



Technical Assistance Report

Project Number: 53341-001
Knowledge and Support Technical Assistance (KSTA)
September 2020

Republic of Kazakhstan: Supporting Renewable Technology-Inclusive Heat Supply Legislation

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 12 August 2020)

Currency unit	–	tenge (T)
T1.00	=	\$0.0023
\$1.00	=	T418.08

ABBREVIATIONS

ADB	–	Asian Development Bank
COVID-19	–	coronavirus disease
GHG	–	greenhouse gas
MOE	–	Ministry of Energy
OECD	–	Organisation for Economic Co-operation and Development
PPP	–	public-private partnership
TA	–	technical assistance

NOTE

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

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KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 53341-001	
Project Name	Supporting Renewable Technology-Inclusive Heat Supply Legislation	Department/Division	CWRD/CWEN
Nature of Activity Modality	Capacity Development, Policy Advice Regular	Executing Agency	Ministry of Energy
Country	Kazakhstan		
2. Sector		Subsector(s)	
		ADB Financing (\$ million)	
		Total	0.00
3. Operational Priorities		Climate Change Information	
✓ Accelerating progress in gender equality		GHG Reductions (tons per annum) 0	
✓ Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		Climate Change impact on the Project Low	
✓ Strengthening governance and institutional capacity			
		ADB Financing	
		Adaptation (\$ million) 0.00	
		Mitigation (\$ million) 0.00	
		Cofinancing	
		Adaptation (\$ million) 0.00	
		Mitigation (\$ million) 1.50	
Sustainable Development Goals		Gender Equity and Mainstreaming	
SDG 1.b		Some gender elements (SGE) ✓	
SDG 5.c			
SDG 7.2, 7.3			
SDG 9.1		Poverty Targeting	
SDG 12.c		General Intervention on Poverty ✓	
SDG 13.a			
4. Risk Categorization Low			
5. Safeguard Categorization Safeguard Policy Statement does not apply			
6. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.00	
None		0.00	
Cofinancing		1.50	
Clean Energy Fund under the Clean Energy Financing Partnership Facility (Full ADB Administration)		1.00	
Republic of Korea e-Asia and Knowledge Partnership Fund (Full ADB Administration)		0.50	
Counterpart		0.05	
Government		0.05	
Total		1.55	
Currency of Financing: US Dollar			

I. INTRODUCTION

1. The Ministry of Energy (MOE) of Kazakhstan asked the Asian Development Bank (ADB) to provide knowledge and support technical assistance (TA) to improve the country's renewable technology-inclusive heat supply legislation.¹ This TA project is in line with the goals of ADB's country partnership strategy for Kazakhstan, 2017–2021, but is not included in the country operations business plan for Kazakhstan, 2020–2022.²

II. ISSUES

2. Kazakhstan is rich in natural resources, including fossil fuel, ranking ninth in the world in terms of proven oil reserves and 15th in terms of natural gas reserves.³ It is also the world's eighth largest producer of coal and the largest exporter of uranium ore.⁴ Coal accounts for 70.4% of Kazakhstan's energy mix, followed by natural gas (19.4%), with renewables accounting for just 10.2%.⁵ As a result, Kazakhstan emits more greenhouse gases (GHG) (14,363 metric tons per capita) than any country in Central Asia or the Organisation for Economic Co-operation and Development (OECD).⁶ Kazakhstan's economy is largely dependent on revenues from fossil fuel exports and is therefore susceptible to fuel price volatility.

3. Kazakhstan also has significant renewable energy resources, yet their utilization is low (para. 2). As of 2019, out of all renewables utilized, the share of hydro power is 82%, which is 8.6% in overall energy mix, onshore wind is 3.9%, and solar photovoltaic is 2%.⁷ In addition, untapped geothermal potential ranges between 70°C and 160°C.⁸

4. In 2013, the Government of Kazakhstan adopted the national Concept for the Transition to a Green Economy until 2050 (Strategy 2050), outlining an ambitious plan to (i) increase the share of renewable and alternative energy in power generation (to 3% by 2020, to 30% by 2030, and to 50% by 2050);⁹ and (ii) reduce energy intensity and greenhouse gas emissions.¹⁰ In this respect, the energy and heat sector is the biggest challenge on the government's agenda. According to an OECD report, the energy sector generates about 80% of greenhouse gas emissions in Kazakhstan, 90% of which come from heat generation.¹¹

¹ The TA first appeared in the business opportunities section (consulting opportunities) of ADB's website on 18 February 2020.

