

Republic of Uganda

FY2024 Ex-Post Evaluation Report of Grant Aid Project

“The Project for the Improvement of Regional Referral Hospitals in Northern Uganda”

External Evaluator: Sayuri Kon

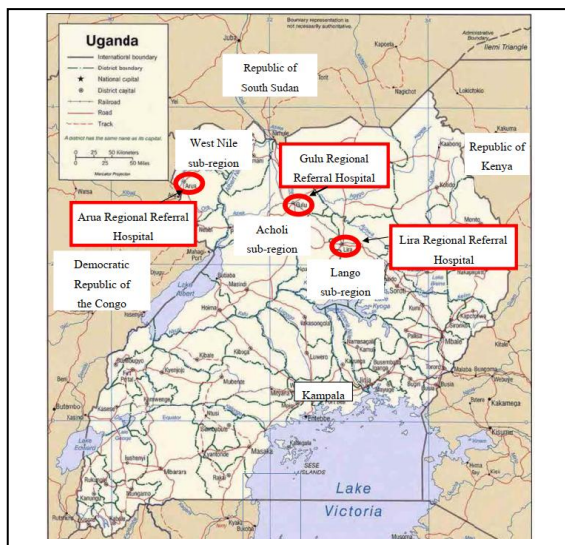
Foundation for Advanced Studies on International Development

0. Summary

This project aims to strengthen the functions of regional referral hospitals (hereinafter referred to as “RRHs”) by improving the facilities and equipment of Gulu Regional Referral Hospital (hereinafter referred to as “Gulu RRH”), Lira Regional Referral Hospital (“Lira RRH”), and Arua Regional Referral Hospital (“Arua RRH”) in Northern Uganda, thereby contributing to improved access and quality of healthcare services in Northern Uganda. This objective aligns with Uganda’s development plans and corresponds to the development needs in maternal and child health in the region, as well as the needs of the RRHs. Although there was no collaboration with other agencies or donors, the project was consistent with Japan’s ODA policies for Uganda, and the contribution to improving the quality of health services was confirmed through collaboration with other JICA projects. Therefore, its relevance and coherence are high. The Japanese side’s outputs were mostly achieved as planned. Although the project duration exceeded the original plan, the Japanese side’s project cost remained within the plan. Therefore, efficiency of the project is high. As a result of the project, the number of patients that the target hospitals can accommodate increased, and improvements in service quality were confirmed. Consequently, users’ trust and satisfaction with the hospitals also improved. Although the number of operations and of emergency patients met the targets, the number of outpatients and of deliveries did not reach the target values. Additionally, several expected and unexpected positive impacts were confirmed. Therefore, effectiveness and impact of the project are high. On the other hand, some issues have been observed in the technical and financial aspects including the current status of operating and maintenance and the prospects for improvement/resolution remain uncertain. Therefore, sustainability of the project effect is moderately low.

In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Locations
(source: Preparatory Survey Report)



Photo 1: OPD/Casualty Block at Lira RRH
Built by the Project (source: taken by the evaluator)

1.1 Background

In Uganda, the national policy for the health sector has placed emphasis on strengthening the health system, including health infrastructure development. Based on this policy, the country had been working to establish a referral system¹ through the development of regional healthcare structures. In the Acholi, Lango, and West Nile sub-regions of Northern Uganda, primary healthcare facilities had been developed; however, Gulu RRH, Lira RRH, and Arua RRH, which are responsible for higher-level functions, were built in the 1920s to 1930s and had significantly deteriorated. These hospitals had also been chronically lacking the medical equipment necessary for providing adequate care. Furthermore, the capacity of existing facilities to accommodate patients had already reached its limit due to population growth in the sub-region, and the sharp rise in refugees from South Sudan since July 2016 had led to a further increase in the number of patients. This situation resulted in longer patient waiting times and delays in the initiation of treatment, making it difficult for these RRHs to provide appropriate healthcare services; therefore, strengthening the healthcare service delivery systems at these facilities became an urgent issue.

Against this background, the government of Uganda requested grant aid from the government of Japan to improve the facilities and equipment at RRHs in the three northern sub-regions of Uganda, with the aim of strengthening healthcare service delivery systems at these hospitals.

¹ A system in which healthcare facility functions are differentiated, allowing patients to be referred and transported and to have their information shared from primary healthcare facilities to higher-level medical institutions according to the severity of their condition.

1.2 Project Outline

The objective of this project is to strengthen the function as RRHs by improving facilities and equipment for RRHs in Acholi, Lango, and West Nile sub-regions in Northern Uganda, thereby contributing to improved access and quality of healthcare services in Northern Uganda.

