



Completion Report

PUBLIC

Project Number: 54383-001

Small-scale Knowledge and Support Technical Assistance Number: 6571

June 2022

Kyrgyz Republic: Enhancing Knowledge and Capacity for Public Procurement System in the Kyrgyz Republic

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TECHNICAL ASSISTANCE COMPLETION REPORT

TA Number, Country, and Name: TA 6571-KGZ: Enhancing Knowledge and Capacity for Public Procurement System in the Kyrgyz Republic		Amount Approved: \$225,000	
		Revised Amount: N/A	
Executing Agency: Public Procurement Department under the Ministry of Finance of the Kyrgyz Republic	Source of Funding: Technical Assistance Special Fund 6	Amount Undisbursed: \$1,510.72	Amount Used: \$223,489.28
TA Approval Date: 23 September 2020	TA Signing Date: 23 September 2020	TA Completion Date	
		Original Date: 31 March 2022	Latest Revised Date: N/A
		Financial Closing Date: 11 May 2022	Number of Extensions: N/A
TA Type: Knowledge and Support	Nature of Activity: Capacity development	TA Arrangement: Small-scale Technical Assistance (TA)	

Description

In 2020, the government of the Kyrgyz Republic (government) requested ADB to provide urgent assistance to tackle the problems related to cyber-security and malfunctioning of its electronic procurement system (e-GP). Upon studying the e-GP, ADB responded with present TA to improve the functionality and cyber-security of e-GP by developing and introducing data asymmetric encryption and digital signature, and procurement and installation of equipment critical for data management. The small-scale technical assistance modality was chosen because it aligned with the required level of support at that stage and enabled ADB to commence the support without undue delay: the urgency of this TA, apart from long needed intervention for which the government did not have appropriate resources, also explained by the necessity to promptly improve capacity of government e-procurement system in order to adequately respond to all challenges caused by restrictions related to coronavirus disease (COVID-19) pandemic.

Expected Impact, Outcome, and Outputs

The TA is aligned with the following impact: Improved public procurement administration in the Kyrgyz Republic. The TA has the following outcome: Enhanced cyber-security and functionality of the public procurement system in the Kyrgyz Republic.

TA has the following outputs:

1. asymmetric key encryption of price bids developed.
2. digital signature to authenticate the transactions in the e-GP system implemented.
3. equipment for data management procured, and, roadmap for further development of e-GP prepared.

Implementation Arrangements

Implementation arrangements were in line with the approved TA paper. ADB administered the TA. The Public Procurement Department under the Ministry of Finance (PPD) was the executing agency (EA) and was responsible for coordinating with the relevant government agencies and organizations. The consultants submitted reports to ADB and PPD as indicated in the design and monitoring framework. All reports by the consultants were provided in English and translated into Russian. The TA was implemented over 18 months from September 2020 to March 2022. The TA resources were disbursed following ADB's Technical Assistance Disbursement Handbook (2020, as amended from time to time). All goods procured under this TA have been transferred to the EA. The TA planned about 2 person-months of international and 10 person-months of national consulting services. In fact, the TA used 3 person-months of international and 12.5 person-months of national consulting services.

Conduct of Activities

The government received many complaints from bidders that the system did not keep data confidential, for example, for large bids the lowest bids were fractionally lower than the second lowest, which raised suspicions that the price bids were known by competitors who then would submit marginally lower bids. ADB consultant confirmed that at least at system administrator's level it was possible to view all price bids. A frequent complaint was also for slow work of the system and ADB consultant reported that the system had run out of processing and memory capacities and urgent addition of new servers was needed. Additionally, this system was created in 2014 with use of 2001 scripts and assistance with major software upgrading and functionality increase was also requested by the government. TA outputs addressed these issues as follows:

Output 1: Asymmetric key encryption of price bids developed. By 25 November 2021, one national (procurement expert/project coordinator) and one international (e-procurement expert) individual consultants had been recruited to provide direct support for project implementation. These two experts developed terms of reference for the development of asymmetric encryption and by May 2021 the software firm had been selected and started the work. During

development of the software for asymmetric encryption the international e-procurement expert provided guidance and quality assurance for software firm and in December 2021 the finalized software was handed over and commissioned to service. Thus, the security of system has been improved with 100% security of the price bids.