² ADB. 2019. *Country Operations Business Plan: Kazakhstan, 2020–2022*. Manila; ADB. 2017. *Country Partnership Strategy: Kazakhstan, 2017–2021—Promoting Economic Diversification, Inclusive Development, and Sustainable Growth*. Manila.

³ World Bank. 2017. *Municipal Energy Efficiency Plan for the City of Astana*. Energy Sector Management Assistance Program. Washington, DC.

⁴ World Atlas. *World Facts: The Top 10 Coal Producers Worldwide*.

⁵ Kazakhstan Association of Oil, Gas and Energy Sector Organizations. 2019. *The National Energy Report 2019*. Astana (accessed 5 December 2019).

⁶ World Bank. *CO₂ Emissions Data* (accessed 5 December 2019).

⁷ Kazakhstan Electricity Grid Operating Company, KEGOC Annual Report 2019 <https://www.kegoc.kz/en/shareholders-and-investors/information-disclosure/annual-reports/2019>

⁸ A. Richter. 2018. *Kazakhstan Exploring Geothermal Energy for Heat and Power Production*. *ThinkGeoEnergy*. 15 November.

⁹ E. Shadrina. 2019. *Renewable Energy in Central Asian Economies: Role in Reducing Regional Energy Insecurity*. *ADB Working Paper Series*. No. 993. Tokyo: ADB Institute.

¹⁰ Government of Kazakhstan. 2013. *Presidential Decree on the Concept for the Transition of the Republic of Kazakhstan to a Green Economy*. Astana (3 May). The strategy calls for reducing greenhouse gas emissions by 25% by 2020, 30% by 2030, and 50% by 2050 compared with 2010 levels.

¹¹ OECD. 2012. *Promoting Energy Efficiency in the Residential Sector in Kazakhstan: Designing a Public Investment Program*. Paris.

5. The heat supply sector of Kazakhstan was created in the late 1970s during the Soviet era. The heat supply network consists of 12,300 kilometers of pipes and 2,427 heat producers, of which 45% are combined heat and power (CHP) plants, 35% are large boilers, and 20% are small boilers. About 44% of the heat pipes are above-ground and have inadequate insulation.¹² The district heating plants run mostly on coal, although some use natural gas or black oil (mazut). These outdated, poorly maintained assets cause frequent disruptions in the supply of heat to end users. Heat system loss is estimated to be about 30% (exact data is not available because of an absence of metering).¹³ Heat consumption is billed per square meter of space and does not reflect actual usage.¹⁴

6. Government of Kazakhstan has kept heating tariffs low for social reasons yet has assumed that tariffs are sufficient to cover the costs and maintenance of the assets. In 2019, Government of Kazakhstan decreased the tariff for heating by 14% compared with 2018.¹⁵ As a result of low tariffs and unmeasured consumption, district heating companies cannot generate capital to upgrade their assets, thus, heat supply systems are facing technical and financial deterioration.

7. The institutional setup of the district heating sector is complex, involving many public and private stakeholders. Roles and responsibilities of public agencies are unclear and often overlap. Norms regulating heat supply are scattered among various legal acts, increasing ambiguity. There is neither a specific or overarching law on heat supply or district heating nor technical standards and mandatory heat planning.