Grant Limit / Actual Grant Amount	2,860 million yen / 2,860 million yen
Exchange of Notes Date / Grant Agreement Date	April 2018 / April 2018
Executing Agency	Ministry of Health (MoH)
Project Completion	December 2021
Target Area	Regional referral hospitals in Acholi, Lango, and West Nile sub-region (Gulu RRH, Lira RRH, and Arua RRH respectively)
Main Contractor(s)	Building: Iwata Chizaki Inc. Equipment: Sirius Co., Ltd.
Main Consultant(s)	Yokogawa Architects & Engineers, Inc. / Intem Consulting, Inc. (JV)
Preparatory Survey	October 2016 – October 2017
Related Projects	“The Project on Improvement of Health Service through Health Infrastructure Management II” (2016-2021) “Knowledge Co-Creation Program: Medical Equipment Management and Maintenance” (JFY2019, JFY2020)

2. Outline of the Evaluation Study

2.1 External Evaluator

Sayuri Kon, Foundation for Advanced Studies on International Development

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: August 2024 – October 2025

Duration of the Field Study: November 24, 2024 – December 11, 2024

February 16, 2025 – February 21, 2025

3. Results of the Evaluation (Overall Rating: B²)

3.1 Relevance/Coherence (Rating: ③³)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Uganda

At the time of project planning, Uganda's national development plan for the health sector, *the Second National Health Policy* (2010/11–2019/20), identified health infrastructure development, including the construction of health facilities and the renewal of medical equipment, as a key policy issue. Additionally, *the Health Sector Development Plan* (2015/16–2019/20) also emphasised strengthening the healthcare system, including health infrastructure development. At the time of the ex-post evaluation, *the Ministry of Health Strategic Plan* (2020/21–2024/25), which succeeded *the Health Sector Development Plan*, included improving the functionality and adequacy of health infrastructure and logistics as one of its seven major goals, continuing to place importance on health infrastructure development.

Based on the above, this project, which aims to develop RRHs, was consistent with Uganda's national development plans and health sector policies from the time of project planning through to the ex-post evaluation.

3.1.1.2 Consistency with the Development Needs of Uganda

At the time of project planning, the three RRHs targeted by this project were facing a severe situation due to an aging infrastructure and a chronic shortage of medical equipment. In addition to the limited capacity of existing facilities caused by population growth in the sub-region, the influx of refugees from the Republic of South Sudan and the Democratic Republic of the Congo, particularly the sharp increase in refugees from South Sudan since July 2016, led to a further rise in patient numbers. This situation resulted in longer patient waiting times and delays in the initiation of treatment, making it difficult for the hospitals to provide healthcare services (e.g. specialised outpatient clinics, advanced surgery/treatment) expected of RRHs.⁴

Although health indicators in Northern Uganda were showing gradual improvement at the time of project planning (2016), infant mortality and under-five mortality rates in Acholi, Lango, and West Nile sub-regions remained above the national average. However, these indicators continued to improve, and by 2022, both Acholi and Lango sub-regions had mortality rates below the national average. Compared to the overall Sub-Saharan Africa region, the under-five mortality rate in Uganda's national average, Acholi, and Lango were lower but

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

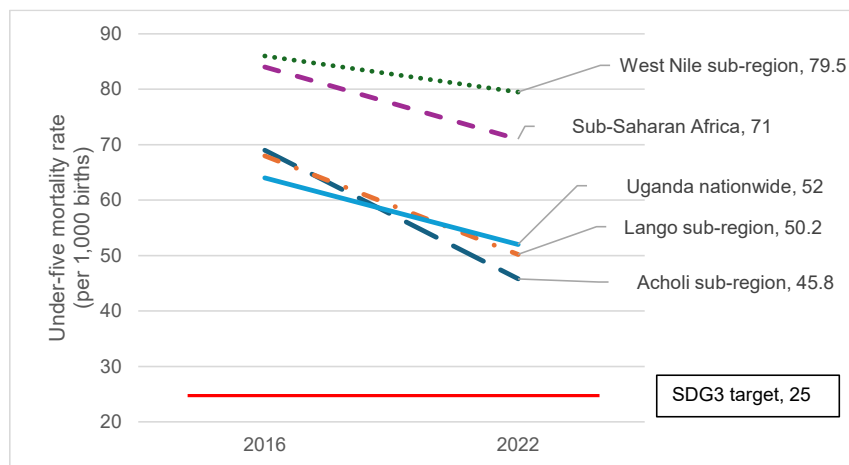
³ ④: Very High, ③: High, ②: Moderately Low, ①: Low

⁴ Preparatory Survey Report.

still far from achieving the SDG3⁵ targets (see Figure 1).⁶ Therefore, from the time of project planning to the ex-post evaluation, the development needs in maternal and child health remained high.

The role of RRHs within the referral system did not change between the time of project planning and the ex-post evaluation.⁷ In the health sector policy document published in 2024, *the National Essential Health Care Package for Uganda* (2024), RRHs are expected to perform specialised reconstructive surgeries (e.g. transplants, contracture release, cleft lip and palate repair, breast reconstruction). This indicates that RRHs have become increasingly important as providers of advanced medical care.