Output 2: Digital signature to authenticate the transactions in the e-GP system implemented. During project approval and selection of software firm the EA managed to start the works on development and implementation of cloud-based digital signature so the scope of work under this output had been decreased. Considering this, it was decided to add this work to the existing software developing firm under Output 1 through contract variation instead of performing another full-scale selection. Under the guidance and quality assurance from the international e-procurement expert the consulting firm successfully extended the application of cloud-based signature and developed new token-based signature and both options extrapolated throughout the e-GP. By 31 December 2021, the consulting firm successfully had handed over final product to the EA.

Output 3: Equipment for data management procured. Individual consultants developed technical specifications for servers and related equipment and after simplified procedure for the procurement of goods (RFQ: request for quotations) the contract was signed on 28 June 2021 with equipment delivered in September 2021. The project had savings of \$21,000 and per EA request this amount was allocated for procurement of additional equipment. RFQ was advertised and contract signed on 2 March 2022, equipment delivered on 29 March 2022 and by this Output 3 has been successfully completed. In total EA received 2 servers, 1 SAN disk and various other server auxiliary equipment as RAM and HDD memory, back-up tapes, and equipment for video-conference room.

Output 4: Roadmap for further development of e-GP prepared. By May 2021, the international e-procurement expert assisted by a national consultant, finalized the final report on further improvement of e-GP) and submitted document to ADB and EA. This document laid the foundation for the follow-up TA on further improving of Kyrgyz e-GP which was approved by ADB on 29 October 2021.¹

Thus, all deliverables against the planned activities in the TA paper were performed. The TA was implemented on time with no delays. The TA budget utilization percentage is 99.33%.

Technical Assistance Assessment Ratings

Criterion	Assessment	Rating
Relevance	<p>TA is aligned with the country's strategic target of digital transformation with which the government had been trying to digitalize its operations with an accent on transferring public service delivery on-line.² ADB's strategic plan is also to improve public service delivery through greater use of ICT.³ The government did not have sufficient resources (financial and expertise) and asked ADB to intervene.</p> <p>TA DMF's result chain was tailored to the needs of the government and TA components adequately addressed the assistance sought. The envisaged activities under TA outputs were performed in full and within allocated timeframe and budget, consequently meeting the planned outcome of improving cyber-security and functionality of the public procurement system. More secure and functional e-GP improved public procurement administration in the Kyrgyz Republic and TA planned impact has been achieved.</p> <p>The government has limited resources to pursue the digital agenda both in terms of financing and ICT expertise and must rely largely on international development partners. ADB has been providing continuous support in digital transformation - the original e-GP was developed with ADB assistance and ADB monitored closely evolution and usage of this system.⁴ The problems government encountered and the solution ways were clear for ADB. SSTA modality was chosen for (i) the smaller size of intervention required – full-scale TA or investment lending would be excessive; (ii) urgency of assistance – the government requested urgent intervention and SSTA is one of the fast-processing ADB product.</p>	Relevant
Effectiveness	<p>The intended outcome of more secure and functional public procurement system has been fully achieved through successful implementation of all TA outputs:</p> <ul style="list-style-type: none"> - Output 1 developed asymmetric encryption and no government agencies can use it for high value or important procurement – this guarantees that 	Effective

¹ ADB. [Kyrgyz Republic: Implementing the e-Procurement System Project \(Phase 1\)](#).

² Government of Kyrgyz Republic. 2019. *Digital Kyrgyzstan: National Concept of Digital Transformation, 2019–2023*. Bishkek.

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

⁴ ADB. [Kyrgyz Republic: Implementing the e-Procurement System Project](#).