8. In 2016, ADB provided support to the Karaganda region, which has the largest heat supply network (2,164 kilometers) in the country, through the Karaganda District Heating Network Rehabilitation Project.¹⁶ The project supported upgrades of the district's heating distribution network. However, the targeted loan project did not materialize because of the ineffective sector structure and the unclear contractual arrangements along the chain. For the same reasons, it has been difficult to attract private investors in the sector. One of the major recommendations of TA 8253-KAZ: Karaganda District Heating Network Rehabilitation Project Completion Report was to help the government complete the institutional restructuring of the heating sector before any future intervention whether a loan or a grant.

9. In March 2019, the MOE of Kazakhstan requested ADB support in drafting a new Law on Heat Supply and the respective legislation. The new legislation is critical for creating a balanced and clear regulatory framework, setting clear targets and an overarching plan on increasing share of renewables and improving energy efficiency standards in the heat sector. The OECD suggests that improving energy efficiency standards in Kazakhstan's heating sector can reduce greenhouse gas emissions by 12.6–13.8 million tons of carbon dioxide (CO₂) per year, out of 229.95 million tons of CO₂ emitted annually (footnote 9). Integrating renewables into existing fossil-fuel-based heating systems will further reduce CO₂ emissions by lowering consumption of

¹² ADB. 2014. *Karaganda District Heating Network Rehabilitation Project: Feasibility study report*. Manila (TA 8253-KAZ).

¹³ Institute KazNIPiEnergoprom Joint-Stock Company. 2016. *Current State and Prospective Development of the Central Heat Supply System of the Republic of Kazakhstan*. Astana (14 April).

¹⁴ T. Balabanov. 2013. *Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply*. United Nations Development Programme and Global Environment Facility Project. According to this report, an energy audit showed that, on average in the residential sector, a 77% deviation between actual heat consumption and the norms set per square meter of space.

¹⁵ Finprom. 2019. [News: Heating has fallen in price by 14% over the year](#). 24 September (in Russian).

¹⁶ ADB. 2017. *Technical Assistance Completion Report: [Karaganda District Heating Network Rehabilitation Project](#)*. Manila.

fossil fuels (Japan, North America, the People's Republic of China, and Scandinavian countries have had success with this). However, according to the Climate Laws, Institutions and Measures (CLIM) Index, Kazakhstan (61st in the world) faces challenges in the formulation and implementation of relevant policies.¹⁷ Thus, assistance to Kazakhstan in drafting an effective policy and regulatory framework is timely and needed.

10. Kazakhstan has been severely affected by the coronavirus disease (COVID-19) outbreak. As of 31 August 2020, 105,795 of COVID-19 cases were confirmed, of which the highest numbers were reported in Nur-Sultan with 13,822 and 14,222 in Almaty City.¹⁸ The GDP in January–July 2020 contracted by 2.9% (for January–June the number was -1.8%) (footnote 18). Lockdowns introduced to mitigate the spread of COVID-19 infections resulted in slowdown of business activities and uncertainty regarding the prospects of economic recovery. Short-term economic indicator¹⁹ for January–July 2020 declined by 2.7% compared to the corresponding period in 2019 (footnote 18). This TA will help to mitigate the adverse economic impact of COVID-19 in medium and long term. One of the main results targeted under this TA is to reduce subsidies from the state budget aimed at supporting the heating sector. Instead, the country will be able to use the budgetary funding for its anti-crisis response measures and for expanding the social safety nets.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

11. The TA is aligned with the following impacts: (i) CO₂ emissions in electricity and heat production reduced by 15% by 2030 (baseline 2013) and (ii) the share of alternative energy sources increased to 30% by 2030 (footnote 8). The TA will have the following outcome: Heat Supply Law adopted by the Parliament of the Republic of Kazakhstan.²⁰

B. Outputs, Methods, and Activities

12. **Output 1: Gap analyses of the heat supply sector conducted.** Consultant will conduct a technical and legal due diligence of the heat supply sector to assess the current circumstances and possible gaps. The gap analyses report will include a gender assessment of the sector.

13. **Output 2: Renewable technology-inclusive heat supply legislation drafted.** Based on the gap analyses, Consultant will develop a draft Law on Heat Supply and other normative acts (including technical standards, tariff methodology, and heating development planning). The new legislation will establish a regulatory framework and incentive scheme for using renewable sources in heat supply, and for improving energy efficiency standards.²¹ Consultant will support the MOE at all stages of the government review process, including the parliamentary hearings.

