailed Cost Estimates by Financier

Table 10: Detailed Cost Estimates by Financier

Item	ADB Loan			KazVodKhoz			Total		Taxes and Duties	
	Amount	% of cost		Amount	% of cost					
	T million	\$ million	category	T million	\$ million	category	T million	\$ million	T million	\$ million
A. Investment Costs										
1 Civil works	56,364.94	149.11	100.00%	-	-	0.00%	56,364.94	149.11	6,039.10	15.98
a. Irrigation network and associated structures	43,650.10	115.48	100.00%	-	-	0.00%	43,650.10	115.48	4,676.80	12.37
b. Wells and pumps for irrigation	789.84	2.09	100.00%	-	-	0.00%	789.84	2.09	84.63	0.22
c. Drainage network	636.60	1.68	100.00%	-	-	0.00%	636.60	1.68	68.21	0.18
d. Sprinkler irrigation, SCADA, and other works	8,573.19	22.68	100.00%	-	-	0.00%	8,573.19	22.68	918.56	2.43
e. Construction of workshops, field offices, and Water Center	2,715.20	7.18	100.00%	-	-	0.00%	2,715.20	7.18	290.91	0.77
2 Goods (Mechanical, equipment, and furniture)	11,309.77	29.92	100.00%	-	-	0.00%	11,309.77	29.92	1,211.76	3.21
a. Irrigation and drainage related	7,856.13	20.78	100.00%	-	-	0.00%	7,856.13	20.78	841.73	2.23
b. Support for capacity development of beneficiaries and KVK	3,359.78	8.89	100.00%	-	-	0.00%	3,359.78	8.89	359.98	0.95
c. Equipment, furniture, and vehicles for PMO and PIUs	93.85	0.25	100.00%	-	-	0.00%	93.85	0.25	10.06	0.03
3 Consulting service including studies and social surveys	7,866.23	20.81	100.00%	-	-	0.00%	7,866.23	20.81	842.81	2.23
a. Irrigation system performance (remote sensing)	42.34	0.11	100.00%	-	-	0.00%	42.34	0.11	4.54	0.01
b. KVK staff capacity development including overseas study tour	60.48	0.16	100.00%	-	-	0.00%	60.48	0.16	6.48	0.02
c. Socio-economic survey	42.34	0.11	100.00%	-	-	0.00%	42.34	0.11	4.54	0.01
d. Consultants				-	-					
d1. Studies, design, construction supervision, and project management	6,747.19	17.85	100.00%	-	-	0.00%	6,747.19	17.85	722.91	1.91
d2. Capacity development	973.89	2.58	100.00%	-	-	0.00%	973.89	2.58	104.35	0.28
Subtotal (A)	75,540.94	199.84	100.00%	-	-	0.00%	75,540.94	199.84	8,093.67	21.41
B. Recurrent Costs										
1 PMO and PIUs remuneration costs	1,426.02	3.77	100.00%	-	-	0.00%	1,426.02	3.77	152.79	0.40
2 PMO and PIUs offices rents	100.80	0.27	100.00%	-	-	0.00%	100.80	0.27	10.80	0.03
3 Office and equipment operation and maintenance	220.64	0.58	100.00%	-	-	0.00%	220.64	0.58	23.64	0.06
4 Annual audit of project accounts	42.34	0.11	100.00%	-	-	0.00%	42.34	0.11	4.54	0.01
Subtotal (B)	1,789.80	4.73	100.00%	-	-	0.00%	1,789.80	4.73	191.76	0.51
Total Base Cost (A+B)	77,330.74	204.58	100.00%	-	-	0.00%	77,330.74	204.58	8,285.44	21.92
C. Contingencies										
1 Physical	5,799.81	15.34	75.00%	1,933.27	5.11	25%	7,733.07	20.46	-	-
2 Price	11,291.45	29.87	75.00%	3,763.82	9.96	25%	15,055.27	39.83	-	-
Subtotal (C)	17,091.26	45.21	75.00%	5,697.09	15.07	25%	22,788.35	60.29	-	-
D. Financial Charges During Implementation										
1 Interest during implementation	-	-	0.00%	20,790.13	55.00	100%	20,790.13	55.00	-	-
2 Commitment charges	-	-	0.00%	379.90	1.01	100%	379.90	1.01	-	-
Subtotal (D)	-	-	0.00%	21,170.03	56.01	100%	21,170.03	56.01	-	-
Total (A+B+C+D)	94,422.00	249.79	77.85%	26,867.12	71.08	22.16%	121,289.12	320.87	8,285.44	21.92

Note: Numbers may not add up precisely because of rounding.

Source: Asian Development Bank.

G. Detailed Cost Estimates by Outputs and/or Components

Table 11: Detailed Cost Estimates by Output

							unit: T million	
Item		Total	Irrigation Infrastructure Rehabilitated and/or Updated		Water Management Improved and Beneficiary's Capacity Enhanced		Kazvodkhoz's Capacity Strengthened	
			Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs								
1	Civil works							
	a. Irrigation network and associated structures	43,650.10	43,650.10	100.00%	-	-	-	-
	b. Wells and pumps for irrigation	789.84	789.84	100.00%	-	-	-	-
	c. Drainage network	636.60	636.60	100.00%	-	-	-	-
	d. Sprinkler irrigation, SCADA, and other works	8,573.19	8,573.19	100.00%	-	-	-	-
	e. Construction of workshops, field offices, and Water Center	2,715.20	-	-	-	-	2,715.20	100.00%
2	Mechanical, equipment, and furniture							
	a. Irrigation and drainage related	7,856.13	7,856.13	100.00%	-	-	-	-
	b. Support for capacity development of beneficiaries and KVK	3,359.78	-	-	42.34	1.26%	3,317.45	98.74%
	c. Equipment, furniture, and vehicles for PMO and PIUs	93.85	-	-	-	-	93.85	-
3	Irrigation system performance (remote sensing)	42.34	-	-	42.34	100.00%	-	-
5	KVK staff capacity development including overseas study tour	60.48	-	-	-	-	60.48	100.00%
6	Socio-economic survey	42.34	-	-	-	-	42.34	-
7	Consultants							
	a. Studies, design, construction supervision, and project management	6,747.19	6,545.98	97.02%	-	-	201.22	-
	b. Capacity development	973.89	-	-	864.37	88.75%	109.52	11.25%
	Subtotal (A)	75,540.94	68,051.85	90.09%	949.04	1.26%	6,540.05	8.66%
B. Recurrent Costs								
1	PMO and PIUs remuneration costs	1,426.02	-	-	-	-	1,426.02	100.00%
2	PMO and PIUs offices rents	100.80	-	-	-	-	100.80	100.00%
3	Office and equipment operation and maintenance	220.64	-	-	-	-	220.64	100.00%
4	Annual audit of project accounts	42.34	-	-	-	-	42.34	100.00%
	Subtotal (B)	1,789.80	-	-	-	-	1,789.80	100.00%
	Total Base Project Cost (A+B)	77,330.74	68,051.85	88.00%	949.04	1.23%	8,329.86	10.77%

Note: Numbers may not add up precisely because of rounding.

Source: Asian Development Bank.

H. Detailed Cost Estimates by Year

Table 12: Detailed Cost Estimate by Year

								T million
Item		2020	2021	2022	2023	2024	Total	
A. Investment Costs								
1	Civil works							
	a. Irrigation network and associated structures	0.00	8,730.02	17,460.04	17,460.04	0.00	43,650.10	
	b. Wells and pumps for irrigation	0.00	157.97	236.95	236.95	157.97	789.84	
	c. Drainage network	0.00	127.32	127.32	190.98	190.98	636.60	
	d. Sprinkler irrigation, SCADA, and other works	0.00	0.00	1,714.64	3,429.28	3,429.28	8,573.19	
	e. Construction of workshops, field offices, and Water Center	0.00	0.00	1,221.84	1,493.36	0.00	2,715.20	
2	Mechanical, equipment, and furniture							
	a. Irrigation and drainage related	0.00	1,571.23	2,356.84	2,356.84	1,571.23	7,856.13	
	b. Support for capacity development of beneficiaries and KVK	0.00	671.96	1,679.89	1,007.94	0.00	3,359.78	
	c. Equipment, furniture, and vehicles for PMO and PIUs	93.85	0.00	0.00	0.00	0.00	93.85	
3	Irrigation system performance (remote sensing)	0.00	10.58	10.58	21.17	0.00	42.34	
4	KVK staff capacity development including overseas study tour	0.00	0.00	0.00	30.24	30.24	60.48	
5	Socio-economic survey	16.93	0.00	12.70	0.00	12.70	42.34	
6	Consultants							
	a. Studies, design, construction supervision, and project managemen	1,349.44	674.72	1,349.44	1,349.44	2,024.16	6,747.19	
	b. Capacity development	0.00	194.78	292.17	292.17	194.78	973.89	
	Subtotal (A)	1,460.22	12,138.57	26,462.41	27,868.40	7,611.33	75,540.94	
B. Recurrent Costs								
1	PMO and PIUs remuneration costs	285.20	285.20	285.20	285.20	285.20	1,426.02	
2	PMO and PIUs offices rents	20.16	20.16	20.16	20.16	20.16	100.80	
3	Office and equipment operation and maintenance	44.13	44.13	44.13	44.13	44.13	220.64	
4	Annual audit of project accounts	0.00	8.47	8.47	8.47	16.93	42.34	
	Subtotal (B)	349.49	357.96	357.96	357.96	366.43	1,789.80	
	Subtotal (A+B)	1,809.72	8,711.14	21,856.14	27,340.71	17,613.04	77,330.74	
C. Contingencies								
1	Physical (@10% of base costs)	180.97	871.11	2,185.61	2,734.07	1,761.30	7,733.07	
2	Price	109.49	981.94	3,523.90	5,787.50	4,652.45	15,055.27	
	Subtotal (C)	290.46	1,853.05	5,709.51	8,521.57	6,413.75	22,788.35	
D. Financial Charges During Implementation								
1	Interest during implementation	192.62	1,152.21	3,635.34	6,839.87	8,970.09	20,790.13	
2	Commitment charges	138.59	123.44	84.23	33.64	0.00	379.90	
	Subtotal (D)	331.21	1,275.65	3,719.58	6,873.51	8,970.09	21,170.03	
Total Project Cost (A+B+C+D)		2,431.39	11,839.84	31,285.22	42,735.79	32,996.88	121,289.12	

Note: Numbers may not add up precisely because of rounding.

Source: Asian Development Bank.

I. Contract and Disbursement

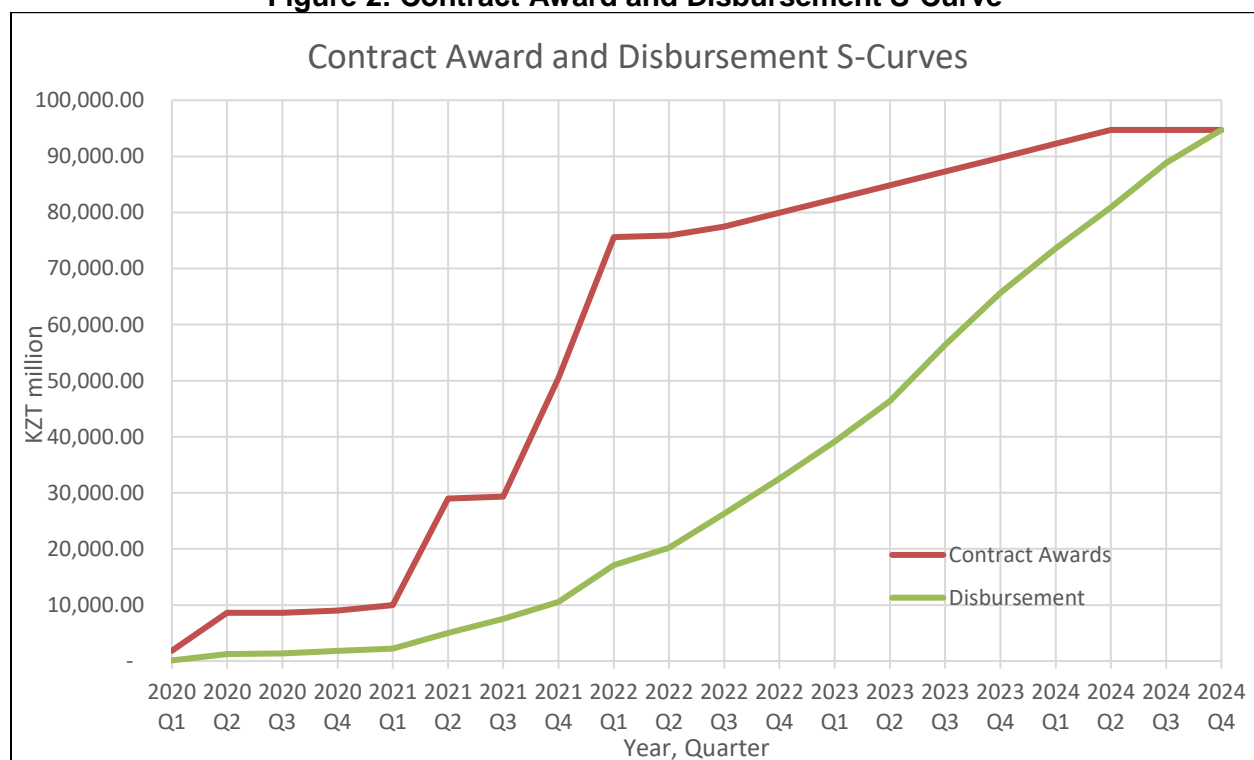
Table 13: Quarterly Contract Awards and Disbursements

Contract Award Projection (KTZ million)					
Year	Q1	Q2	Q3	Q4	Total
2020	1,837	6,796	0	378	9,011
2021	974	18,763	357	21,126	41,219
2022	25,134	272	1,615	2,442	29,462
2023	2,442	2,472	2,442	2,442	9,797
2024	2,493	2,442	0	0	4,935
Total	32,879	30,743	4,414	26,387	94,424

Disbursement Projection (KTZ million)					
Year	Q1	Q2	Q3	Q4	Total
2020	116	1,132	125	438	1,810
2021	432	2,736	2,536	3,008	8,711
2022	6,538	3,024	6,112	6,182	21,856
2023	6,586	7,222	9,950	9,281	33,038
2024	7,924	7,308	7,885	5,891	29,008
Total	21,596	21,422	26,608	24,799	94,424

Note: The disbursement projections are based on financing requirements according to the project implementation schedules. Due to local currency financing, actual disbursement will be paid through eight to ten tranches of advance payment linked to tenge bond issuing with each tranche no less than \$20 million equivalent.