Criterion	Assessment	Rating
	<p>even a system administrators cannot see price bids and such encryption is very difficult for hacking.</p> <ul style="list-style-type: none"> - Output 2 extended usage of cloud-based electronic signature (already developed by the government) and developed new token-based signature. The token-based signature closely related to the function of asymmetric encryption – the tender/bid price is encrypted with token and no bid opening is possible without this token. Such function allows on-line signing of documents, e.g., instead of signing paper document and sending scanned copy of bid/contract the users can verify on-line through cloud-based signing with PIN, or token-based using individual tokens. <p>Together these two new functions increased data security significantly and made impossible any unauthorized access to bid data. Functionality of the system was also improved with digital signing, making it truly on-line (in the old version all important documents should be signed on paper and scanned copies downloaded to the system) with on-line verification of transactions.</p> <ul style="list-style-type: none"> - Output 3 increased hardware capacity as this was identified as a bottleneck negatively affecting the speed of data processing. Procurement of two servers and auxiliary equipment increased the capacity of the hardware and now e-GP processes data more effectively with increased speed. The old hardware would not accommodate new applications as asymmetric encryption and digital signature, hence, this output also effectively contributed to the improvement of system's functionality. - Output 4 has no direct impact on TA outcome; however, it has significant impact on overall e-GP development as it developed future actions needed for system upgrade and enlargement. The e-GP was developed in 2014 using scripts (Java) created in 2001; it does not cover all procurement transactions, only those up to bid opening, the consequent ones as evaluation, contract award, etc. are done manually on paper. The roadmap for further improvement of e-GP prepared under this output laid a foundation for a new TA which is planned to do major system upgrade and accomplish the digitalization of e-GP (shift all transactions on-line). <p>All TA outputs were effectively delivered on time and within the allocated budget resulting in successful project outcome.</p>	
Efficiency	The TA was successfully completed on time and within its budget.	Efficient
Overall Assessment	The TA is rated successful. All outputs were successfully completed on time and within the budget.. The asymmetric bid encryption and digital electronic signature are fully functional features of e-GP now, of which the procuring entities have the option of using these for high value procurement to eliminate the possibility of any unauthorized access to bidding data. New equipment increased e-GP capacity and speedmaking the e-GP system as more secure and faster. This TA helped to gather the data and identify further actions for system improvements. A new TA was started in November 2021 which will assist in further upgrading and improving the e-GP.	Successful
Sustainability	The TA succeeded in achieving its outcome and the government can maintain the new software incorporated into e-GP. The present e-GP was developed with ADB assistance in 2012-2015 and since then the government has maintained the system. The specialized agency, Public Procurement Department under the Ministry of Finance (PPD), was established and has its own budget allocated by the government to maintain the e-GP. As highlighted in TA Report – the government has the capacity for system maintenance but has no capacity for development of new software, which is more costly than maintenance.	Likely sustainable

Lessons Learned and Recommendations

Design and/or planning	The TA objectives were straightforward, and the outputs were easy to measure (new functions on the website of Public Procurement Department). The design of the TA was relatively simple and matched the level of assistance requested by the government.
Implementation and/or delivery	Though the TA successfully implemented all deliverables, the development of new software (asymmetric encryption and digital signature) turned out to be a complex task requiring high level of expertise and longer implementation time. Recruiting the best consultants/firms available ensures the quality of the final product and extra time shall be allocated/planned for software development