¹⁷ The Climate Laws, Institutions and Measures Index of the European Bank for Reconstruction and Development compares the quality and depth of climate policies, measures, laws, and institutions.

¹⁸ The Committee on Statistics of Republic of Kazakhstan.

¹⁹ The Committee on Statistics of Republic of Kazakhstan calculates Short-term Economic Indicator based on the change in output indices for the basic sectors: agriculture, industry, construction, trade, transport and communications. The share of these industries in GDP is over 60%.

²⁰ The design and monitoring framework is in Appendix 1.

²¹ Appropriate renewable technologies such as deep- and/or shallow-ground geothermal, solar hot water, waste heat recovery from industries and municipal sewage plants, and curtailed wind-based electric boilers will be selected during implementation of the TA project.

14. Output 3: Public–Private Partnership framework in heat supply sector developed.

Consultant will prepare policy recommendation to establish sound framework of Public–Private Partnership in heat supply sector offering opportunities for increased participation of the private sector.

15. Output 4: International practices for heat supply systems disseminated.

Consultant will conduct extensive capacity building activities on renewable heat technologies and the applicable policy mechanisms will be provided to the Ministry of Energy and Akimats. At least two workshops will be organized for the main stakeholders, including members of Parliament to (i) share best practices from other countries and discuss the draft concept Law on Heat Supply, and (ii) present the draft Law on Heat Supply before submitting it to the government and Parliament. These workshops will include public consultations. This approach will substantially increase the effectiveness of the TA project.

C. Cost and Financing

16. The TA is estimated to cost \$1,550,000, of which (i) \$1,000,000 will be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility²² and (ii) \$500,000 will be financed on a grant basis by the Republic of Korea e-Asia and Knowledge Partnership Fund, and both administered by ADB.²³ The government will provide counterpart support in the form of counterpart staff, office accommodation, workshop facilities, logistics and administrative support, and other in-kind contributions. The value of the government contribution is estimated to account for 3.3% of the total TA cost.

D. Implementation Arrangements

17. ADB will administer the TA, including selection, supervision, and evaluation of consultants. The MOE will guide and coordinate project implementation. A coordination unit at the MOE will be responsible for coordinating the TA, including liaising with policymakers and stakeholders; providing data; supporting consultants with logistical support; and working with the consultant in organizing workshops. A consultant will organize the workshops in coordination with the MOE and ADB. The consultant will also lead all TA-financed goods to be procured in line with ADB's Procurement Policy (2017, as amended from time to time). All disbursements under the TA will be done in accordance with ADB's *Technical Assistance Disbursement Handbook* (2020, as amended from time to time). Funds under CEFPPF resources will be front-loaded or utilized first.

18. ADB will engage a consulting firm consisting of international technical and legal specialists as well as national experts using the quality-and cost-based selection method, with a 90:10 quality–cost ratio. This approach will prioritize the quality of the consultants as the tasks require specialized knowledge of heat supply systems, energy economics, policy making, and law. ADB will engage the consultants and carry out procurement following the ADB Procurement Policy (2017, as amended from time to time) and its associated staff instructions.²⁴ ADB will engage any consulting position identified at a later stage through individual consultant selection.

19. The implementation arrangements are summarized in the table.

²² Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom.

²³ All expenditure items listed in the present report are eligible under their respective implementation guidelines.

²⁴ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	September 2020–August 2022		
Executing agency	Ministry of Energy		
Consultants	To be selected and engaged by ADB as per the ADB Procurement Policy (2017, as amended from time to time)		
	Firm: Quality- and cost-based selection	Consulting firm International: 28 person-months National: 57 person-months	\$1,454,000.00
	Individuals: Resource person recruitment	International and national: up to 10 persons and up to 10 days each	\$10,000.00
Procurement ^a	Goods will be procured by the consultants and will be turned over to the executing agency upon completion of the TA project.		
	Shopping	Equipments	\$5,000.00
Advance Contracting	Consulting firm will be selected using advance contracting method.		
Disbursement	The TA resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2020, as amended from time to time).		
Asset turnover or disposal arrangement upon TA completion	Assets procured under TA funds will be turned over to the executing agency upon TA completion.		

