



OFFICE OF INSPECTOR GENERAL
U.S. Agency for International Development

Sustainability of Improvements Under USAID/Pakistan's Satpara Development Project Is at Risk

AUDIT REPORT 5-391-18-003-P
SEPTEMBER 26, 2018

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MEMORANDUM

DATE: September 26, 2018

TO: USAID/Pakistan Mission Director, Jerry Bisson

FROM: Regional Inspector General/Manila, Matthew Rathgeber /s/

SUBJECT: Sustainability of Improvements Under USAID/Pakistan's Satpara Development Project Is at Risk (5-391-18-003-P)

This memorandum transmits the final report on our audit of USAID/Pakistan's Satpara Development Project. Our audit objective was to determine if USAID-funded improvements to the existing irrigation system under the Satpara Development Project are sustainable. In finalizing the report, we considered your comments on the draft and included them in their entirety, excluding attachments, in appendix B.

The report contains one recommendation. Having reviewed the information you provided in response to the draft report, we consider the recommendation open-resolved pending completion of the planned action.

Please provide evidence of final action to the Audit Performance and Compliance Division.

We appreciate the assistance you and your staff extended to us during this audit.

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INTRODUCTION

Pakistan’s chronic, severe electricity shortage and impending water scarcity threaten the country’s political and economic stability.¹ To help address these issues, the U.S. Government invested with the Pakistani Government in multipurpose dams, hydropower plants, and irrigation systems—among them the Satpara Dam.² In addition, in March 2012, USAID initiated the Satpara Development Project. The \$20.9 million project was designed to enhance agricultural productivity and increase the value of agricultural products in the Skardu area of Gilgit-Baltistan by extending irrigation.³

USAID/Pakistan designed the Satpara Development Project in conjunction with work on the Satpara Dam. Irrigation water from the Satpara Lake was to be channeled through the Satpara Dam’s two main canals—with additional water diverted from a nearby body of water, the Shathung Nullah—to natural streambeds that would be improved under the project.

The USAID Office of Inspector General (OIG) conducted this audit to determine if USAID-funded improvements to the existing irrigation system under the Satpara Development Project are sustainable. As part of that objective, we assessed key elements of the project, including maintenance and operating agreements for the infrastructure, and water access.

To conduct our work, we reviewed project documents and conducted interviews with beneficiaries and officials from USAID/Pakistan, the implementers, and Pakistani national and local government officials. We conducted site visits in Islamabad and in Skardu, Pakistan. We followed generally accepted government auditing standards. Although the USAID-funded Satpara Dam Project was not part of our scope, because the construction of two main canals funded by the Satpara Dam Project was a critical component of the Satpara Development Project’s irrigation system, we included a discussion of the canals and their importance in this audit. Appendix A presents our scope and methodology.

SUMMARY

Sustainability is a core tenet of U.S. international development policy—meaning that the benefits from a project continue after USAID’s involvement ends. Yet, the sustainability of USAID-funded improvements to the existing irrigation system under the Pakistan Satpara Development Project is questionable. The mission did not get stakeholders to

¹ [The Federation of American Scientists](#), [World Bank](#), [U.S. Institute of Peace](#), [Foreign Policy](#), [National Bureau of Asian Research](#), and others have reported on this.

² Another such project was the Gomal Zam Dam, also audited by OIG: “Pakistan’s Gomal Zam Dam Has Not Generated the Electricity Anticipated Despite Millions in USAID Investments,” [5-391-18-001-P](#), February 12, 2018.

³ Gilgit-Baltistan, formerly known as the Northern Areas, is a semiautonomous territory administered by Pakistan.

agree on who would operate and maintain the irrigation system after USAID/Pakistan completes the project on December 11, 2018. Without that agreement, maintenance was not done on completed canals, and the irrigation system deteriorated. Moreover, the mission did not resolve downstream water access, and water scarcity led water rights holders to halt the flow from the Satpara Dam to the irrigation system. Consequently, improvements made to increase irrigation, enhance agricultural productivity, and improve the lives of Pakistanis in the Skardu region of Gilgit-Baltistan are at risk.

We are making one recommendation to address the issues hindering sustainability.

BACKGROUND

Agriculture is the livelihood of many in Skardu, and it is challenging. Farmers contend with low rainfall, insufficient access to water due to weak irrigation infrastructure and poor water management, short growing seasons, harsh winters, and high rates of wastage of seasonal fruits due to the lack of storage and processing facilities and a lack of connection to outside markets.