Figure 2: Contract Award and Disbursement S-Curve

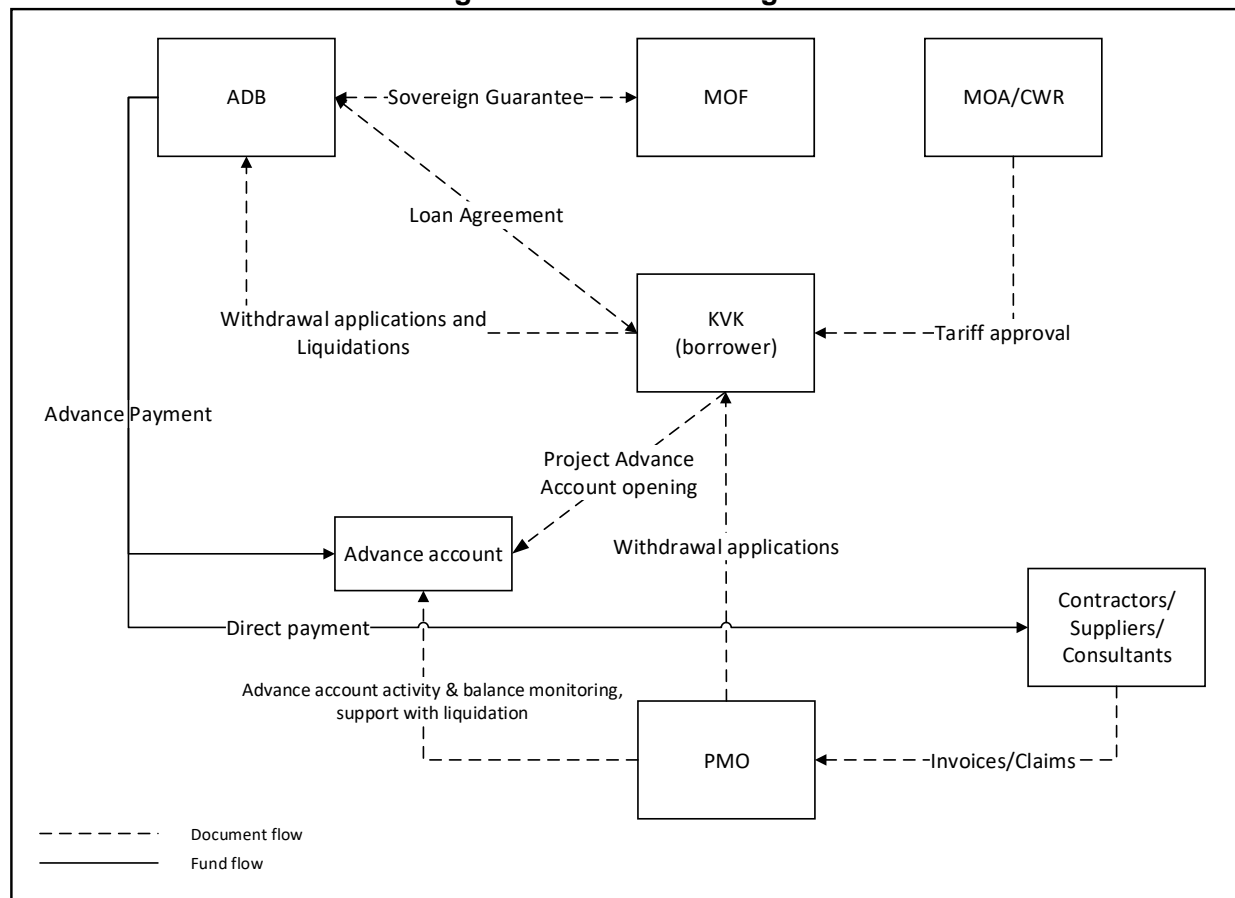


Note: The disbursement projections are based on financing requirements according to the project implementation schedules. Due to local currency financing, actual disbursement will be paid through eight to ten tranches of advance payment linked to tenge bond issuing with each tranche no less than \$20 million equivalent.

J. Fund Flow Diagram

19. The following fund flow diagram shows how the funds will flow from ADB to implement project activities, and how documents for requests for disbursement will flow to ADB.

Figure 3: Fund Flow Diagram



ADB = Asian Development Bank, CWR = Committee for Water Resources, KVK = Republican State Enterprise Kazvodkhoz, MOA = Ministry of Agriculture, MOF = Ministry of Finance, PMO = project management office.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment (FMA)

20. The FMA was conducted from March 2018 to March 2019 in accordance with ADB's *Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note*. The FMA considered the capacity of KVK, including funds-flow arrangements, advance account management, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. Based on the assessment, the key financial management risk is that staff lacks the necessary experience with ADB projects, procedures, and requirements on financial management. It was concluded that the overall pre-mitigation financial management risk of KVK is *Substantial*. KVK has agreed to implement an action plan as key measures to address the deficiencies. With the implementation

of the action plan, the KVK will have the capacity to manage advance funds and SOE procedures accordingly.

Table 14: Financial Management Mitigation Plan

Risk	Action	Responsibility	Timeline
1. KVK's staff have limited understanding of ADB's financial management requirements and procedures	Establish PMO and recruit a financial management consultant who is familiar with ADB's financial management requirements.	KVK	PMO establishment with accountants hired upon loan effectiveness; Financial management consultant recruited within 3 months after loan effectiveness
2. KVK's staff have limited understanding of ADB's disbursement procedures	Provide disbursement training to KVK.	ADB	Within 3 months after loan effectiveness
3. KVK's staff have limited understanding of ADB's financial reporting requirements	Provide sample of Auditor TOR for the project and sample of project financial statements.	ADB	Within 6 months after loan effectiveness
4. Inadequate cash flow to repay the loan due to not full cost recovery tariff	Annual monitor of KVK's financial performance. In case KVK cannot repay the loan due to the approved tariff is lower than the proposed tariff, the government needs to repay the loan for KVK under loan guarantee.	The government and KVK	After effectiveness
5. Advance fund may be used for unintended purpose of the project	ADB conducts annual financial management reviews. KVK liquidates the advance account monthly; and deposits the fund to a good credit rating bank.	KVK, ADB	During project implementation
6. Inadequate FM staff due to increase in transaction volume	Reassess staff resources annually and add additional FM consultant if necessary.	KVK	During project implementation
7. Compliance risk due to incompleteness and inaccuracy of recording financial reporting	Use applicable accounting software for the project.	KVK	Within 6 months after loan effectiveness

ADB = Asian Development Bank, FM = financial management, KVK = Republican State Enterprise Kazvodkhoz, PMO = project management office, SOE = statement of expenditure, TOR = terms of reference.

B. Disbursement

1. Disbursement Arrangements for ADB and ADB-administered Funds

21. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),⁷ and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.⁸ Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

22. KVK will use direct payment and advance account loan disbursement procedures. KVK will submit the annual disbursement projections, including contract awards projections to ADB and will be responsible for requesting budgetary allocations for counterpart funds.

23. **Advance fund procedure.** KVK will establish an advance account in KTZ at a commercial bank for receipt of funds from ADB. The advance account is to be used exclusively for ADB's share of eligible expenditures. KVK who administers the advance account is accountable and responsible for proper use of advances to the advance account and for monthly liquidations.

24. The total outstanding advance to the advance accounts should not exceed the estimate of ADB's share of expenditures to be paid through the advance accounts for the forthcoming six months or \$20 million equivalent in tenge, whichever is higher. Since it is a local currency loan, a special arrangement of advance fund procedure with a minimum of \$20 million equivalent in tenge for each withdrawal will be used for the project because each disbursement will require the issuance of a new bond, which takes time and resources to complete. KVK may request for initial and additional advances to the advance account based on an Estimate of Expenditure Sheet setting out the estimated expenditures to be financed through the account for the forthcoming six months. Supporting documents should be submitted to ADB or retained by KVK in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance accounts.

25. **Statement of expenditure procedure (SOE).** The SOE procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the advance account. The ceiling of the SOE is the equivalent of \$100,000 or below per individual payment. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application.

26. **Withdrawal applications (WA).** Before the submission of the first withdrawal application, KVK should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. Withdrawal applications require 32 Banking Days processing from the date of the receipt of the complete withdrawal applications and documents by ADB. The minimum value per WA is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid (i) by KVK

⁷ The handbook is available electronically from the ADB website (<http://www.adb.org/documents/loan-disbursement-handbook>)

⁸ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements (CPD)⁹ system is encouraged for submission of withdrawal applications to ADB.

2. Disbursement Arrangements for Counterpart Fund

27. For the counterpart share, the government will allocate the budget in the Province's Public Sector Development Program.

C. Accounting

28. KVK will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. KVK will prepare consolidated project financial statements in accordance with cash basis International Public Sector Accounting Standards.

D. Auditing and Public Disclosure

29. KVK will cause the detailed project financial statements to be audited in accordance with International Standards on Auditing and the government's audit requirements, by an independent auditor acceptable to ADB. The audited project financial statements (APFS) together with the auditor's opinion will be presented in English language to ADB within six (6) months from the end of the fiscal year by KVK.

30. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purposes of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements (where applicable).

31. KVK will also cause the entity-level financial statements to be audited in accordance with International Standards on Auditing, by an independent auditor acceptable to ADB. The audited entity-level financial statements together with the auditors' report will be submitted in the English language to ADB within one month after their approval by the relevant authority.

32. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

33. The government and KVK have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the APFS.¹⁰ ADB

⁹ The CPD facilitates online submission of WA to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

¹⁰ ADB's approach and procedures regarding delayed submission of APFS:

(i) When APFS are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.

reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

34. Public disclosure of the APFS, including the auditor's opinion on the project financial statements, will be guided by ADB's Access to Information Policy 2018.¹¹ After the review, ADB will disclose the APFS and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.¹²

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

35. All advance contracting and retroactive financing will be undertaken in conformity with the new procurement framework as set out in ADB's Procurement Policy¹³ and Procurement Regulations for Borrowers (2017, as amended from time to time).¹⁴ The issuance of invitations for bids under advance contracting and retroactive financing will be subject to ADB's approval. The borrower has been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

36. Advance contracting and retroactive financing will be used for (i) consulting services, (ii) goods and works, and (iii) project management office staff recruitment and provision of training. The maximum amount of eligible expenditures is up to \$50 million, the equivalent of 20% of the total ADB loan, incurred before loan effectiveness, but not more than 12 months before the signing of the loan agreement.

B. Procurement of Goods, Works, and Consulting Services

37. The project procurement classification is Category A. All procurement of goods and works will be undertaken in accordance with the new procurement framework as set out in ADB's Procurement Policy (footnote 9) and Procurement Regulations for Borrowers (2017, as amended from time to time; footnote 10), which contains operational procedures for procurement of goods, works, non-consulting and consulting services. The regulations are supplemented by staff instructions, guidance notes, and user guides (including sample bidding documents and templates) to facilitate project procurement activities by borrowers.

(ii) When APFS are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.

(iii) When APFS are not received within 12 months after the due date, ADB may suspend the loan.

¹¹ ADB. 2018. *Access to Information Policy*: <https://www.adb.org/documents/access-information-policy>

¹² This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2018. *Access to Information Policy*. Paragraph 5(iv) and/or 5(v).

¹³ <https://www.adb.org/documents/adb-procurement-policy>

¹⁴ <https://www.adb.org/documents/procurement-regulations-adb-borrowers>

38. The indicative procurement packages for goods, works and consulting services and their procurement and/or selection methods are indicated in the draft procurement plan. The procurement methods have been identified based on the findings of project procurement risks assessment and strategic procurement planning study. Open competitive bidding (OCB) is the default procurement method.

39. The recruitment of international consulting firm is a strategic security to help KVK with design, procurement, and supervisions of strategically critical large civil works packages on rehabilitation of irrigation facilities. These packages will be procured through OCB with international advertising.

40. The procurement of office and workshop equipment, vehicles, training, audit and socio-economic survey will be tactical acquisition to satisfy routine requirements for project implementation, accountability, and monitoring. These packages are locally available and shall be procured through request for quotations for goods, and Consultant Qualification Selection for consulting services.

41. The procurement of O&M equipment, as well as small works for construction of KVK office and rehabilitation of irrigation system will be tactical advantage as they are readily available from alternative sources and offer an opportunity to reduce overall project costs. These packages will be procured through OCB with international advertising for equipment and national advertising for works.

42. All OCBs with international advertising for works, goods, and services shall be subject for ADB's prior review procedure. First OCBs and request for quotations with national advertising for works, goods, and services shall be subject for ADB's prior review while subsequent contracts can follow post review procedures upon ADB's consent at project implementation stage.

C. Procurement Plan

43. The procurement plan is given below.

Basic Data		
Project Name: Irrigation Rehabilitation Project		
Project Number: 50387-001	Approval Number:	
Country: Kazakhstan	Executing Agency: Republican State Enterprises KazVodKhoz (KVK)	
Project Procurement Classification: A	Implementing Agency: KVK	
Procurement Risk: High		
Project Financing Amount: \$320.88 million ADB Financing: \$249.80 million Cofinancing (ADB Administered): N/A Non-ADB Financing (Government): \$71.08 million	Project Closing Date: 30 June 2025	
Date of First Procurement Plan:	Date of this Procurement Plan: 17 July 2019	
Procurement Plan Duration: 18 months	Advance contracting: Yes	eGP: No

1. Methods, Review and Procurement Plan

44. Except as ADB may otherwise agree, the following methods shall apply to procurement of goods, works, non-consulting services, and consulting services.