ADB = Asian Development Bank, TA = technical assistance, TBD = to be determined.

^a Procurement Plan (accessible from the list of linked documents in Appendix 3).

Source: Asian Development Bank.

20. **Co-financier requirements.** The TA implementation will follow the additional monitoring and reporting requirements specific to the Clean Energy Fund under the Clean Energy Financing Partnership Facility and the Republic of Korea e-Asia and Knowledge Partnership Fund.

IV. THE PRESIDENT'S DECISION

21. The President, acting under the authority delegated by the Board, has approved (i) the Asian Development Bank (ADB) administering the technical assistance not exceeding the equivalent of \$1,000,000 to be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility, and (ii) ADB administering the technical assistance not exceeding the equivalent of \$500,000 to be financed on a grant basis by the Republic of Korea e-Asia and Knowledge Partnership Fund to the Government of Kazakhstan for Supporting Renewable Technology-Inclusive Heat Supply Legislation, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Impact the TA is aligned with CO ₂ emissions in electricity and heat production reduced by 15% by 2030 (baseline 2013) and the share of alternative energy sources increased to 30% by 2030 (Kazakhstan Transition to a Green Economy) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Heat Supply Law adopted by the Parliament of the Republic of Kazakhstan	Draft Law on Heat Supply submitted to Parliament by Q4 2021 (2019 baseline: not submitted)	Parliament registry	Change of political agenda results in Parliament failing to adopt the proposed legislation.
Outputs 1. Gap analyses of the heat supply sector conducted 2. Renewable technology-inclusive heat supply legislation drafted 3. Public–Private Partnership (PPP) framework in heat supply sector developed	1a. Gap analyses report including gender assessment of the sector is presented to the MOE and ADB by 2020 (2019 baseline: not presented) 1b. Gender action plan developed by 2020 (2019 baseline: not developed) 2a. Draft Law on Heat Supply and package of other normative acts submitted to MOE by 2021 (2019 baseline: not submitted) 3a. Policy recommendation on PPP strategy drafted by 2021 (2019 baseline: not submitted) 3b. Government is advised on PPP framework development action plan by 2021 (2019 baseline: not submitted)	1a. Consultants' gap analyses reports 1b. Consultants' TA progress reports (issued quarterly) 2a. Abstract from the records of official registry for draft laws of Parliament 3a-b. TA consultants' report(s) (progress reports, stakeholder meeting minutes, and summary reports)	Legal and/or political challenges arise and stall the process.
4. International practices for heat	4a. Extensive capacity building activities on renewable heat	4a-b. TA consultants' report(s) and workshop evaluation reports	Lack of skills for capturing lessons from the program

supply systems disseminated	<p>technologies and the applicable policy mechanisms for the staff of the Ministry of Energy and Akimats conducted by 2021 (2019 baseline: not organized)</p> <p>4b. Two workshops on modern heat supply systems and new laws organized for main stakeholders by 2021 (2019 baseline: not organized)</p>		may discourage knowledge dissemination.
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Key Activities with Milestones

1. Gap analyses of the heat supply sector conducted

- 1.1 Conduct full technical, environmental, social, and legal due diligence of Kazakhstan's heat supply sector (Q3 2020)
- 1.2 Prepare sector gender assessment as a part of the gap analyses report (Q3 2020)

2. Renewable technology-inclusive heat supply legislation drafted

- 2.1 Complete stakeholder consultations (Q3 2020)
- 2.2 Prepare the concept Law on Heat Supply (Q4 2020)
- 2.3 Support the MOE to approve the draft concept law in accordance with government procedures (Q4 2020)
- 2.4 Prepare the draft Law on Heat Supply and the package of other legal and/or normative acts (technical standards, tariff methodology, and bylaws) (Q2 2021)
- 2.5 Complete public consultations on the draft Law on Heat Supply (Q3 2021)
- 2.6 Assist the MOE during Cabinet discussions and parliamentary hearings on the draft Law on Heat Supply (Q4 2021)