The Satpara Development Project was to expand the irrigated acreage in the Satpara Lake area from 2,689 to 15,500 and address agricultural challenges primarily by ensuring efficient use of the dam's irrigation water for farming (rebuilding natural canals as shown in the following photos). In March 2012 the mission signed a 5-year, \$19.8 million cooperative agreement with the Aga Khan Foundation (AKF), which made a subaward to the Pakistani nonprofit Aga Khan Rural Support Programme (AKRSP) to implement the project. In March 2018, the project's completion date was extended to December 11, 2018, and the total amount was increased to \$20.9 million. Although the irrigation canal system had been completed much earlier, USAID increased the funding because of damage to the irrigation system caused by severe flooding in August 2017.



Water flows through a natural irrigation canal in Skardu. Photo: OIG (December 1, 2015)



This canal constructed by the project is designed to transport water more efficiently to surrounding areas. Photo: OIG (December 21, 2015)

According to the project design, groups of farmers benefiting from improved irrigation under the project were expected to help maintain the new canals. Members of communities living on the banks of the Satpara stream, who hold water rights dating back decades, indicated to us that, if excess water were available, they could give downstream farmers access to that surplus.

USAID DID NOT BROKER AN OPERATION AND MAINTENANCE AGREEMENT OR RESOLVE WATER ACCESS, BOTH CRITICAL TO SUSTAINABILITY

Although the project made a number of improvements to the existing irrigation channels, USAID/Pakistan did not take steps to ensure Satpara Development Project results are sustainable—a core tenet of USAID’s development policy. USAID has a longstanding emphasis on sustainability, and USAID policy requires that missions build sustainability into program design and invest in development projects that lead to sustainable results.⁴

⁴ Sustainability means that the benefits from a project continue after USAID’s involvement ends. (Automated Directives System (ADS) 201, effective October 1, 2015. USAID revised ADS chapter 201 in 2016 and again in 2018; however, the 2010 version of ADS 201 was in effect during fieldwork.)

The project's new irrigation system was designed to increase the available water by reducing seepage and water overflows, saving farmers the time and effort needed to irrigate their land. According to beneficiaries, the system did that and more: it delivered irrigation water to farmers who previously did not have the right to use the flow from the USAID-funded Satpara Dam. Despite these accomplishments, mission officials missed opportunities to resolve problems related to operation, maintenance, and water access.

Operation and Maintenance Problems Contributed to Nonfunctioning Irrigation Systems

In Pakistan, management of irrigation systems is generally the responsibility of provincial irrigation departments, but since such a department did not exist in Gilgit-Baltistan, the design assumption was that Pakistan's Public Works Department would manage the project irrigation system. However, at the end of audit fieldwork, the Public Works Department had not assumed control of the canals from the Pakistani Government because the department had no prior experience managing irrigation systems. Instead, the Water and Power Development Authority (WAPDA) was managing the dam, but according to the mission, WAPDA officials did not want to assume responsibility for managing the canals. Community organizations, already formed and trained, were restructured by the project to better manage the irrigation system, but they focused on channels beyond the main and secondary canals instead of on the flow of water from the dam into the irrigation system.

Despite knowing that Pakistani Government officials and community organizations were unable or reluctant to take over the operation and maintenance of the canals, officials in the mission's Energy Office did not make it a priority to work with WAPDA, Gilgit-Baltistan officials, or community organizations to resolve who would take responsibility for canal operation and maintenance. WAPDA officials proposed a steering committee on which they would sit along with officials from Gilgit-Baltistan and USAID, but the committee never met. When asked why, an Energy Office official said USAID/Pakistan acted as an observer and that it was the responsibility of WAPDA and Gilgit-Baltistan officials to resolve the operation and maintenance of the dam and irrigation system.

Because the mission did not resolve who would maintain the two main canals or secondary canals, no one did. At the time of our audit, the two main canals had either been damaged or had deteriorated and were not functional. Severe floods had caused a buildup of silt, and falling boulders and rocks had damaged the structures, as shown in the following photo.



These boulders are crushing the wall of one of the two main canals. Photo: OIG (December 21, 2015)

Water Access Disputes Were Not Resolved, Sharply Reducing Supply

Mission officials also did not take effective action to ensure that AKF achieved timely resolution of the contentious issue of water access rights—specifically, the provision of irrigation water to those not holding water rights. The provision was predicated on additional water being supplied to the system by diverting the Shathung Nullah to the Satpara Dam. However, diversion was stopped due to environmental concerns raised by the International Union for Conservation of Nature, World Wildlife Fund, and Deosai National Park, effectively barring access to the river as a source of water. Without that water, water rights holders opposed sharing water and stopped its flow through the dam’s two main canals. AKF, faced with limited water availability and rising opposition from water rights holders, secured additional water from seasonal streams, which do not provide consistent water throughout the year.