Procurement of Goods, Works and Non-consulting Services	
Method	Comments
Open competitive bidding with international advertising for large works	Local contractors don't have capacity and experience to undertake large works costing more than \$10.5 million on rehabilitation of irrigation facilities. Therefore, international advertising is warranted for wider competition and quality.
Open competitive bidding with international advertising for goods	The operations and maintenance (O&M) equipment is not locally manufactured. Therefore, international advertising is warranted for wider competition.
Open competitive bidding with national advertising for small works	Local contractors are available to undertake construction of KVK office and small irrigation rehabilitation works each up to \$10.5 million and the local market is competitive.
Request for Quotations for works	For simple office refurbishment works of small value and standard specifications.
Request for Quotations for goods	For readily available goods of small value and standard specifications.
Consulting Services	
Method	Comments
Open competitive bidding with international advertising, using quality- and cost-based selection (QCBS) for consulting services	One international project implementation consultant (design, procurement, supervision, and project management) is required and international advertising is warranted.
Open competitive bidding with national advertising, using Consultants' Qualifications Selection (CQS) selection for consulting services	National consultants are available to undertake socio-economic survey and capacity building trainings.
Open competitive bidding with national advertising, using Least Cost Selection (LCS) selection for consulting services	Qualified audit firms are locally available to undertake audit of project financial statements.

2. List of Active Procurement Packages (Contracts)

45. The following table lists goods, works, nonconsulting, and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan's duration.

Goods, Works, and Non-consulting Services							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
SW01	Reconstruction of Workshops	\$595,000	OCB	Prior	1S1E	Q1/2020	National advertising
SW02	Construction of KVK office in Astana	\$6,548,000	OCB	Prior	1S2E	Q4/2019	Prequalification: No Domestic preference: No Small works Advance contracting: Yes

SW03	Rehabilitation of Irrigation System in East Kazakhstan and Karaghandy Provinces:		OCB	Prior	1S2E	Q3/2019	National advertising Prequalification: No
Lot 1	East Kazakhstan, Urzhar district (7,227 ha)	\$7,374,447					Domestic preference: No
Lot 2	East Kazakhstan, Tarbagatai district (5,010 ha)	\$4,576,716					Small works
Lot 3	East Kazakhstan, Zharma district (6,564 ha)	\$1,242,653					Advance contracting: Yes
Lot 4	East Kazakhstan, Kurchum district (17,246 ha)	\$10,339,876					
Lot 5	Karaghandy Province, Abai, Bukhar-Zhyrau, Zhanaarka, Zhezkazgan districts (11,390 ha)	\$8,822,681					
LG01	O&M machinery and equipment	\$8,535,000	OCB	Prior	1S2E	Q3/2019	International advertising Prequalification: No Domestic preference: No Goods Advance contracting: Yes
SG01	Agri-cooperatives equipment	\$112,000	RFQ	Prior	RFQ	Q1/2020	Goods Advance contracting: No
SG02	PMO and PIUs office equipment	\$56,480	RFQ	Post	RFQ	Q3/2019	Goods Advance contracting: Yes
SG03	PMO and PIUs office furniture	\$25,140	RFQ	Post	RFQ	Q3/2019	Goods Advance contracting: Yes
SG04	PMO and PIUs vehicles	\$166,670	RFQ	Post	RFQ	Q3/2019	Goods Advance contracting: Yes
SG05	Workshop equipment	\$242,000	RFQ	Prior	RFQ	Q1/2020	Goods Advance contracting: No
SG06	Construction of KVK office in East Kazakhstan	\$40,000	RFQ	Prior	RFQ	Q1/2020	Goods Advance contracting: No

Consulting Services							
Package Number	General Description	Estimated Value (\$)	Selection Method	Review	Type of Proposal	Advertisement Date	Comments
CS01	Project Implementation (design, procurement, supervisions, and project management)	\$20,430,160	QCBS	Prior	FTP	Q3/2019	International advertisement Quality-Cost Ratio: 90:10 Advance contracting: Yes
CS02	Audit of Project Accounts for 5 years	\$112,000	LCS	Prior	BTP	Q4/2019	National advertisement One-time selection process using framework agreement Advance contracting: No

3. List of Indicative Packages (Contracts) Required under the Project

46. The following table lists goods, works, non-consulting, and consulting services contracts for which the procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e. those expected beyond the current procurement plan's duration).

Goods, Works and Non-consulting Services						
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Comments
LW01	Rehabilitation of Irrigation System in East Kazakhstan Province (43,209 ha)	\$22,929,524	OCB	Prior	1S2E	International advertising Prequalification: No
LW02	Rehabilitation of Irrigation System in Karaghandy Province (16,510 ha)	\$19,401,372	OCB	Prior	1S2E	Domestic preference: No
LW03	Rehabilitation of Irrigation System in Kyzylorda Province (28,974 ha)	\$26,949,186	OCB	Prior	1S2E	Large works (FIDIC) <i>This is preliminary packaging, which will be finalized after detailed design.</i>
LW04	Rehabilitation of Irrigation System in Zhambyl Province (37,977 ha)	\$57,930,360	OCB	Prior	1S2E	

Consulting Services						
Package Number	General Description	Estimated Value (\$)	Selection Method	Review	Type of Proposal	Comments
CS03	Socio-economic survey (completion)	\$112,000	CQS	Prior	BTP	National assignment with advertisement
CS04	Training and Study tour (Output 3)	\$168,000	CQS	Prior	BTP	
CS05	Irrigation System Performance Monitoring (remote sensing)	\$112,000	CQS	Prior	BTP	

4. List of Awarded and Completed Contracts

47. The following table lists the awarded contracts and completed contracts for goods, works, nonconsulting, and consulting services.

Goods, Works, and Consulting Services						
Package Number	General Description	Contract Value	Number of Contracts	Date of ADB Approval of Contract Award	Date of Completion	Comments
N/A						

Consulting Services						
Package Number	General Description	Contract Value	Number of Contracts	Date of ADB Approval of Contract Award	Date of Completion	Comments
N/A						

5. Non-ADB Financing

48. The following table lists goods, works, nonconsulting, and consulting services contracts over the life of the project, financed by non-ADB sources.

General Description	Estimated Value (cumulative \$)	Estimated Number of Contracts	Procurement Method	Comments
N/A				

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
N/A				

D. Consultant's Terms of Reference

49. The draft terms of reference for the consulting services for the detailed design, construction supervision, and implementation support is provided in Annex 1.

VII. SAFEGUARDS

50. In compliance with ADB's Safeguard Policy Statement (SPS, 2009),¹⁵ the project's safeguard categories are as follows.¹⁶

51. **Environment (category B).** The project is categorized as B for environment. Four consolidated initial environmental examinations (IEEs) were prepared by the KVK for each of the four project provinces in accordance with the SPS.

52. To ensure compliance with SPS and environmental legislation of Kazakhstan, KVK, through the PMO and project management units (PMUs), will follow the IEEs and Environmental Management Plans (EMPs). The PMO and PIUs will ensure that:

- (i) National Environmental Assessments (OVOSes) for detailed design will be prepared based on the IEEs;
- (ii) OVOSes are submitted to the State Ecological Expertise and environmental clearance of the State Environmental Review (*Ekologicheskaya Expertiza*) is sought thereof before starting civil works;
- (iii) the EMPs are included in the bidding documents for all contracts;
- (iv) all contractors prepare and submit site-specific EMPs based on the generic EMPs work out during project preparation to the PMO/PIUs for approval at least 10 days before taking possession of any work site;
- (v) no access to the site will be allowed to the contractors until the site specific EMPs are approved by the PMO/PMUs;
- (vi) implementation of the site-specific EMPs is regularly supervised and monitored by the construction supervision consultants (CSCs), and ensured by PMUs;
- (vii) a non-compliance notice will be issued if the contractors are not in compliance with the requirements of IEEs, EMPs, and/or environmental provisions of contractual documents. In case of non-compliance the contractors are required to prepare a corrective action plan, which is to be implemented by a date agreed with the PMUs;
- (viii) preparation of a consolidated semi-annual Environmental Monitoring Report (EMR) summarizing environmental performance on all subprojects under implementation and its submission to ADB for review and disclosure within 1 month after the reporting period; and
- (ix) in case of unpredicted environmental impacts occurring during project implementation, the environmental impacts are assessed, and corrective action plans are prepared and implemented.

53. CSC's Environmental Engineer will perform the following responsibilities:

- (i) Supervising and monitoring implementation of the site-specific EMPs at construction sites;
- (ii) Preparing training materials and implementing capacity building programs in environmental management for KVK, PMUs, and contractors; and
- (iii) Directly reporting on environmental management performance to the Resident Engineer.

54. ADB will ensure that:

- (i) monitoring and supervision of the project is carried out on an ongoing basis until a

¹⁵ Asian Development Bank. Safeguard Policy Statement. June 2009.

¹⁶ ADB. Safeguard Categories. <https://www.adb.org/site/safeguards/safeguard-categories>.

- project completion report is issued;
- (ii) project review missions regularly visit project sites to ascertain the status of implementing the EMP with detailed review by ADB's safeguard specialists, officers and/or consultants; and
- (iii) semi-annual EMRs are timely reviewed to be disclosed on the ADB website.

55. **Involuntary resettlement (category C).** Due diligence identified no land acquisition and resettlement impacts. Due diligence looked into the (i) rehabilitation of existing 549 canals, 23 pipelines, and 43 drain ditches in 245 irrigation schemes to be supported by the project; and (ii) construction of the KVK headquarters building in Nur-Sultan, the capital city. It found that the canals and ditches are state-owned and the land for the construction of the KVK building is owned by the municipality. Project works include rehabilitation of the irrigation canals to their original designs (with and without lining) without widening or changing their rights-of-way, routes, layouts, and capacities. Following the main principle and objective of the Safeguard Policy Statement, the project design incorporated appropriate civil works technologies to avoid any adverse impact. The details were discussed in the due diligence report and their implementation will be monitored and reported by KVK through semiannual and annual social safeguard reports.¹⁷ A grievance redress mechanism has been established, including appointment of the staff of district and provincial authorities as well as provincial and central KVK staff. Disclosure and public consultations were carried out by the TA consultants and project team in all project areas in line with Safeguard Policy Statement requirements, and will continue to take place during the project implementation. Since KVK is new to ADB-financed projects, ADB will arrange capacity building workshops and on-the-job-training for KVK staff on social safeguards.

56. **Indigenous Peoples (category C).** No ethnic minority communities are present in the project area, and the project does not trigger ADB's policy requirements on indigenous peoples under the Safeguard Policy Statement.

¹⁷ Due Diligence Report on Involuntary Resettlement and Indigenous Peoples Impact (accessible from the list of linked documents in Appendix 2).

VII. GENDER AND SOCIAL DIMENSIONS

57. A poverty, social, and gender assessment was conducted by the TA consultants and the project team during project preparation, and the project has several measures built in to ensure social inclusion. The project is expected to reduce poverty among the local populations by making the supply of irrigation water more reliable and introducing advanced farming technologies. The project will directly benefit the well-being of the local populations who rely on farming as an important source of income. Both men and women are involved in farming, mainly through peasant farms. Households in the project-covered areas are mostly large rural families that are more at risk of poverty, so addressing the problem of low agricultural yields and low farm income is particularly important.

58. Six project disclosure and public consultations were conducted by the TA consultants and project team for all subprojects in the four project provinces. Farmers and residents from all the project's districts participated in the public consultations, which were chaired by the heads and deputy heads of the districts, KVK provincial branches, and local governments. Farmers and residents expressed their need for the project and raised questions or made suggestions on its design and implementation. ADB and KVK will hold further consultations on the detailed design and during implementation to ensure that local people participate in and benefit from the project activities.

59. The project is classified *effective gender mainstreaming*, and a gender action plan was prepared by KVK with TA consultants' assistance. Based on the social and gender assessment conducted during project preparation, gender entry points for the project outputs include (i) women's participation (30%) in public consultations in all project phases; (ii) women-owned and/or -led farms (20%) directly benefiting from rehabilitated irrigation infrastructure; (iii) women farmers' participation in training relevant to water management, agricultural practices, and operation and use of water metering devices and other digital technologies; (iv) a gender diagnostic study of KVK; and (v) institutionalized reporting of the project's gender mainstreaming performance. The gender action plan is presented below.