3. Public–Private Partnership framework in heat supply sector established

- 3.1 Draft policy recommendation on Public–Private Partnership in heat supply sector (Q3 2021)
- 3.2 Based on the policy recommendation, advise government on the development of action plan (Q4 2021)

4. International practices for heat supply systems disseminated

- 4.1 Conduct the capacity building activities on renewable heat technologies and the applicable policy mechanisms for the Ministry of Energy and Akimats (Q2 2021)
- 4.2 Conduct a workshop on sharing replicable practices from other countries and discuss the draft concept Law on Heat Supply with stakeholders (Q4 2020)
- 4.3 Conduct a workshop and/or a public discussion on the draft Law on Heat Supply with stakeholders (Q3 2021)

TA Management Activities

Advertise the consulting firm recruitment (Q1 2020)
Recruit a consulting firm (Q3 2020)

Inputs

Clean Energy Fund under the Clean Energy Financing Partnership Facility: \$1,000,000
Republic of Korea e-Asia and Knowledge Partnership Fund: \$500,000
Government: \$50,000

Note: The government will provide counterpart support in the form of counterpart staff, office accommodation, provision of workshop facility, office supplies, secretarial assistance, and other in-kind contributions.

Assumptions for Partner Financing

Not applicable.

ADB = Asian Development Bank, CO₂ = carbon dioxide, MOE = Ministry of Energy, Q = quarter, TA = technical assistance.

^a Government of Kazakhstan. 2013. *Presidential Decree on the Concept for the Transition of the Republic of Kazakhstan to a Green Economy*. Astana (3 May).

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN

(\$'000)

Item	Amount
A. Clean Energy Fund^a under the Clean Energy Financing Partnership Facility	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	500.0
ii. National consultants	350.0
b. Out-of-pocket expenditures	
i. International and local travel	66.0
ii. Reports and communications	13.0
2. Goods (rental and/or purchase) ^d	15.0
3. Training, seminars, workshops, forum, and conferences ^c	20.0
4. Contingencies	36.0
Subtotal (A)	1,000.0
B. Republic of Korea e-Asia and Knowledge Partnership Fund^b	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	271.0
ii. National consultants	137.0
b. Out-of-pocket expenditures	
i. International and local travel	19.0
ii. Reports and communications	6.0
2. Goods (rental and/or purchase) ^d	12.0
3. Surveys ^e	20.0
4. Training, seminars, workshops, forum, and conferences ^c	25.0
5. Contingencies	10.0
Subtotal (B)	500.0
Total	1,500.0

Note: The technical assistance (TA) is estimated to cost \$1,550,000 of which contributions from the Clean Energy Fund and Republic of Korea e-Asia and Knowledge Partnership Fund are presented in the table. The government will provide counterpart support in the form of counterpart staff, office accommodation, workshop facilities, logistics and administrative support, and other in-kind contributions. The value of the government contribution is estimated to account for 3.3% of the total TA cost.

^a Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom. Administered by the Asian Development Bank.

^b Administered by the Asian Development Bank.

^c Workshops, seminars, and public consultation meetings and Miscellaneous administration and support costs for consultants which includes the following: (i) honorarium and travel costs for resource persons and facilitators, participants' travel costs, travel costs as resource persons and/or speakers, and logistical costs; and (ii) printing costs for workshops, materials, Interpretation and translation costs).

^d Vehicle operation cost/vehicle hire (site), and equipment (photocopier and printer, laptop computers, and software and accessories). ADB will turn over the assets to the executing agency upon TA completion.

^e Environmental, gender, and social surveys.

Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/LinkedDocs/?id=53341-001-TARreport>

1. Terms of Reference for Consultants
2. Procurement Plan