	because development of the software is relatively fast, but its testing requires longer period to reveal all error, flaws and malfunctioning.
Management of staff and consultants	The TA had full-time national expert for project coordination and this strategy was successful as he effectively served as liaison between ADB, EA and consulting firms, coordinated all project activities and assisted government counterparts to implement their tasks under the project.
Knowledge building	The TA successfully delivered two knowledge products: asymmetric encryption and digital signature. The digital signature was a familiar technology and different government agencies were implementing it on various levels (for example, tax office made it compulsory in 2022, online submission of annual tax reports authenticated by digital signature), however, the asymmetric encryption was a new technology for government agencies to secure their data exchange. The development of this software was delegated to a local firm under the guidance of an international IT expert, ensuring the transfer of best international technologies to this country. The major benefit for the country is not only the high-quality software products but also the enhanced local capacities for developing such products.
Stakeholder participation	The major TA stakeholder – PPD was also the Implementing Agency (IA) for the project and actively participated in the implementation process. However, the major lesson learned from this TA is that for software developing projects it is vital to engage end-users, in this case the private sector (bidders) and government agencies (procuring entities). The TA only performed the baseline study during which bidders and procuring entities proposed many ideas on improving the e-GP and identified shortfalls of the system. For future TAs it is recommended to continuously engage end-users in all stages of implementation (only for full-size TAs as the scale of SSTA has certain limitation both in budget and time). Also, in line with ADB commitment to inclusiveness and sustainability the women leaders/owners of SMEs should be included in the stakeholder engagement to enable them to: (i) understand the government e-procurement system; (ii) improve their capacity to use/navigate through the system; (iii) widen their participation in government procurement; (iv) provide feedback and/or inputs to make the system more user-friendly. By including them among the stakeholders, women's businesses will also have the opportunity to expand their markets and become competitive.
Partnership	During TA implementation ADB and IA actively communicated with other developing partners (DPs) as EBRD, World Bank and USAID and built the informal network (staff responsible for procurement in every respective agency) to discuss government procurement development issues. It is important to coordinate with DPs to avoid duplication as periodically some of them start their own assistance projects. Besides, every of them has a wealth of expertise and knowledge in various sectors of e-procurement development.
Replication and/or scaling up	This TA conducted preliminary investigation of existing e-GP and identified ways for its improvement and transition to 100% on-line (Output 4). Such work allowed ADB to scale up its assistance to the government of Kyrgyz Republic in improving its e-procurement system by another full-scale TA approved by ADB in October 2021. ⁵

Follow-up Actions

The outcome of this TA to improve the security and functionality of the public procurement system in the Kyrgyz Republic has been highlighted in the CPS final review. KYRM started new TA in October 2021 to continue the gains achieved under this TA.

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⁵ ADB. [Kyrgyz Republic: Supporting the Completion of e-Procurement System Digitalization \(Phase 1\)](#)

DESIGN AND MONITORING FRAMEWORK

Impact(s) Improved public administration in the Kyrgyz Republic.		
Results Chain	Performance Indicators with Targets and Baselines	Achievements
Outcome More secure and functional public procurement system in the Kyrgyz Republic	a. By 2022 more than 25% of the suppliers and purchasing officials perceive the e-GP system as more secured.	a. Achieved. The original problem of data security (bidders complained that their price bids were hacked and seen by competitors) has been solved by the introduction of asymmetric encryption and electronic digital signature – new software for this handed over to EA in December 2021. Slow work of e-GP has been solved by purchasing two new servers and auxiliary equipment in September 2021. Data source: government e-procurement portal at http://zakupki.gov.kg/popp/home.xhtml
Outputs 1. Asymmetric key encryption of price bids developed 2. Digital signature to authenticate the transactions in the e-GP system implemented 3. Equipment for data management procured 4. Roadmap for further improvement of e-GP prepared	1. By 2022 secured online bid submission for 100% of high value procurement exceeding minimum threshold values Baseline: none 2. 100% of transactions exceeding minimum threshold value will be digitally signed in the e-GP platform Baseline: none 3. By 2022 SAN disks and 3 servers purchased Baseline: none 4. By 2022 concept paper for new project prepared Baseline: none	1. Achieved. By 31 December 2021 the asymmetric encryption function was developed and handed over to PPD. Now procuring entities have the option to advertise with such function and bidders must submit their bids verifying with electronic digital signature. This prevents hacking and increases security of bid data as now no one can see price bids even the system administrators. Only the bidder can see his/her price in the system and procuring entity can see price bids only after on-line bid opening. Data source: government e-procurement portal at http://zakupki.gov.kg/popp/home.xhtml 2. Achieved. By 31 December 2021 the application of cloud based electronic signature (developed by the government) extended throughout all e-GP. For asymmetric encryption second option of token-based e-signature was developed and extended all over the system. Both formats of signature can be used in parallel to verify all procurement transactions up to bid opening. If further e-modules were added (bid evaluation, contracting) both formats of e-signature can be easily extended to cover new transactions. Data source: government e-procurement portal at http://zakupki.gov.kg/popp/home.xhtml 3. Achieved. By 31 March 2022, 2 servers, SAN disk and numerous other auxiliary equipment purchased and installed at PPD premises (PPD opted to decrease number of servers and increase auxiliary equipment). 4. Achieved. The concept paper for a new follow-up TA prepared and in October 2021 ADB approved TA.