Gender Action Plan

Activity	Performance Targets/ Indicators	Responsibility	Timeframe
Output 1: Irrigation infrastructure rehabilitated/improved			
1.1. Ensure participation of women in public consultations in all project phases (e.g. public information, detail design, complaints, grievance and redress, physical works, land acquisition, etc.)	1.1.1. At least 2 public consultations conducted in each oblast 1.1.2. At least 30% women participation in public consultations	KVK, PMO, and local <i>Akimat</i> *, supported by project gender specialist	Q3 2019–2023
1.2. Ensure that women-owned/led farms directly benefit from rehabilitated irrigation infrastructure	1.2.1. At least 20% of farms directly benefitting from improved irrigation are women-led farms	KVK, PMO, and contractor with advice of gender specialist	2020–2023
1.3. Ensure women's participation in water tariffs related public hearings	1.3.1. At least 30% are women participants in public hearings on water tariff setting	Antimonopoly Agency, and KVK/PMO, supported by the gender specialist	
1.4. Conduct sex-disaggregated baseline and end-line satisfaction surveys of farmer beneficiaries	1.4.1. At least 20% increase from the baseline, of male and female farmer beneficiaries satisfied with improved irrigation services and increased crop production	PMO, and KVK with support of gender consultant	Baseline: 1 st year of project implementation End-line: last year of project implementation
Output 2: Water management improved and beneficiaries' capacity enhanced			
2.1. Include women farmers in trainings relevant to water management and agricultural practices	2.1.1. Capacity of 70% beneficiaries developed in improved irrigated agricultural practices including at least 20% women participants 2.1.2. At least 30% women participation in trainings for farmers and workers, on the operation and use of water metering devices and other digital technologies on water management 2.1.3. Capacity of beneficiaries, at least 30% of whom are women, developed in monitoring of climate changes and adopting pro-active and re-active responses	KVK/PMO and gender specialist, with assistance by <i>Akimats</i>	Q3 2020–2024 Q3 2020–2024
2.2. Conduct a water conservation campaign for farmers in project districts	2.2.1. At least two water conservation campaigns conducted per region with 30% female participation	KVK/PMO, and gender specialist, with assistance by <i>Akimats</i>	
2.3. Ensure women's participation in discussions and trainings that	2.3.1. At least 1 meeting/seminar/training on agricultural cooperatives conducted per oblast	KVK/PMO, and gender specialist, with assistance	2020–2022

will lead to the future establishment of agricultural cooperatives	2.3.2. At least 20% of meeting participants are women, including farm owners and farm workers	by <i>Akimats</i>	
Output 3: KazVodKhoz capacity strengthened			
3.1. Conduct a gender diagnostic of KVK with the aim of providing recommendations to strengthen its gender balance	3.1.1. Institutional gender diagnostic of KVK conducted 3.1.2. Recommendations on increasing women's employment elaborated for KVK 3.1.3. Action plan prepared and discussed with KVK HR to increase the share of women on technical and management positions	Gender specialist in coordination with KVK's HR and gender focal point, and <i>Akimats</i> gender focal point	Q4 2019–Q1 2020
3.2. Conduct gender-related trainings for KVK staff	3.2.1 At least 80% of KVK staff in the central office and in regional branches covered by the project, have clear understanding of gender issues and how they are mainstreamed in KVK operations	Project gender specialist, in coordination with KVK HR	Q4 2019–2020
3.3. Ensure participation of women staff in trainings and capacity building activities	3.3.1. At least 30% women participation in technical trainings for staff in central office and regional branches covered by the project 3.3.2. At least 30% female staff participation in irrigation system and business management trainings	PMO, KVK, gender specialist, in coordination with KVK HR	Q2 2020–Q3 2023
4. Project implementation and management			
4.1. Recruit qualified women staff in PMO/PIU	4.1.1. At least 30% of new PMO and/or PIU staff are women 4.1.2. A social and gender specialist and/or consultant on intermittent basis recruited to support KVK in gender action plan implementation	PMO and KVK	2019–2024 Q3 2019
4.2. Institutionalize reporting of the project's gender mainstreaming performance	4.2.1. Project monitoring and information system includes gender indicators and regularly updated 4.2.2. Project monitoring reports include progress on gender action plan implementation	PMO, gender specialist, and M&E specialist	2019–2024
4.3. Orient project management staff and stakeholders (included in each subproject) with the project's gender action plan, as well as its overall objective.	4.3.1. All project management staff are familiar with the gender action plan 4.3.2. At least one workshop conducted per oblast with stakeholders on the gender action plan where activities and targets are presented and discussed	Gender specialist, PMO, and relevant KVK staff	Q3 2019–Q2 2020
4.4. Integrate gender in socio-economic surveys	4.4.1. Socio economic surveys carried out including sex-disaggregated data collection and gender analysis	PMO by support of gender specialist	2019, 2022, 2024

HR = human resources, KVK = KazVodKhoz (Implementing Agency), M&E = monitoring and evaluation, PIU = project implementation unit, PMO = project management office, Q = quarter.

* *Akimats* are the government executives at the oblast and district levels.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

60. Given below is the design and monitoring framework (DMF).

[illegible]

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
3. KVK's capacity strengthened	<p>irrigated agricultural practices (2018 baseline: not applicable)</p> <p>2c. 70% of beneficiaries, at least 30% of them women, reported and/or demonstrated improved skills or knowledge in monitoring climate change and adopting proactive and reactive responses (2018 baseline: 0)</p> <p>By 2024:</p> <p>3a. KVK asset condition register launched, and asset management plan approved and implemented (2018 baseline: not applicable)</p> <p>3b. 20 KVK staff, at least 30% of them women, reported and/or demonstrated improved skills or knowledge in irrigation system and business management (2018 baseline: not applicable)</p> <p>3c. 20 KVK staff reported improved skills or knowledge in monitoring climate change impacts (2018 baseline: not applicable)</p> <p>3d. KVK branch offices provided with 160 additional units of O&M equipment for the project area (2018 baseline: 0)</p> <p>3e. KVK headquarters' office building and KVK's East Kazakhstan branch office building constructed and operational (2018 baseline: 0)</p>	<p>ADB review missions' aide-mémoires</p> <p>3a–e. Quarterly project implementation progress reports by KVK's branch offices in the East Kazakhstan, Karaghandy, Kyzylorda, Zhambyl provinces; and KVK's consolidated progress reports; and ADB review missions' aide-mémoires</p>	

Key Activities with Milestones

1. Irrigation infrastructure rehabilitated and/or improved

- 1.1 Prepare bidding documents for the first set of irrigation schemes (design ready) (Q3 2019–Q4 2019)
- 1.2 Recruit design and construction supervision consultants (Q3 2019–Q1 2020)
- 1.3 Prepare the technical designs for all irrigation schemes (Q1 2020–Q1 2021)
- 1.4 Conduct procurement activities for civil works and equipment (Q3 2019–Q4 2023)
- 1.5 Award contracts for rehabilitation and improvement works and equipment (Q1 2020–Q2 2024)
- 1.6 Implement all civil works construction and equipment installation (Q1 2020–Q3 2024)
- 1.7 Conduct commissioning and test operation (Q1 2021–Q4 2024)

2. Water management improved and beneficiaries' capacity enhanced

- 2.1 Select a subproject and pilot-test performance measurement using remote sensing and satellite technology (Q3 2020–Q4 2021)
- 2.2 Provide consulting services and training for establishing agriculture cooperatives (Q1 2021–Q4 2024)
- 2.3 Procure and hand over basic furniture and equipment to agriculture cooperatives (Q2 2021–Q4 2023)
- 2.4 Conduct training of farmers, at least 20% of them women, to improve water productivity and monitoring of climate change impacts (Q1 2021–Q4 2024)

3. KVK's capacity strengthened

- 3.1 Procure O&M equipment for KVK branch offices (Q1 2021–Q2 2024)
- 3.2 Develop asset management plan, including O&M, irrigation tariff reforms, and water allocation (Q2 2020–Q2 2022)

<p>3.3 Conduct training on asset management of canals and appurtenant structures, metering, and water allocation and distribution systems (Q1 2022–Q4 2024)</p> <p>3.4 Conduct training for key staff from the KVK head office, including all female key staff, on service-oriented water and irrigation management, including conflict resolution between water users (Q2 2020–Q4 2024)</p> <p>3.5 Design, procure, and construct the KVK headquarters building and the office building of the KVK East Kazakhstan branch office; and repair workshops (Q1 2021–Q1 2024)</p> <p>3.6 Conduct a study tour for KVK staff and project beneficiaries to learn advanced irrigation management techniques (Q2 2023–Q3 2023)</p>
<p>Project Management Activities</p> <p>Establish PMO and PIUs (Q4 2019–Q1 2020)</p> <p>Appoint and/or recruit PMO and PIU staff, with equipment and office space provided (Q1 2020–Q3 2020)</p> <p>Conduct socioeconomic surveys at the beginning (Q1 2020), middle (Q3 2022), and end (Q4 2024) of project implementation</p> <p>Conduct annual audits of the project accounts within 6 months of the end of the previous fiscal year (Q1 2021–Q4 2024)</p> <p>Monitor project implementation performance and prepare quarterly progress reports (Q2 2020–Q4 2024)</p> <p>Carry out key activities of the GAP (Q1 2020–Q4 2024)</p> <p>Conduct and monitor activities of the environmental management plan and social safeguards (Q1 2020–Q4 2024)</p> <p>Conduct annual and midterm project reviews (Q2 2020–Q4 2024)</p>
<p>Inputs</p> <p>ADB: T94.42 billion (\$249.80 million) (regular OCR loan)</p> <p>KVK: T26.87 billion (\$71.08 million)</p>
<p>Assumptions for Partner Financing</p> <p>Not applicable</p>

ADB = Asian Development Bank, GAP = gender action plan, GDP = gross domestic product, ha = hectare, km = kilometer, KVK = Republican State Enterprise Kazvodkhoz, O&M = operation and maintenance, OCR = ordinary capital resources, PIU = project implementation unit, PMO = project management office, Q = quarter, SCADA = supervisory control and data acquisition, t = ton.

^a Official Site of the President of the Republic of Kazakhstan. 2012. [Address by the President of the Republic of Kazakhstan, Leader of the Nation, N.A. Nazarbayev on Strategy "Kazakhstan-2050": New Political Course of the Established State](#). 14 December.

Source: Asian Development Bank.

B. Monitoring

61. **Project performance monitoring.** KVK will ensure that PMO and PIUs, with support of the project implementation consultants, will monitor project performance using the targets, indicators, milestones and/or activities, assumptions, and risks in the DMF and GAP, and establish an adequate project performance monitoring system within 3 months of project effectiveness. The project monitoring and evaluation will assess the following outputs and indicators (i) progress of planned activities according to the milestones; (ii) progress in achieving each project output and project outcome according to the performance targets and indicators indicated in the DMF and GAP; and (iii) social and economic benefits with focus on the poor and women. Disaggregated baseline data for output and outcome indicators gathered during project processing will be updated and reported quarterly through the quarterly progress reports and after each ADB review mission. These quarterly progress reports will provide information necessary to update ADB's project performance reporting system.¹⁸ Project performance monitoring will involve a participatory approach, including inputs from agriculture cooperatives and KVK branch offices facilitated by the project implementation consultants and community development teams to ensure timely collection of quality data.

¹⁸ ADB's project performance reporting system is available at <http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

62. **Compliance monitoring.** All project assurances including policy, legal, financial, economic, physical, environmental, gender, and other safeguard measures will be monitored through quarterly progress reports, and twice a year, during ADB loan review missions. ADB will also monitor the progress of achievement of each output and outcome based on performance indicators with targets, and each activity based on milestones indicated in the DMF through a project management information system.

63. **Safeguards monitoring.** The PMO, together with the PIUs, will submit to ADB semi-annual safeguards monitoring reports during the construction phase until the project completion report will be issued, and disclose relevant information from such reports to affected persons promptly upon submission (local disclosure and on ADB's website). If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the project or any subproject that were not considered in the respective IEE and EMP, the PMO and PIUs will promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan. The PMO, together with the PIUs, will report any actual or potential breach of compliance with the measures and requirements set forth in the EMP promptly after becoming aware of the breach. PMO and PIUs will conduct social safeguards monitoring of the project during project implementation stage and semi-annual and annual social safeguards monitoring reports will be prepared and disclosed.

64. **Gender and social dimensions monitoring.** The PMO and PIUs, with support of the project implementation consultant, will be responsible for monitoring the implementation of the GAP and the preparation of the monitoring reports that will be submitted to ADB.¹⁹

C. Evaluation

65. **Inception Mission.** ADB will conduct an inception mission within 3 months of loan signing to assess project readiness and implementation arrangements including establishment of PIU, opening of advance accounts, progress of recruitment of consulting services, status of the development of the project performance monitoring system, and progress of advance procurement actions.

66. **Review Missions.** ADB will field review missions at least twice a year to (i) assess the progress of project activities and outputs and effectiveness of implementation arrangements, (ii) monitor the implementation of GAP and safeguard compliance with SPS, (iii) review compliance with loan agreement and related matters, (iv) follow up on decisions and actions agreed during previous review missions, and (v) resolve any project implementation issues that may arise. ADB will conduct a midterm review in the third year of project implementation. The midterm review will (i) assess the project performance and achievement against targets and milestones in the DMF; (ii) review the initial outcomes, benefits, and impact of the project; and (iii) identify gaps, if any, and recommend necessary changes to strengthen implementation arrangements or modify project design.

67. **Midterm Review.** The Borrower and ADB shall conduct a comprehensive midterm review of the project after the third year of project implementation. The mission will review (i) institutional,

¹⁹ ADB's Handbook on Social Analysis: A Working Document, is available at: <http://www.adb.org/Documents/Handbooks/social-analysis/default.asp>, Staff Guide to Consultation and Participation: <http://www.adb.org/participation/toolkit-staff-guide.asp>, and, CSO Sourcebook: A Staff Guide to Cooperation with Civil Society Organizations: <http://www.adb.org/Documents/Books/CSO-Staff-Guide/default.asp>

administrative, organizational, technical, environmental, social, economic, and financial aspects of the project based on the assumptions and risks included in the DMF and updated project performance report; (ii) review covenants to assess whether they are still relevant or need to be changed, or waived due to changing circumstances; (iii) assess the need to restructure or reformulate the project and its impact on the immediate objectives (purpose) and long-term goals of the project; and (iv) and update project's DMF where change is necessary.

68. **Project Completion Review.** Promptly after physical completion of the project, but in any event not later than six (6) months of physical completion of the project, the executing agency shall prepare and submit a project completion report to ADB. ADB will field a project completion review mission upon physical completion of the project to commence preparation of ADB's project completion report. The mission will (i) provide a concise description of the project and its rationale; (ii) assess the adequacy of preparation, design, implementation arrangements, and due diligence, including how problems were identified and handled, whether they were foreseen as potential risks at appraisal, and the adequacy of the solutions adopted during implementation; (iii) evaluate the relevance of project design at appraisal and at completion, effectiveness in achieving outcomes and attribution to the project by assessing achievements of output targets, efficiency in delivering outputs, and sustainability of achieving output and outcome targets; (iv) evaluate the performance of the borrower, executing agency, cofinanciers (as applicable) and ADB; (v) identify remaining issues and lessons learned from the project; (vi) suggest follow-up actions if required; and (vii) make recommendations—based on the evaluation and lessons learned—for future project design and implementation as well as improvements in related ADB procedures.

69. Promptly after physical completion of the project, but in any event not later than six (6) months thereafter or such later date as may be agreed for this purpose between the Borrower and ADB, the Borrower shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the project, including its cost, the performance by the Borrower of its obligations under the Loan Agreement and the accomplishment of the purposes of the Loan.

D. Reporting

70. KVK will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iii) a project completion report within six (6) months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and the KVK audited financial statement together with the associated auditor's report should be adequately reviewed.