Inability to resolve the water rights issues and the environmental concerns that prevented the diversion of the Shathung Nullah to the Satpara Dam had a detrimental impact on the project’s intended achievements. The cooperative agreement stated that AKF was to ensure the efficient use of the water from Satpara Dam canals, which was expected to irrigate approximately 15,500 acres of farmland. However, the mission’s agreement officer’s representative indicated this goal was unachievable because of the lack of water. A water survey completed by AKF showed that available water was sufficient to irrigate only 10,000 acres—64 percent of the planned area.

CONCLUSION

USAID is responsible for fostering the sustainability of its projects. Yet, lack of agreement on operation and maintenance of the dam and on water rights has compromised the sustainability of the Satpara Development Project. Unless the mission steps in to help Pakistani agencies resolve these important issues, USAID’s nearly \$21 million investment in the project is unlikely to increase irrigation to the extent intended—thereby lessening the rise in agricultural productivity and the improvement in the lives of Pakistanis in Gilgit-Baltistan.

RECOMMENDATION

We recommend that USAID/Pakistan take the following action:

- I. Implement a plan to bring together relevant Pakistani Government officials, Gilgit-Baltistan officials, and water rights holders to resolve operation and maintenance of the Satpara Development Project’s irrigation system and water access rights.

OIG RESPONSE TO AGENCY COMMENTS

We provided our draft report to USAID/Pakistan on July 10, 2018, and on August 30, 2018, received its response, included as appendix B.

USAID/Pakistan characterized as misleading our statement on page 4 of the report that “mission officials missed opportunities to resolve problems” related to operation, maintenance, and water access. While the mission’s response enumerated six actions taken by the project to resolve problems, we nonetheless continue to assert that other opportunities, as outlined in the report, were missed.

In responding to the recommendation, USAID/Pakistan noted that by taking the six actions referenced above, the mission had already addressed operation and maintenance as well as water rights. These actions culminated in legislation to create a water board, which the mission expected would pass by December 31, 2018. We acknowledge the mission’s management decision and consider this recommendation resolved but open pending completion of the planned activity. We appreciate the Agency’s attention to our recommendation and will continue to monitor its implementation—specifically, we expect the law to pass and empower the water board to resolve issues related to operation, maintenance, and water rights.

APPENDIX A. SCOPE AND METHODOLOGY

We conducted our work from September 2015 through July 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

We conducted this audit to determine if USAID-funded improvements to the existing irrigation system under the Satpara Development Project are sustainable. As part of that objective, we assessed operating and maintenance agreements for infrastructure and water access. The audit covered the period from project inception, March 12, 2012, to September 30, 2015. Significant constraints limited the audit approach and scope. The travel limitations imposed on U.S. Government personnel in Pakistan and persistent harsh weather limited the audit team's access to project sites and beneficiaries. Once the audit team obtained authorization from the Pakistani Government to travel to Skardu, the duration of the visit was limited. Furthermore, once the team reached the project site, the cold and the rugged terrain prevented visits to some beneficiaries and some project locations. Due to time constraints, the audit team was unable to assess the validity of project data kept in Skardu; however, we believe that the evidence obtained is sufficient and appropriate to support our conclusions.

To answer the audit objective, we obtained an understanding of the project by reviewing project documentation including the cooperative agreement between USAID/Pakistan and AKF, implementation plans, quarterly and annual progress reports, and applicable regulations such as USAID's Automated Directives System 200 series. To enhance our understanding of the project, we conducted interviews in Islamabad with mission officials and with AKF and AKRSP representatives.

The USAID-funded Satpara Dam Project is not part of the scope of this audit; however, because water rights issues associated with the dam as well as the construction of the main canals under that Satpara Dam Project were critical components of the Satpara Development Project's irrigation system affecting the success of the Satpara Development Project, we gained an understanding of their importance to the Satpara Development Project through discussions with mission officials and other stakeholders. We also visited the dam and the canals to see whether they were functioning as intended.

We also assessed the mission's internal controls over the project by reviewing site visit reports, the project's monitoring plan, performance reports, portfolio review reports, and the Agency's Federal Managers' Financial Integrity Act Annual Certification for Pakistan. We also reviewed AKF's management and monitoring of the project through interviews and review of project documentation.

We conducted a 5-day site visit to the project's implementation site in Skardu to observe progress made, validate reported achievements with beneficiaries and Pakistani Government officials, and examine infrastructure.

After considering certain factors such as cost constraints to access remote areas and restrictions to certain sites due to security risks, the audit team decided to use a nonstatistical judgmental sample selection methodology. Accordingly, we judgmentally selected 23 out of 423 beneficiaries participating in seven producer groups to interview during our 5-day site visit; to get a diversified sample, we based our selections on the groups' product, their location, and the number and gender of their members.