Actual Key Activities with Milestones**Output 1: Asymmetric key encryption of price bids developed**

- 1.1 Recruit international and national e-procurement experts (planned completion – November 2020). By December 2020, two experts recruited and started their work.
- 1.2 Develop TOR and requirements for consulting firm (January 2021). By March 2020, TOR developed and invitation for expression of interests advertised.
- 1.3 Conduct selection of consulting firm (QCBS 90:10, STP) and award the contract (March 2021). By May 2020, the selection was completed, and contract signed with consulting firm.
- 1.4 Contract management and monitoring of consultant's work (October 2021). May–November 2021 the consulting firm delivered inputs per contract, ADB and PPD jointly monitored consultant's work.
- 1.5 Hand-over the work to PPD, start of using asymmetric encryption (November 2021). Asymmetric encryption function handed over to PPD in December 2021 and has been in use since then.

Output 2: Digital signature to authenticate the transactions in the e-GP system implemented

- 2.1 Recruit international and national e-procurement experts (November 2020). By December 2020, two experts recruited and started their work.
- 2.2 Develop TOR and requirements for consulting firm (January 2021). TOR developed by May 2021.
- 2.2 Conduct selection of consulting firm (QCBS 90:10, STP) and award the contract (March 2021). Considering decrease of the scope for this output (government independently developed cloud-based electronic signature and the project just needed to expand its application to e-procurement system) the remaining works had been added through contract variation to the contract under Output 1 in August 2021.
- 2.3 Contract management and monitoring of consultant's work (October 2021). During August–December 2021 the consulting firm delivered inputs per contract, ADB and PPD jointly monitored consultant's work.
- 2.4 Hand-over the work to PPD, start of use of digital signature (November 2021). Token-based electronic signature developed and together with cloud-based signature their application expanded through all system. The new functions handed over to PPD in December 2021 and has been in use since then.

Output 3: Equipment for data management procured

- 3.1 Develop technical specifications for equipment (December 2020). Individual consultants developed technical specifications for servers in April 2021.
- 3.2 Conduct procurement and award the contract (January 2021). By July 2021 procurement conducted and contract for the supply of servers and auxiliary equipment signed.
- 3.3 Supply, installation, and commissioning of equipment (February 2021). In September 2021, the equipment delivered and commissioned to service. In February 2022, PPD requested to use project's savings to buy additional equipment for server room and video-conference room. Using ADB simplified method for the procurement of goods, equipment was purchased, delivered and installed in March 2022.

Output 4: Roadmap for further improvement of e-GP prepared

- 4.1 Scope of work defined along with requirements for consulting firms and TORs (July 2021). By July 2021, the international e-procurement expert defined requirements for further improving e-GP.
- 4.2 Specifications and requirement for hardware defined (July 2021). By July 2021, the international e-procurement expert defined specifications and requirements for hardware.
- 4.3 Final document prepared and agreed with PPD (October 2021). By October 2021, PPD reviewed and approved concept paper for follow-up TA. In November 2021, new TA became effective

Actual Inputs

Asian Development Bank: \$223,489.28

Source: Asian Development Bank.

ADB = Asian Development Bank, e-GP = government e-procurement system, PPD = Public Procurement Department, QCBS = quality-and-cost-based selection, STP = simplified technical proposal, TA = technical assistance, TOR = terms of reference.

Source: Asian Development Bank.

TECHNICAL ASSISTANCE COST

Table A2.1: Technical Assistance Cost by Activity
(\$'000)

Item	Amount	
	Original	Actual
1. Consultants	137.00	149.83
2. Equipment	65.00	70.99
3. Seminars, workshops, training	12.50	2.67
4. Studies, surveys, and reports	4.30	0.0
5. Contingency	6.20	0.0
Total	225.00	223.49

Source: Asian Development Bank estimates.

Table A2.2: Technical Assistance Cost by Fund
(\$'000)

	ADB TASF (VI)	Total Cost
1. Original	225.00	225.00
2. Actual	223.49	223.49
3. Unused	1.51	1.51

Source: Asian Development Bank estimates.