E. Stakeholder Communication Strategy

71. Project information will be strategically disseminated through media at main milestones including loan signing, contract awards and project completion. A grievance redress mechanism will be established at the PMO and PIUs, with detailed contact information including phone number and email address.

Table 15: ADB Public Communications Strategy

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
Project data sheet (PDS)	ADB's website	ADB	Initial PDS posted on the website no later than two weeks after approval of the concept paper; updated at least twice a year	General Public
Design and Monitoring Framework (DMF)	ADB's website	ADB	Key information from the draft reflected in project data sheet; final version posted on the website at the same time it is circulated to the Board for approval, subject to the concurrence of the government	General Public
Initial Environmental Examination	ADB's website	ADB	Post fact-finding mission	General Public, project-affected people in particular
Land Acquisition and Resettlement Documents	ADB's website	ADB	Post fact-finding mission	General Public, project-affected people in particular
Report and Recommendation of the President	ADB's website	ADB	Posted on the website within two weeks of Board approval of the loan and grant	General Public
Legal and Grant Agreements	ADB's website	ADB	No later than 14 days of Board approval of the project	General Public
Summary of Poverty Reduction and Social Strategy	ADB's website	ADB	Posted on the website at the same time it is circulated to the Board for approval, subject to concurrence of the government	General Public
Project Administration Manual	ADB's website	ADB	Posted on the website at the same time it is circulated to the Board for approval, subject to concurrence of the government	General Public
Social and Environmental Safeguard Monitoring Reports	ADB's website	ADB	Within 1 month after each 6-month monitoring period	General Public, project-affected people in particular
Audited project financial statements and the auditors' report	ADB's website	ADB	Within 30 days of receipt	General Public

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
Project Completion Report	ADB's website	ADB	Within two weeks of circulation to the Board for information	General Public
Evaluation Report	ADB's website	ADB	Within two weeks of circulation to Management and the Board	General Public
Project progress information	ADB's website	PMO	Quarterly	General Public

ADB = Asian Development Bank, PMO = project management office.

Source: Asian Development Bank.

X. ANTICORRUPTION POLICY

72. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.²⁰ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.²¹

73. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project.

XI. ACCOUNTABILITY MECHANISM

74. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.²²

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

75. All revision of the PAM will be recorded in this section.

Description of Revision	Date
Inception mission	___/___/___
	___/___/___

²⁰ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

²¹ ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

²² Accountability Mechanism: <http://www.adb.org/Accountability-Mechanism/default.asp>.

**Terms of Reference for
Consulting Services for Project Detailed Design, Construction Supervision, and
Implementation Support**

I. INTRODUCTION TO THE PROJECT

A. Project Background

1. The project will rehabilitate and/or improve about 171,100 hectare (ha) area located in the four provinces of Kazakhstan, East Kazakhstan, Karaghandy, Kyzylorda, and Zhambyl as given in Table 1.1 below.

Table 1.1: Details of the Project Area

Province/Subproject		District(s) / cities	Number of Schemes	Area	
				Total	Area to be Rehabilitated
A. East Kazakhstan			22	101,723	79,256
1	Kurchum Subproject	Kurchum	2	14,628	11,881
2	Kitaika Subproject	Kurchum	6	5,774	5,377
3	Tarbagaty Subproject	Tarbagaty	3	20,674	6,205
4	Urdzhar Subproject	Urdzhar	8	16,476	11,622
5	Zharma Subproject	Zharma	1	17,958	17,958
6	Zaisan Subproject	Zhysan	1	24,494	24,494
7	Chigilik River System Subproject	Kokpekty	1	1,719	1,719
B. Karaghandy			10	68,786	27,900
1	North Karaghandy Subproject	Abay, Bukhar-Zhyrau, Nurin, Osakarov, and Zhanaarka	9	63,274	24,872
2	Ulatau Subproject	Ulatau	1	5,512	3,028
C. Kyzylorda			11	228,394	28,974
1	Zhanakorgan-Shieli Subproject	Zhanakorgan and Shieli	2	56,882	2,213
2	Kyzylorda Subproject	Syrdariya, Zhalagash, Kyzylorda City, and Kamakchin	7	152,000	19,396
3	Kazalin-Aral Subproject	Kazalin and Aral	2	19,512	7,365
D. Zhambyl			202	63,191	34,977
1	Sarysu Subproject	Sarysu	18	12,218	629
2	Shu Subproject	Shu	127	29,363	20,361
3	Talas Subproject	Talas	43	13,485	9,317
4	T. Ryskulov Subproject	T. Ryskulov	14	8,125	4,670
16	PROJECT TOTAL	24	245	462,094	171,107

Source: Asian Development Bank.

2. Rehabilitation of the country's irrigation and drainage infrastructure is of paramount importance to ensure increased water accessibility, agricultural production, and economic growth. The project will rehabilitate and expand efficient water delivery infrastructure. Capacity building

interventions will strengthen water management and O&M at the institutional level and improve farm water productivity. The primary beneficiaries will be the irrigation farmers.

3. Kazvodkhoz (KVK) will be the executing agency (EA) and have overall responsibility for the project. Deputy Director General, KVK shall be appointed as a project director to oversee project implementation. KVK will establish, prior to disbursement of loan proceeds, the project management office (PMO) in Astana to manage project implementation and coordinate project activities with all stakeholders. The PMO will be responsible for (i) administrative and financial management; (ii) coordinating with all relevant agencies; (iii) project implementation; (iv) preparation of bidding documents, evaluation of bids, and award of contracts; (v) procurement of materials, equipment, consulting services, and civil works; (vi) project monitoring and evaluation; (vii) preparation of periodic progress reports; and (viii) ensuring compliance with Asian Development Bank (ADB) and the government's environment and social safeguards' requirements. Project accounts will be audited annually by a private audit company recruited under the project and audited financial reports will be submitted to ADB regularly. To support PMO activities in the field and coordinate local project activities, prior to disbursement of loan proceeds, project implementation units (PIUs) will be established one each in East Kazakhstan, Karaghandy, Kyzylorda, and Zhambyl provinces.

B. Project Impact, Outcome, and Outputs

4. The project is aligned with the following impact: agriculture production contribution to GDP increased, as outlined in Strategy Kazakhstan 2050.²³ The project will have the following outcome: farms production and productivity increased with improved and well-managed irrigation systems.

5. **Output 1: irrigation infrastructure rehabilitated and/or improved.** The project will support the rehabilitation and/or improvement of about 245 irrigation schemes in the four provinces. For canals, the works would involve desilting and removing vegetation in the lined and unlined canals, re-sectioning the unlined canals, and repairing damaged sections of the lined canals. The total length of new concrete-lined canals will be about 1,064 kilometers (km), while that of improved earth canals will be about 1,976 km. About 4,185 hydraulic structures, including water measuring devices, will be constructed or rehabilitated. About 358 km of drainage collectors will be rehabilitated and/or improved, a drip irrigation system covering 9,300 ha will be established in Zhambyl, and about 24 SCADA systems will be installed in the main canals of the four provinces. Key specifications of the works include:

- 1,976 km of earthen canals;
- 1,064 km of concrete-lined canals, flumes, and pipelines;
- 1,477 km of inspection roads along canals;
- 4,185 hydraulic structures which include head regulators, outlets, pipe crossings, bridges, water meters, and underground pipelines;
- 358 km of collector drains in Kyzylorda province;
- 19 wells for irrigation in Zhambyl province;
- 34 mobile diesel pumping stations in Karaghandy province;
- 19 stationary pumping stations in Karaghandy province, with power lines and associated equipment;
- 27 vertical drainage wells in Kyzylorda province;
- 24 units of SCADA systems; and

²³ Kazakhstan-2050 Strategy: New Political Course of the Established State announced by President of Kazakhstan in his annual Address to the People of Kazakhstan on 14 December 2012, endorsed by Presidential Decree No. 449, dated 18 December 2012.

- drip irrigation systems on vegetable clusters on 9,300 ha area in Zhambyl province.

6. **Output 2: water management improved and beneficiary's capacity enhanced.** The project will support (i) pilot-testing a system to monitor water and agricultural productivity using remote sensing technology in selected irrigation schemes; (ii) assisting in organizing the beneficiaries into agricultural cooperatives, develop the capacity of the cooperatives for executing their function, and provide physical inputs such as office furniture and equipment; (iii) training farmers on effective irrigation management and climate-change-related aspects; and (iv) providing capacity development consulting services. This output will help KVK extend its advisory services to farmers on on-farm water management and crop choices.

7. **Output 3: KazVodKhoz capacity strengthened.** The project will strengthen KVK's governance and support its internal reforms by providing consulting services for (i) capacity development and training of KVK staff on financial, procurement, and water management aspects; the (ii) formulation and implementation of an asset management plan. The project will also support (i) provision of machinery, equipment, and vehicles for the four KVK branch offices to carry out their O&M function and improve system performance; (ii) rehabilitation and/or construction of repair workshops; (iii) construction of the KVK headquarters building; (iv) construction of an office building for KVK's East Kazakhstan branch; (v) organization of a study tour for KVK staff and project beneficiaries to learn from advanced irrigation practices; and (vi) the operations of the project management office and project implementation units to ensure smooth implementation.

II. CONSULTING SERVICES FOR DETAILED ENGINEERING DESIGN, CONSTRUCTION SUPERVISION, AND IMPLEMENTATION SUPPORT

A. Objectives of the Consulting Services

8. The main objective of consulting services for the Detailed Engineering Design, Construction Supervision, and Implementation Support is to help the PMO and the PIUs to design, manage, and implement the project to fulfill the overall requirements of the project as approved and agreed between ADB and the Government of Kazakhstan (GOK). The consultants will ensure achieving the project intended results within the approved implementation period and cost through supporting the PMO and the PIUs in (i) preparing detailed engineering design which should be technically viable, economically feasible, environmentally and operationally sustainable, and socially acceptable; including detailed engineering surveys and investigations, designs, drawings, specifications, cost estimates, economic and financial analyses, and social and environmental safeguards assessments; as well as design and support procurement of the project's works including bidding documents and the procurement process; (ii) provide necessary support to the PMO and the PIUs for the implementation of the project, including project progress monitoring and reporting and staff capacity development; and (iii) construction supervision and matters assigned to consultants related to implementation of the works to ensure construction quality.

B. Scope of Services

9. The overall duration of services is about 5 years, expected to commence in January 2020 and conclude in December 2024. The services include three aspects (i) detailed engineering design, construction drawings, and bidding documents preparation; (ii) project implementation support to the PMO and the PIUs; and (iii) project construction supervision. The survey, investigation, and detail engineering design are expected to commence after mobilization of consultants and completed within 12 months. The first set of subprojects will be in East Kazakhstan and the detailed engineering design and bidding documents are required to be

completed within 6 months of consultants' mobilization. For subprojects with already completed detailed designs, bids will be invited immediately after mobilization and subsequently contracts will be awarded. Consultants for the PMO and the PIO's implementation support will be required from commencement to project completion.

B1. Detailed Engineering Design Services

10. The scope of the detailed engineering design services includes but is not limited to the following:

- (i) define the hydrological, hydraulic, structural, electro-mechanical, geological, and geotechnical design criteria; collect information; carry out surveys and investigations, and all other activities for completing the detailed engineering design of all the subprojects;
- (ii) update and validate the feasibility studies of the subprojects, recommend and conduct additional surveys, investigations and studies and other such activities to complete the detailed engineering design; and prepare bidding documents leading to award of the contracts;
- (iii) establish the engineering geological conditions of the subproject areas; compilation of geological maps and reports of the subproject area, and sites based on the available data, maps, and aerial surveys such as regional geological maps, regional geological cross sections and seismic-tectonic maps;
- (iv) geological, geophysical, and geotechnical investigations shall be integrated to the topographic maps; the geotechnical investigations shall include boring in soil, drilling/coring in rock, test pits, trenches, sampling, in-site tests, site tests, laboratory test and reports, and shall establish the soil and rock strata along with their properties. Boreholes shall be drilled at each major structure location, in addition test pits shall also be conducted along the alignment of pressure pipes and canals. Sources of borrow material shall also be identified and tested;
- (v) carry out structural design of structures also keeping in view of the evaluation of available seismological studies in the region, description of seismicity of the region, evaluation of the seismic hazard, findings of the results in the subproject design, review the existing seismic network in the region/zone/project area and propose means to improve it to closely monitor the seismic activity in the region/zone/project area;
- (vi) prepare topographical maps at the appropriate scales and contour curves for the subprojects area such as command area and cross sections using satellite remote sensing link with the geographic information system (GIS) models and integrate with on-site topographic surveys and investigations;
- (vii) review and where necessary modify; water allowance, irrigation intensity, and cropping pattern; capacity and command statements for the water courses, canals, and weirs; crops suitability for command area; efficient irrigation system models; prepare water balance; agriculture parameters including land-use, cropping pattern, season of crops, quantity of inputs, cultural operations and production of outputs;
- (viii) incorporate the climate change risk assessment and incorporate its impact in the design based on findings made available through Climate Risk and Vulnerability Assessment; environmental examination, and subsequent mitigation and monitoring plan;
- (ix) conduct all additional related analyses and other such activities where necessary to provide a basis for design of all pressure pipes, canals, and hydraulic structures;