- Five water user associations
- Nine greenhouse construction beneficiaries
- Three women producer groups
- Two local support organizations
- Two farmer enterprise groups
- One orchard owner
- One vegetable farm owner

In addition, we visited a fruit processing center, soil testing lab, and yogurt processing center, all of which were established by the project. We also visited the main canals. The fieldwork also included meetings with Pakistani Government officials from agencies including WAPDA, the Lake Committee, and the Federal Seeds Certification and Research Department.

In answering the audit objective, we considered, but did not rely extensively on, computer-processed data. We relied instead on evidence from interviews, document reviews, questionnaires, and site visits. Since we judgmentally selected sites, the results are limited to the tested items and areas and cannot be projected to all of the project's target communities. However, we believe our substantive testing was sufficient to support the audit's findings.

APPENDIX B. AGENCY COMMENTS



USAID
FROM THE AMERICAN PEOPLE

PAKISTAN

MEMORANDUM

Date	August 29, 2018
To	Matthew Rathgeber - OIG Director (RIG/Manila)
From	Jerry P. Bisson - Mission Director, USAID/Pakistan /s/
Subject	Management Decision made in the Audit of USAID/Pakistan's Satpara Development Project
Reference	Audit Report No. 5-391-18-00X-P dated 07/10/2018

Please find below Mission's management decision on the recommendation made in the subject audit report.

Recommendation No. 1

Implement a plan to bring together relevant Government of Pakistan officials, Government of Gilgit-Baltistan officials, and water-rights holders to resolve the issues of maintenance and operation of the Satpara Development Project's irrigation system and water access rights.

Mission management concurs with the recommendation.

Management Decision

USAID/Pakistan, through Satpara Development Project (SDP), recognized the numerous management issues in the Satpara Dam and Command Area operations and made attempts throughout the project life to resolve issues of water rights, distribution, operation and maintenance of various irrigation structures. The Mission thereby notes that the following OIG statement on page 4 of the report is misleading: "...mission officials missed opportunities to resolve problems related to operations, maintenance, and water access."

SDP facilitated steps towards creation of a Water Board which will bring together relevant Government of Pakistan officials, Government of Gilgit-Baltistan (GB) officials,

and water-rights holders to manage the Satpara Dam and the irrigation and water system to the city of Skardu. The Mission expects this Board to be formally enacted through law by December 31, 2018.

To address the various challenges faced by the Program, the following actions have already been taken:

1. SDP encouraged the participation of all the stakeholders in the design and development of the irrigation master plan.
2. SDP initiated a dialogue with the beneficiaries of the project on a sustainability plan from the inception of the irrigation activities.
3. SDP formed 151 Water Users' Associations (WUA) at the tertiary level and 26 Farmers' Organizations (FO) at the secondary level. These WUAs and FOs are registered with On-Farm Water Management Department. These WUAs and FOs are responsible for the operation and maintenance of the irrigation system.
4. In February 2015, the GB government requested SDP hire consultants to prepare a study concerning the traditional irrigation system, water rights and water availability in the Satpara Dam area. After the detailed study and consultation with stakeholders a collective management structure for the dam and the irrigation system was proposed. SDP presented these recommendations to the GB government which created a task force of the elected provincial assembly members to evaluate the recommendations in consultation with other stakeholders. In September 2015, SDP consultants recommended that other water sources in the area be linked with the project developed irrigation system. SDP developed four additional water sources and irrigation systems which supplies water to 2,800 acres.
5. In July 2017, SDP consultants developed a business model for the "Satpara and Skardu Area Water Board" and presented that model to the GB government and other stakeholders. When the stakeholders agreed on the business plan, the GB government requested SDP operationalize this business plan.
6. In August 2017, SDP awarded a consultancy to a legal firm to develop an act (Law) for formation of the "Satpara and Skardu Area Water Board." The act was cleared by the task force and is now awaiting approval from the Government of GB. This board will be a unique structure in Pakistan for the management of a dam and irrigation system.

In view of the above, we request OIG's acknowledgment that a management decision has been reached and final action will be achieved upon enactment of the law for the formation of the Satpara and Skardu Area Water Board.

APPENDIX C. MAJOR CONTRIBUTORS TO THIS REPORT

The following made major contributions to this report: Nathan Lokos, country director; Matthew Rathgeber, Regional Inspector General; David Clark, audit manager; Leila Douali, auditor; Fawad Aslam, auditor; Nofil Ehsan, auditor; Erika Erslund, auditor; Steven Ramonas, auditor; Roshanak Salimi, auditor; and Allison Tarmann, writer-editor.