- (x) prepare hydraulic, structural, electro-mechanical and geotechnical design criteria; identify various hydraulic structures for efficient conveyance of irrigation flows;
- (xi) undertake detailed design of all proposed project works with complete drawings for irrigation system, on-farm water management works (including watercourses). The irrigation conveyance distribution system will include the canals, pressure pipes, control structures, bridges, falls, outlets, and all associated cross drainage works including electro-mechanical works will be designed in strict accordance with accepted state of the art methods of irrigation science, hydraulics, soil mechanics, and structural engineering;
- (xii) ensure that teams involved in the design of the distributary and minor canals participate in the walk-through pre-design exercise for community consultation to address their grievances regarding resettlement and environmental issues;
- (xiii) prepare bidding documents in accordance with ADB Procurement Policy and Regulations for Borrowers and ADB's Standard Bidding Documents (2017, as amended from time to time) as well as associated instructions and reference documents; and assist the PMO and the PIU in bid evaluation reports, propose the project works into suitable number of contract packages (if changed from the approved procurement plan, provide a justification);
- (xiv) advise the PMO/PIUs on mode of procurement conducive for attracting local bidders; prepare the bidding documents; assist the PMO in pre-qualification or post-qualification, bid evaluation, and its reports;
- (xv) assist the PMO/PIUs to establish a procurement monitoring system, to allow collection and recording of procurement data for: (a) timely information flow, submission and approval of terms of reference, shortlists, and other requirements; (b) tracking all necessary and critical procurement actions and activities; (c) prompt reporting of contract award information to ADB; (d) preparation of quarterly reports to ADB; and (e) revision of timing of procurement actions including advertising, bidding, contract award, and completion time for individual contracts;
- (xvi) assist the PMO/PIUs to develop a contract management system to ensure that records and data are stored systematically and cross-referenced with the financial accounts of the project. The system must allow safekeeping of procurement documentation for easy retrieval and referencing, with adequate paper trails in accordance with generally accepted standards. The contract management system must also be designed to support loan disbursement, reporting, and accounting requirements of the project;
- (xvii) provide technical support in specifications, procurement, installation, testing, and commissioning of water metering devices;
- (xviii) conduct economic and financial analysis;
- (xix) screen or re-screen, update or prepare social and gender, resettlement, environmental, and socio-economic studies and safeguards documents following ADB's Safeguards Policy Statement (2009) and other relevant instructions and guidelines, including preparation of national environmental assessment reports (OVOSs) based on initial environmental examination (IEE) reports and obtaining national environmental clearances; and/or land acquisition and resettlement plans, if any required;
- (xx) ensure that the teams involved in the design participate in the walk-through pre-design exercise for (a) community consultation to address their grievances regarding resettlement, water use, social, and environmental issues and; (b) the PMO and the PIUs agreement on design;
- (xxi) prepare an indicative implementation schedule for each subproject, the preconstruction activities, including access and transportation route and method,

- location of borrow areas for construction materials, construction methodologies, construction equipment, construction labor force requirements, construction camp and site infrastructure, and office facilities, environmental requirements and population resettlement activities; the critical activities and the critical path of activities in the schedule shall be illustrated in the schedule;
- (xxii) prepare O&M manuals for all the major structures; and provide training during design and implementation;
 - (xxiii) identify risks associated with design assumption and approach, proposed construction methodology and sequencing, construction activities, and recommend risk sharing and mitigation measures;
 - (xxiv) attend PSC meetings; support the PMO/PIUs and ADB missions, as needed;
 - (xxv) rectify, modify, and improve the documents as required after review by KVK, allied sister departments of the GOK and ADB; and
 - (xxvi) **Design (Author's) Supervision:** carry out the design supervision of civil works performed by contractors at the project sites. Design supervision shall be conducted in accordance with the requirements of the legislation of the Republic of Kazakhstan.

B2. Construction Supervision Services

11. The scope of contract and construction supervision services will include but not be limited to the following:

- (i) check and ensure adequacy of the designs and make modifications, where necessary;
- (ii) plan and execute additional surveys, geotechnical investigations and other such activities where necessary to provide a basis for both design modifications and subsequent preparation of construction drawings;
- (iii) check and ensure the adequacy of the hydraulic/structural and geotechnical design criteria for pipelines, canals, and structures and make modifications where necessary;
- (iv) prepare all required construction (working) drawings, for all aspects of construction works. The consultants shall amplify where necessary the contract drawings and specifications by preparing working drawings, which shall be in sufficient detail to enable the appointed contractor to construct the civil and, mechanical works. Working drawings shall be prepared to normal international standards and completed and issued to the contractors in accordance with the agreed program. The consultants shall also check and approve all designs and working drawings prepared by the contractors;
- (v) undertake full administration of the construction contract acting as the Engineer for the PMO/PIUs on-site supervision of the contractors' works for compliance with the specifications, drawings, bill of quantities and other conditions of contracts. This shall include on-site supervision of the contractors' work for compliance with the specifications, review of the contractor's submissions, verification of progress, the preparation of payment requests; certificates and checking and approving the quality assurance procedures produced by the contractors;
- (vi) put in place a comprehensive quality control program including detailed methodology for inspection, sampling, and testing and confirm its adequacy in the field and laboratory, ensuring satisfactory employment at site;
- (vii) review of contractor's submissions, verification of progress, preparation of interim payment requests, certification, checking and approving the quality assurance

- procedures produced by the contractors; prepare detailed implementation plans preferably using modern software for monitoring project activities;
- (viii) review and up-date the contractor's program for implementation of various phases of the subprojects and revise critical path analysis;
 - (ix) review, confirm, and/or recommend appropriate changes to the contractors and the PMO's proposals during implementation; prepare all supporting documents and provide legal and contract-related support to the PMO and the PIUs for contractual disputes and legal actions, adjudication or arbitration between the employer and the contractor;
 - (x) inspect and witness tests when necessary during manufacture of electrical and mechanical materials and machinery for compliance with specifications. The cost of such tests shall be recoverable through the procurement contracts;
 - (xi) witness any acceptance test and advise the employer whether the works or any part thereof have been completed as per specifications and certify outcome of acceptance test in support of provisional acceptance certificate of completion;
 - (xii) carry out measurement of works and agreement of quantities with the contractor(s) and give recommendations, prepare instructions of permissible variations to the works for approval by the employer;
 - (xiii) be responsible for verification and certification of all payment certificates including interim payment certificates and final payment certificates;
 - (xiv) deal with the claims of the contractors for additional payment, as per procedures described in the conditions of contract;
 - (xv) facilitate the formation of the Dispute Board under contract for constructions;
 - (xvi) in the event of contractual dispute which may result in legal action, adjudication or arbitration between the contractor and the employer, on the instruction from the employer, the consultants will collate and prepare factual documentation which describes the circumstances of the dispute. If required, the consultants will attend hearings and provide all legal and other support to the employer;
 - (xvii) assist the employer in taking over the contract works and prepare list of items of work to be completed by the contractor during defects notification period; also prepare inventory of buildings installation and plants etc.;
 - (xviii) supervise the repairs, replacement and installation of mechanical and electrical equipment in a satisfactory and safe manner in accordance with the specifications and contract requirements;
 - (xix) prepare responses to audit observations and paras. in respect of the payments made to consultants and assist the employer in getting them resolved;
 - (xx) prepare all the supporting documents and provide support to the employer in legal proceedings and attend court /hearing(s) if required;
 - (xxi) prepare Environmental Management Plan (EMP) in the bidding documents, review, and supervise implementation of the environmental mitigation measures and monitoring plan in line with ADB's Safeguard Policy Statement (2009); update the gender action plan and resettlement plans for all locations where project civil works may involve changes in land acquisition and/or livelihood disruption;
 - (xxii) prepare monthly and quarterly progress reports from quality control, quantity survey, and field measurements using the latest software or customized program acceptable to the PMO and the PIUs;
 - (xxiii) prepare a comprehensive construction completion report on completion of the contract, inclusive of as-built drawings based on the "as constructed" drawings, prepared by the contractors, as appropriate; assist the employer in taking over the works and prepare list of items of works to be completed by the contractors during defects notification period;

- (xxiv) attend project level meetings, all Steering Committee meetings and meetings with ADB missions as required; assist the PMO and the PIUs in updating the Engineer's Estimate and other documents as, and when, required;
- (xxv) prepare a Manual for Operation and Maintenance of the project after completion;
- (xxvi) plan and execute additional surveys, investigations, reports, drawings, and other such activities where necessary to provide a basis for contract or design modifications and any change arises during implementation;
- (xxvii) respond to any query, complaints and observations relating to quality, quantity, and specifications to monitoring and investigating agencies; and
- (xxviii) assist the PMO/PIUs and ADB review missions as needed.

B3. Implementation Support Services

12. The scope of implementation support will include but not be limited to the following:

General Project, Procurement, and Financial Management:

- (i) assist the PMO and the PIUs in coordinating all matters related to project implementation with relevant authorities of the GOK, the local administration, ADB, and other organizations related to project implementation;
- (ii) provide the PMO and the PIUs with on-the-job training in implementing the ADB guidelines and procedures, efficient project management, and scheduling techniques;
- (iii) assist the PMO and the PIUs in programming project activities, estimating the financial requirements for these activities and the release of funds on time;
- (iv) assist the PMO and the PIUs in coordination with other agencies to ensure that the bidding procedures for procurement of works, services, equipment, and materials are in line with ADB procedures, and that all steps are taken expeditiously and in a transparent manner;
- (v) assist the PMO and the PIUs to ensure that the accounting standards for the project meets ADB requirements and that the withdrawal applications sent to ADB are complete and are sent on a timely basis;
- (vi) assist the PMO and the PIUs to ensure that all periodic reports are prepared systematically, submitted on time, and reflect the real picture of project implementation; that major issues relating to project implementation are brought to the attention of the concerned parties; and that necessary remedial measures are implemented;
- (vii) assist the PMO and the PIUs in maintaining detailed financial accounts and other project records, and prepare other documentation as may be required by the Project Director or ADB;
- (viii) provide technical support to the PMO as required specially in submitting withdrawal application to ADB for direct payment of the contractors; and
- (ix) prepare responses to audit observations and paras. in respect of the payments certified by them and assist the employer in getting them resolved;
- (x) conduct irrigation system performance assessment and assist KVK in developing and implementing a sustainable asset management plan to improve the irrigation system's performance and KVK's financial sustainability.

Social, Gender, Safeguards, and Evaluation and Monitoring

- (i) assist the PMO and the PIUs to develop a project monitoring and evaluation (M&E) system, including: (a) long-term environmental and social impact monitoring programs; and (b) quantifiable indicators to monitor and measure the performance,

- level of maintenance and efficiency of the rehabilitated system;
- (ii) assist the PMO and the PIUs to ensure that environmental mitigation measures will be implemented in accordance with the EMP and reported in the quarterly progress reports and the bi-annual environmental monitoring report;
- (iii) assist the PMO and the PIUs to ensure the implementation and reporting of measures specified in the land acquisition and resettlement framework and plan;
- (iv) assist in the implementation of the gender action plan and other social actions in the project design, which includes, among other things, actions that promote women's involvement in the project implementation;
- (v) assist the PMO and the PIUs in establishment, management, and reporting of an effective grievance redress mechanism, ensuring that any concerns and complaints are resolved in a timely and effective manner;
- (vi) assist the PMO and the PIUs in following-up on actions needed to address issues and recommendations raised in the internal and external resettlement monitoring reports; and
- (vii) assist the PMO and the PIUs to use the Socioeconomic Survey prepared during the project preparation to compile a benchmark database incorporating information on economic and social conditions including public health parameters in the project area to provide a comprehensive socio-economic profile of the beneficiary communities; and assist the PMO and the PIUs to plan and conduct a midterm socioeconomic survey that updates the survey for the project area.

III. REPORTING REQUIREMENTS

A. Reports/Deliverables

13. The consultant will prepare and submit the following reports, designs, and drawings to the PMO, the PIUs and ADB, including soft copies of the reports in word/pdf formats and copies of all drawings in Autocad.

- (i) **Inception Report:** It will cover review of existing information, data, reports, surveys, studies, investigations, design reports, and safeguards documents available from or through the PMO primarily including reports prepared during the project preparation stage. Based on the findings of the review and additional work done by the consultants, provide an inception report which will include detail of (a) additional field investigations, surveys, studies required for core-subprojects; (b) proposed field investigations, surveys, studies required for feasibility studies and detail design of non-core-subprojects; (c) mobilization of design experts (field and home office); (d) engineer's facilities; (e) detailed work program for the services and reports submission especially program of completion of subprojects-wise surveys, investigations, feasibility studies and detail design; (f) draft quality control plan/manual; and (g) findings and recommendations for review and appraisal by the PMO and the PIUs.
- (ii) **Design Reports for the Subprojects:** The consultants shall prepare and finalize detailed engineering design, construction drawings, survey, investigation, studies, design reports, and cost estimates of all subprojects. The consultants will prepare construction schedule using critical path method analysis and schedules for annual construction expenditures, both for local and foreign currency components, throughout the construction period.
- (iii) **Design Reports for Subprojects:** The consultants shall prepare detailed engineering designs, construction drawings, survey and investigation reports,

design reports, and cost estimates of all the subprojects reservoir, weirs, irrigation systems, on-farm water management components, water shed management, and allied works. The consultants will prepare construction schedule using critical path method analysis and schedules for annual construction expenditures, both for local and foreign currency components, throughout the construction period. The reference to design codes, parameters, standards, criteria, and calculation used will be referenced in the feasibility reports. Soft copy of the design calculations in excel file or any other software used will be submitted with the design reports. The consultant shall first submit the draft Detailed Design Report for review by the PMO and the PIUs. The final report shall be submitted after incorporating comments of the PMO and the PIUs.

- (iv) **Drawings:** The consultants will prepare draft drawings for review of the PMO and the PIUs. After finalization, the consultant will submit drawings for bidding which should be with sufficient detail and completeness to be used for bidding as well as construction. After award of the works, the construction drawings completeness will be jointly checked and confirmed by contractors and consultants through the agreed program of joint surveys which shall not take more than one month from award of contract. No significant variation or modification should arise as a result of joint surveys, confirming thereby the accuracy of surveys, design, and drawings prepared by the consultants. The consultants shall also check and approve all detail shop drawings prepared by the contractors before commencement of specific work. The consultants shall prepare the bidding documents in line with ADB's Guidelines and the Procurement Plan. The bidding documents shall cover the civil/electro-mechanical works of the project and its components.
- (v) **Engineer's Estimate:** The consultants shall prepare 'Engineer's Estimate' of the expected cost of construction immediately prior to the issuance of bid documents. This estimate shall be based on the most up-to-date assessment of construction rates prevailing at the time and shall include all items such as contractor's mobilization and insurance costs, allowance for all necessary provisional sums and estimated day works, and contingencies. One copy of the 'Engineer's Estimate' shall be issued to the PMO and the PIUs and the contents therein shall be treated with utmost confidentiality. For the purpose of cost estimating:
 - a) all unit prices for major quantities of work shall be established by the latest methods. These methods will simulate each construction activity in such a way as to fit it into the available time span in the proposed construction schedule. Construction equipment, crews, materials, and other resources would be adjusted to accomplish the work within the required time span. The computations of unit prices shall be supported by detailed sets of financial prices with source;
 - b) indirect cost of construction for all major items, into which the construction work is subdivided for cost estimating purpose, should be established separately. Total cost of each construction item shall then be obtained by multiplying the direct cost of construction by a bid factor representing the influence of indirect cost;
 - c) preparation of cost estimates broken into local and foreign components. These shall include:
 - reasonable breakdown by major items of electro-mechanical and civil works, irrigation system, on-farm water management, and water shed management works. Price for major civil works and permanent equipment shall be estimated keeping in view the procurement

- packaging, transportation cost, security cost allowance, complexity of works, and hard area factors;
 - environmental management plan cost estimation;
 - resettlement action plan cost estimation;
 - project engineering and management expenses and an adequate allowance of physical contingencies; and
 - import duties, taxes and interest during construction (to be assessed separately and not be included in the base cost estimate).
- (vi) **Bidding Documents:** The consultants will prepare bidding documents in line with the Procurement Plan or updated Procurement Plan using ADB's model or standard bidding documents and documents for express of interest and request for proposal.²⁴
- (vii) **Safeguards Reports:** The consultants shall prepare resettlement reports for any subprojects with resettlement impact after screening in line with the land acquisition and resettlement framework. The consultant shall support the PMO in preparing project's consolidated semi-annual Environmental Monitoring Reports summarizing information about implementation of Environmental Management Plans on subprojects.
- (viii) **Quality Assurance Plan/Manual:** Quality Assurance Plan/Quality Control manual shall be presented which shall include comprehensive quality control program including detailed methodology for inspection, sampling, and testing and confirming its adequacy in the field.
- (ix) **Midterm Report:** The midterm report will present the following studies and conclusions under:
 - a) additional field surveys/investigations to be conducted under the supervision of the consultants together with optimization study of each alternative will be carried out;
 - b) project layouts for different infrastructures for implementation and operation stage of the project shall be developed;
 - c) the population resettlement and environmental aspects of the project shall be reassessed at this stage of the study and quantified. The cost of resettlement and environmental aspects and proposed design shall be assessed for the economic and financial viability of the project;
 - d) the consultants shall present their conclusions and recommendations to the above effects in the midterm report for review and concurrence by the PMO and the PIUs.
- (x) **Project Performance Reports:** The consultants will submit a monthly and quarterly progress reports on project and contract management, status of the program, the contractor's progress and performance, quality of work, the financial status and disbursements projections, and highlighting issues that are affecting the planned progress of the project and possible remedies.
- (xi) **Project Completion Report:** The consultant shall assist the PMO/PIUs in preparing the Project Completion Report (PCR) following ADB's requirements regarding contents and format. The main objective of the PCR is to learn from the experiences of borrowers, the GOK, and ADB in implementing projects, and to use the lessons to improve the performance of ongoing and future ADB-financed projects. The PCR will also be used as a measure of ADB's development effectiveness and as an input to country strategy formulation. The report shall describe the civil works and operational procedures, highlighting any specific requirements, list any major

²⁴ In accordance with ADB Procurement Policy and Regulations for Borrowers and ADB's Standard Bidding Documents (2017, as amended from time to time) and associated instructions and reference documents.

problems encountered and detail what actions were taken, review the training needs for the operating staff and give appropriate recommendations and, summarize the final quantities and financial statement. The PCR shall include as-built drawings based on the “as constructed” drawings, prepared by the contractor. The draft PCR shall be submitted upon completion of each subproject. After review by the PMO and the PIUs, the final report shall be submitted within one-month after receiving the PMO and the PIUs comments or 60 days whichever is later.

- (xii) **Operation and Maintenance Manuals:** The draft and final version of the O&M manual shall be prepared. The O&M manual shall give the nature of periodic inspections to be made, physical interventions to be made by way of preventive and curative maintenance to be carried out every year, data to be collected, and records maintained. The O&M procedures should be detailed and those should be doable to maintain integrity of the structures for their design life. As a result, yard sticks (both physical and financial) for the maintenance intervention works need to be prepared to facilitate planning of the O&M activities every year. The draft O&M manual shall be submitted within one year after the construction starts. The final O&M Manual will be submitted upon completion of each subproject one month after receipt of comments from the PMO/PIUs and ADB.
- (xiii) **Asset Management Plan:** The asset management plan will be based on the assessment of current irrigation system performance and sustainability requirements, as well as based on the consultations with managers and users of the irrigation schemes.
- (xiv) **Other reporting requirements:** The consultant shall obtain the client's prior approval in writing before taking any of the following actions:
 - a) any change or addition to the consulting services personnel;
 - b) the consultants may subcontract work relating to the services to an extent and with such experts and entities as may be approved in advance by the client. Notwithstanding such approval, the consultant shall retain full responsibility for the services. In the event that any subconsultants are found by the client to be incompetent or incapable in discharging assigned duties, the client may request the consultant to provide a replacement, with qualifications and experience acceptable to the client, or to resume the performance of the services itself; and
 - c) variations in works contract resulting in an increase of the accepted contract amount or extension of time.

B. Time Schedule for Reports/Deliverables

14. The consultants will submit the reports in hard and soft copies within the time given in the following Table 1.2:

Table 1.2: Timeline for Submission Reports

Reports	Copies	Submission deadlines
Inception Report	5	1 month after the effectiveness of Consulting Services Agreement
Design Reports for Three Core-subprojects	5	6 months after the effectiveness of Consulting Services Agreement
Design Reports for subprojects	5	Individual subproject reports will be submitted sequentially, submitted from 7 months to 12 months after the effectiveness of Consulting Services Agreement

Reports	Copies	Submission deadlines
Drawings	15	Bidding and Construction drawings within the design reports schedule given above
Engineer's Estimate	1	Draft submission within the feasibility reports schedule given above Final Submission within the design reports schedule as given above
Bidding Documents	15	4 weeks after submission of the design reports
Safeguards Reports	5	Submission within the feasibility reports schedule given above (In case of unanticipated land acquisition and resettlement, one month after detail assessment is completed)
Quality Assurance Plan/Manual	5	3 months after the effectiveness of Consulting Services Agreement
Midterm Report	10	24 months after the Effectiveness of Consulting Services Agreement
Project Performance Reports	5	Quarterly and yearly reports starting 6 months after the effectiveness of Consulting Services Agreement
Project Completion Report	10	Draft upon completion of each subproject Final report shall be submitted within one-month after receiving the project management office comments or 60 days whichever is later
Operation and Maintenance Manuals	5	Draft with midterm report Final upon completion of each subproject
Asset Management Plan	5	24 months after the Effectiveness of Consulting Services Agreement

Source: Asian Development Bank.

IV. FACILITIES TO BE PROVIDED BY THE EXECUTING AGENCY (CLIENT)

15. The Client has no opportunity to provide the office accommodation to the consultant. In this regard, it is expected that the Consultant will rent an office in Astana and will use for services its own computer hardware, software and other necessary office equipment, if not otherwise agreed between the Client and Consultant at the contract negotiation stage.

16. FIDIC or other procurement documents, conditions of contract, or like material, required for the execution of the assignment to be purchased as required by the Client.

17. The Client will provide all available data, public reports, technical documents, feasibility studies, engineering notes, studies, maps, legal documents as are necessary and agreed for the services. These will be provided free of charge, unless the government has to make additional expenses (in which case any such expense will be reimbursed to the Consultant).

18. All cost associated with the obtaining of technical and ecological expertise shall be paid directly by the Client.

19. All materials and documents prepared by Consultant under the contract are and will remain the property of the Client after completion of the assignment. Consultant shall not publish, use or dispose these documents without Client's written consent.

V. INDICATIVE STAFFING REQUIREMENTS AND THEIR QUALIFICATION

20. The following is the estimation of the composition of the consultants' team for the project, but the prospective consultants should propose their own breakdown of staffing and level of effort staff work based on their own evaluation of the proposed services. The consultants should propose a realistic deployment schedule for all positions depending on work requirements as all positions listed below would have inputs for different durations.

21. The consulting services will comprise the following teams:

- (i) **Project Management Team** will be located in Astana with backstopping support provided by the consulting firm/joint venture regional and/or head office, as and when required. The team will provide support in the overall project implementation and monitoring/reporting.
- (ii) **Design Team** will preferably be located in Astana or work through regional/head office with experts travelling to Astana and the proposed subprojects sites as required. This team will carry out detailed engineering design of the subprojects, drawings, reports, studies, surveys, consultations, investigations, cost estimates, and bidding documents.
- (iii) **Capacity Development Teams** will facilitate capacity development of the project beneficiaries in improving water management, adopting better crop production techniques, and organizing / reorganizing of existing associations into agricultural cooperatives on hydrologic boundaries. The teams will assist KVK establish condition register and O&M programs. The financial capacity would be improved by developing strategies for rationalizing tariff to the level that the collection could be sufficient to finance O&M costs.
- (iv) **Construction Supervision Teams** will be located in Astana as its main office and in each subproject site as its field office/team. The field teams will be responsible for construction supervision. The field team will be headed by a Resident Engineer who will commute to report to Astana-based Project Management Team when needed, depending on the supervision plan.

22. The consultants will establish their office at Astana and field offices as discussed above, for detailed engineering design, construction supervision, and project implementation support. The consultants will evaluate their requirement of rental and maintenance of offices. The cost of renting, furnishing, equipping, and maintaining the offices shall be included in consultant financial proposal. The proposal should also include costs for necessary security measures to protect consulting firms staff and property while working in the field.

23. **Consultant's General Qualifications.** The minimum requirements for the consultant are: (i) extensive international and regional experience in design, procurement, and construction supervision of irrigation and drainage facilities; and (ii) experience in capacity building of water management agencies and beneficiaries (farmers, water users, rural cooperatives). The international consulting firm must associate with national consulting firms with project design, implementation, and construction supervision experience to ensure appropriate expertise and experience to undertake the assignment. The international consulting firm or its national partner selected for this contract will need to obtain the required licensee and permissions for preparation

of detailed design and construction supervision in accordance with legislation of the Republic of Kazakhstan.

24. **Budget and Expertise Schedule.** The contract for consultant's service will be the combination of lump-sum and time-based inputs: (i) the detailed design, preparation of the bidding documents, and capacity building trainings will be paid on a lump-sum basis against performance outputs; and (ii) design compliance review, construction supervision, and assistance in the evaluation of bids will be paid on a time-based method. The consulting services will be required over a period of 60 months to provide a total of 3,875 person-months of consulting services. Out of this, 198 person-months will be for international consultants (192 person-months of key experts and 6 person-months of non-key experts) and 3,667 person-months of national experts (595 person-months of key experts and 3,082 person-months of non-key experts). A summary of person-months is in Table 1.3, detailed key and non-key expert person-month requirements are given in Table 1.4, while qualification and experience requirements for each specialist are given in Table 1.5. The consulting firm will need to identify the needs for technical and administrative support staff and include their costs in the financial proposal. Detailed tasks for each of the experts and support staff will be assigned by the consulting firm in accordance with the overall terms of reference for the consulting services.

Table 1.3: Summary of Specialists Person-Months

Output	Key Specialists			Non-Key Specialists			Total
	International	National	Total	International	National	Total	
1. Total (design and construction supervision)	166	366	532	6	2,842	2,848	3,380
1a. Design	46	192	238	6	2,161	2,167	2,405
1b. Const supervision	120	174	294		681	681	975
2. Capacity development: Output 2		205	205		240	240	445
3. Capacity development: Output 3	6	24	30				30
4. Project administration and implementation	20		20				20
Total	192	595	787	6	3,082	3,088	3,875

Table 1.4: Indicative Key and Non-key Expert Requirements

No.	Position/Expertise	Person-Months	
		International	National
A	Output 1 (a): Detailed design and design compliance review during construction		
A-1	Key Experts		
	1 Chief Irrigation Design Engineer (Task Team Leader)	12	-
	2 Procurement and Contract Specialist	10	24
	3 Irrigation Engineers (1 Int + 4 locals)	6	48
	4 Structural Design Engineer	6	12
	5 Deputy Chief Design Engineer	-	60
	6 Telecommunication Specialists	3	12
	7 Mechanical Engineer (pumps)	3	12
	8 Mechanical Engineer (gates and gearing)	3	12
	9 Electrical Engineer	3	12
	Subtotal (A1)	46	192
A-2	Non-Key Experts		
	1 BOQ Engineers (4)	-	48
	2 Hydrogeologists	2	12
	3 Geotechnical Engineers (1 Int +4 local)	2	48
	4 Drawings (AutoCAD) Engineers (4)	-	48
	5 Climate Change Specialists	2	4
	6 Design and Supervision Engineers (4)	-	96
	7 Environmental Specialist		4
	8 Other national technical staff	-	1,078
	9 Other supporting staff	-	823
	Subtotal (A2)	6	2,161
	Total A (A1+A2)	52	2,353
B	Output 1 (b): Construction supervision	-	-
B-1	Key Experts	-	-
	1 Chief Resident Engineer (Task Team Leader)	48	-
	2 Deputy Chief Resident Engineer	-	48
	3 Costing and Claims Engineer	24	30
	4 Construction Supervision Engineers (1 int + 4 local)	48	96
	Subtotal (B1)	120	174
B-2	Non-Key Experts		
	1 Site Engineers (4)	-	72
	2 Quantity Controllers (4)	-	72
	3 Laboratory Engineers (4)	-	72
	4 Quantity Surveyors (4)	-	72
	5 Environmental Specialist	-	24
	6 Other national technical staff	-	260
	7 Other supporting staff	-	109
	Subtotal (B2)	-	681
	Total B (B1+B2)	120	855
	Output 2: Water Management Improved and Beneficiary Capacity Enhanced		
C	Capacity Enhanced		
C-1	Key Experts		
	1 Agricultural Engineers (Task Team Leaders 2)	-	24
	2 Climate Change Specialists (2)	-	37
	3 Agronomists (2)	-	48
	4 Agricultural Economists (2)	-	48
	5 Livestock Specialists (2)	-	48
	Subtotal (C1)	-	205
C-2	Non-Key Experts		
	1 Legal Specialists (2)	-	48
	2 Financial Specialists (2)	-	48
	3 Marketing Specialists (2)	-	48
	4 On-farm Water Management Specialists (4)	-	96
	Subtotal (C2)	-	240
	Total C (C1+C2)	-	445
D	Output 3: KVK Capacity Strengthened		
D-1	Key Experts		
	1 Institutional Capacity Development Specialist	2	8
	2 Climate Change Specialist	2	8
	3 Operation and Maintenance Specialist	2	8
	Subtotal (D1)	6	24
E	Project Administration and Implementation		
E-1	Key Experts		
	1 Project Management Specialist (Task Leader)	10	-
	2 Monitoring and Evaluation Specialist	2	-
	3 Social Development Specialist	2	-
	4 Environmental Specialist	2	-
	5 Financial Management Specialist	4	-
	Sub-total (E1)	20	-
	GRAND TOTAL	198	3,677

Table 1.5: Qualification and Experience Requirements of Specialists

	Position	No. of Experts	Indicative Inputs (Person-months)	Qualification Requirement	Specific Experience Requirement	Remarks
A. DETAILED DESIGN AND DESIGN COMPLIANCE REVIEW DURING CONSTRUCTION						
A.1 Key Experts						
A.1.1 International Key Experts						
1	Chief Irrigation Design Engineer	1	12	Bachelor's degree in civil engineering, or related field	15 years of planning and designing of large water resources and irrigation projects. Five years' specific experience in design of irrigation projects (preferably in Central Asia) in a senior supervisory position. Familiar with FIDIC conditions of contract for construction	Team Leader
2	Procurement and contract specialist	1	10	Bachelor's degree in civil engineering, construction management, or related field	10 years' experience in contract management and familiar with FIDIC contract terms. Experience with ADB or World Bank projects using ICB and NCB procedures will be preferred	PMO
3	Irrigation Engineer	1	6	Bachelor's degree in civil engineering or a related field	10 years' experience in designing I&D projects (including high efficiency irrigation)	PMO
4	Structural Design Engineer	1	6	Bachelor's degree in civil engineering or a related field	10 years' experience in designing of hydraulic structures	PMO
5	Telecom Specialist	1	3	Bachelor's degree in electrical/electronic engineering or a related field	10 years' experience in designing SCADA system for I&D project	PMO
6	Mechanical Engineer (pumps)	1	3	Bachelor's degree in mechanical	10 years' experience of designing irrigation	PMO

				engineering or a related filed	pumping stations and related facilities	
7	Mechanical Engineer (gates and gearing)	1	3	Bachelor's degree in mechanical engineering or a related filed	10 years' experience of designing gates and gears of irrigation water control and distribution structures	PMO
8	Electrical Engineer	1	3	Bachelor's degree in electrical engineering or a related filed	10 years' experience of designing power transmission for and electrification of I&D pumping stations	PMO
Subtotal A.1.1			46			
A.1.2 National Key Experts						
1	Deputy Chief Irrigation Design Engineer	1	60	Bachelor's degree in civil engineering, or related field	10 years of planning and designing of large water resources and I&D projects. Five years' specific experience in design of I&D projects (preferably in Central Asia) in a senior supervisory position. Familiar with FIDIC conditions of contract for construction	PMO / PIUs
2	Procurement and contract specialist	1	24	Bachelor's degree in civil engineering, construction management, or related field	10 years' experience in contact management and familiar with FIDIC contract terms. Experience with ADB or World Bank projects using ICB and NCB procedures will be preferred	PMO / PIUs
3	Irrigation Engineers	4	48	Bachelor's degree in civil engineering or a related filed	10 years' experience in designing I&D projects (including high efficiency irrigation)	PMO / PIUs
4	Structural Design Engineer	1	12	Bachelor's degree in civil engineering or a related filed	10 years' experience in	PMO / PIUs

					designing of hydraulic structures	
5	Telecom Specialist	1	12	Bachelor's degree in electrical/electronic engineering or a related filed	10 years' experience in designing SCADA system for I&D project	PMO / PIUs
6	Mechanical Engineer (pumps)	1	12	Bachelor's degree in mechanical engineering or a related filed	10 years' experience of designing irrigation pumping stations and related facilities	PMO / PIUs
7	Mechanical Engineer (gates and gearing)	1	12	Bachelor's degree in mechanical engineering or a related filed	10 years' experience of designing gates and gears of irrigation water control and distribution structures	PMO / PIUs
8	Electrical Engineer	1	12	Bachelor's degree in electrical engineering or a related filed	10 years' experience of designing power transmission for and electrification of I&D pumping stations	PMO / PIUs
Subtotal A.1.2			192			
A.2 Non-Key Staff						
A.2.1 International Non-Key Specialists						
1	Hydrologist	1	2	Bachelor's degree in hydrology or a related field	10 years' experience in hydrologic studies related to I&D projects	PMO
2	Geotechnical Engineer	1	2	Bachelor's degree in civil engineering with specialization in geotechnical engineering	10 years' experience related to investigation and designing foundations of I&D structures	PMO / PIUs
3	Climate Change Specialist	1	2	Bachelor's degree in relevant field	10 years' experience in climate change studies relate to I&D projects	PMO /PIUs
Subtotal A.2.1 International Non-Key Specialists			6			
A.2.2 National Non-Key Specialists						
1	Bills of Quantity (BOQ) Engineers	4	48	Bachelor's degree in relevant field	7 years' experience in estimating and calculating BOQ of civil works related to I&D projects	PIUs
2	Hydrologist	1	12	Bachelor's degree in relevant filed	7 years' experience of hvdrologic	PMO

					studies related to I&D projects	
3	Geotechnical Engineers	4	48	Bachelor's degree in civil engineering or relevant field	7 years' experience in investigations and designs related to hydraulic structures	PIUs
4	Drawing (AutoCAD) Engineers	4	48	Bachelor's degree in computer-related field	7 years' experience in preparing drawings of I&D projects using AutoCAD	PIUs
5	Climate Change Specialist	1	4	Bachelor's degree in relevant field	7 years' experience climate change studies related to I&D projects	PMO
6	Design and Supervision Engineers	4	96	Bachelor's degree in civil engineering	7 years' experience in design and construction supervision of I&D facilities	PIUs
7	Environment Specialist	1	4	Bachelor's degree in environment-related field	7 years' experience in conduct environmental impact assessment and management	PMO/PIUs
8	Other National Technical Staff	several	1,078	To be proposed by the consulting firm		PMO / PIUs
9	Other Supporting Staff	several	823	To be proposed by the consulting firm		PMO / PIUs
Subtotal A.2.2 National Non-Key Specialist			2,161			
B. CONSTRUCTION SUPERVISION						
B.1 Key Specialist						
B.1.1 Key International Specialists						
1	Chief Resident Engineer	1	48	Bachelor's degree in civil engineering, construction management, or related field	15 years' experience in planning, designing and construction supervision of large water resources, irrigation, and drainage projects. Five years' specific experience in supervision of I&D projects, preferably in Central Asia as a senior supervisor. Must be familiar with FIDIC conditions of contracts for construction.	PM / Leader of consultant team

2	Costing and Claim Engineer	1	24	Bachelor' degree in a relevant field	10 years' experience in handling costing and claims issues of large I&D projects. Must be familiar with FIDIC conditions of contracts for construction	PMO
3	Construction Supervision Engineer	1	48	Bachelor's degree in civil engineering or another relevant field	10 years' experience in construction supervision of large I&D projects. Familiarity with FIDIC conditions and local norms would be added advantage	PMO
Subtotal B.1.2 Key International Experts			120			
B.1.2 Key National Experts						
1	Deputy Chief Resident Engineers	4	48	Bachelor's degree in civil engineering, construction management, or related field	10 years' experience in construction supervision of I&D projects. Five years' specific experience in supervision of I&D projects, preferably in Central Asia. Must be familiar with FIDIC conditions of contracts for construction	PIUs
2	Costing and Claim Engineer	1	30	Bachelor' degree in a relevant field	7 years' experience in handling costing and claims issues of large I&D projects. Must be familiar with FIDIC conditions of contracts for construction	PIUs
3	Construction Supervision Engineers	4	96	Bachelor's degree in civil engineering or another relevant field	7 years' experience in construction supervision of I&D projects. Familiarity with FIDIC conditions and local norms is desirable	PIUs
Subtotal B.1.2 Key National Experts			174			

B.2.2 Non-Key National Experts						
1	Site Engineers	4	72	Bachelor's degree in engineering or a related field	7 years' experience in design and construction of large I&D projects	PIUs
2	Quality Controllers	4	72	Bachelor's degree in engineering or a related field	7 years' experience in quality control of large I&D projects	PIUs
3	Laboratory Engineers	4	72	Bachelor's degree in engineering or a related field	7 years' experience in managing laboratories handling tests related to quality control of large I&D projects	PIUs
4	Quantity Surveyors	4	72	Bachelor's degree in engineering or a related field	7 years' experience of estimating and measuring actual quantities of works related to large I&D projects	PIUs
5	Environmental Specialist	1	24	Bachelor's degree in environment related field	7 years' experience in environmental impact assessment and environmental supervision	PIUs
6	Other National Technical Staff	several	260	To be proposed by the consulting firm		
7	Other National Support Staff	several	109	To be proposed by the consulting firm		
Subtotal B.2.2			681			
C.1 OUTPUT:2 IMPROVED WATER MANAGEMENT AND BENEFICIARIES' CAPACITY ENHANCED						
C.1.2 Key National Specialists						
1	Agricultural Engineers	2	24	Bachelor's degree in agricultural engineering or a related field	7 years' experience of projects related to efficient management of water resources and other engineering inputs in agriculture	PMO / PIUs
2	Climate Change Specialists	2	37	Bachelor's degree in relevant field	7 years' experience climate change studies related to I&D projects	PMO /PIUs
3	Agronomists	2	48	Bachelor's degree in agriculture or a related field	7 years' experience of promoting better and efficient crop production techniques, and training of farmers and their organizations	PMO / PIUs

4	Agricultural Economists	2	48	Bachelor's degree in agricultural economics or a related field	7 years' experience of training farmers in efficient management of agricultural activities including book-keeping, procurement of inputs, storage, and marketing of the produce	PMO / PIUs
5	Livestock Specialists	2	48	Bachelor's degree in animal husbandry or a related field	7 years' experience of promoting efficient management of livestock farming including disease prevention and control, particularly under Central Asian conditions	PMO / PIUs
Subtotal C.1.2 Key National Specialists			205			
C.2.2 Non-Key National						
1	Legal Specialists	2	48	Bachelor's degree in Law or a relevant field	5 years' experience of dealing with the formation, registration, and management of agricultural cooperatives and other farmers' related legal issues	PIUs
2	Financial Specialists	2	48	Bachelor's degree in economics or another related field	5 years' experience of dealing with farms-related financial management systems and training of farmers and their organizations	PIUs
3	Marketing Specialists	2	48	Bachelor's degree in agricultural economic or another related field	5 years' experience in promoting efficient procurement of farm inputs and marketing of products	PIUs
4	On-Farm Water Management Specialists	4	96	Bachelor's degree in agricultural engineering or related field	5 years' experience of promoting efficient water management	PIUs
Subtotal C.2.2 Non-Key National Specialists			240			

D. KVK Capacity Strengthened						
D.1.1 Key International Specialists						
1	Institutional Capacity Building Specialist	1	2	Bachelor's degree in relevant field	10 years' experience of evaluating the existing situation of institution like KVK; estimation of their future human, equipment, institutional, and financial requirements; preparation of training program for staff; and conduct of such programs	PMO
2	Climate Change Specialist	1	2	Bachelor's degree in relevant field	10 years' experience in climate change studies relate to I&D projects	PMO
3	Operation and Maintenance (O&M) Specialist	1	2	Bachelor's degree in relevant field	10 years' experience of preparing and training in preparing O&M plans for large irrigation systems which include preventive, routine, and emergency maintenance	PMO
Subtotal D.1.1 Key International Specialists			6			
D.1.2 Key National Specialists						
1	Institutional Capacity Building Specialist	1	8	Bachelor's degree in relevant field	7 years' experience of preparing and conducting training program for staff of large irrigation and drainage institutions like KVK	PMO
2	Climate Change Specialist	1	8	Bachelor's degree in relevant field	7 years' experience climate change studies related to I&D projects	PMO
3	Operation and Maintenance Specialist	1	8	Bachelor's degree in relevant field	7 years' experience of preparing and training in preparing O&M plans for large irrigation systems	PMO
Subtotal D.1.1 Key National Specialists			24			
E. PROJECT MANAGEMENT AND IMPLEMENTATION						
E.1.1 Key International Specialists						

1	Project Management Specialist	1	10	Bachelor's degree in project management or another relevant field	10 years' experience of managing implementation of large I&D systems. Working experience with ADB and World Bank projects will be preferred	Task Leader, PMO
2	Monitoring and Evaluation Specialist	1	2	Bachelor's degree in project management, impact evaluation or another relevant field	10 years' experience project performance monitoring and evaluation of large I&D systems. Working experience with ADB and World Bank projects will be preferred	PMO
3	Social Development Specialist	1	2	Bachelor's degree a social-related field	10 years' experience in social development, gender, and resettlement in large I&D systems. Working experience with ADB and World Bank projects will be preferred	PMO
4	Environmental Specialist	1	2	Bachelor's degree in environmental science, engineering or another relevant field	10 years' experience in conducting environmental impact assessment and/or management in large I&D systems. Working experience with ADB and World Bank projects will be preferred	PMO
5	Financial Management Specialist	1	4	Bachelor's degree in finance or accounting, or another related field; certified accountant is required	10 years' experience in financial management, accounting, and audit. Working experience with ADB and World Bank projects will be preferred	PMO
Total E			20			

ADB = Asian Development Bank, BOQ = bill of quantities, ICB = international competitive bidding, I&D = irrigation and drainage, NCB = national competitive bidding, PIU = project implementation unit, PMO = project management office, SCADA = supervisory control and data acquisition.