Based on the above, this project, which aims to develop RRHs, was consistent with the development needs of the target sub-regions from the time of project planning through to the ex-post evaluation.



Source (Health Indicators in Uganda): Uganda Demographic and Health Survey (2016, 2022)

(Health indicators in Sub-Saharan Africa): World Bank Microdata Library, <https://microdata.worldbank.org/index.php/home> (accessed on April 3, 2024)

Figure 1: Regional Comparison of Trends in Under-Five Mortality Rates Over Time

3.1.1.3 Appropriateness of the Project Plan and Approach

1) Use of Lessons Learned from Similar Projects

In the ex-post evaluations of past projects, “The Project for the Improvement of Health Facilities and Supply of Medical Equipment in the Eastern Region” (Evaluation Year: 2010) and “The Project for the Rehabilitation of Hospitals and Supply of Medical Equipment in the Central Region in Uganda” (Evaluation Year: 2015), the lessons learned were that limiting the

⁵ Goal 3 of the SDGs is to “ensure healthy lives and promote well-being for all at all ages”. Of these, target 3.2 is to “end preventable death of newborns and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under five mortality to at least as low as 25 per live births”.

⁶ Because the under-five mortality rate was the only indicator available for all northern regions, Sub-Saharan Africa, and the SDG3 target, this report highlights that indicator, as illustrated in Figure 1.

⁷ Questionnaire completed by the Ministry of Health.

selection of medical equipment to devices that hospital doctors had prior experience using, as well as implementing training for equipment with limited usage experience, led to effective utilisation and appropriate maintenance of the provided equipment. Based on these lessons, this project assessed the validity of requested equipment using 18 evaluation criteria related to the clinical technical level and maintenance capacity of the hospitals. The content of the capacity building (soft component) was also designed based on this information.⁸ Furthermore, drawing from the Japanese consultant's experience, where staff turnover after training and the gradual fading of knowledge over time led to improper equipment use and neglect of minor malfunctions, the soft component was designed to include a follow-up training session six months after the equipment was put into use.⁹

Based on the above, it can be said that the lessons learned from similar projects in the past were applied in the planning of this project.

2) Consideration for Marginalised People

In this project, the facilities were designed with consideration for accessibility by people with disabilities. For the two-story buildings, ramps were constructed to enable movement between floors. Additionally, wheelchair-accessible toilets were installed.

Based on the above, it can be said that this project incorporated considerations to improve accessibility for people with disabilities.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan's ODA Policy

The Country Development Cooperation Policy for Uganda (2017) identified "Improvement of Living Environment (Health and Water Supply)" as a priority area. Under the development issue of "Improvement of Health Services", this project was positioned within the Healthcare Service Strengthening Program, which aims to improve the quality of healthcare services through the improvement and expansion of core medical facilities and equipment in local areas. Additionally, *JICA Country Analysis Paper for Uganda* (2015) analysed the strengthening of the referral system through the improvement of core medical facilities in local cities as a major development issue.

Based on the above, this project is considered to be consistent with Japan's ODA policies.

3.1.2.2 Internal Coherence

This project and the technical cooperation project "The Project on Improvement of Health Service through Health Infrastructure Management II" (2016–2021) (hereinafter referred to as

⁸ Preparatory Survey Report.

⁹ Questionnaire completed by the consultant.

“the TC Project”) shared the common objective of improving the quality of healthcare services at RRHs, and several outputs of this project were planned to create synergies with the TC Project.¹⁰ In the capacity building programme (soft component) of this project, the content of technical guidance was adjusted based on the equipment maintenance training and the types of equipment covered under the TC Project.¹¹ Additionally, user trainers¹² trained under the TC Project were invited to participate in all technical guidance sessions of the capacity building programme of this project, and it was proposed that training sessions on the use of the equipment covered by the technical guidance be conducted regularly after completion of this project.¹³ At the time of the ex-post evaluation, it was confirmed that user trainers trained under the TC Project were continuing to conduct training on the use of medical equipment at the target hospitals. The TC Project also developed a guidebook for implementing 5S-CQI-TQM¹⁴ and trained facilitators. Among the three target hospitals, Lira RRH was particularly active in 5S-CQI-TQM activities, which were considered to have contributed to improved cleanliness in the outpatient department (hereinafter referred to as “OPD”)/casualty block and the delivery suite constructed under this project.¹⁵

Although not initially anticipated at the time of project planning, two biomedical engineers (hereinafter referred to as “BMEs”), one from Lira RRH and one from Arua RRH, participated in JICA’s “Knowledge Co-Creation Program: Medical Equipment Management and Maintenance” in 2019 and 2020, where they learned methods for managing medical equipment.¹⁶ At the time of the ex-post evaluation, the BME from Lira RRH had been transferred to another hospital, but the BME from Arua RRH was playing a key role in equipment maintenance at the hospital and was considered to be contributing to favourable maintenance conditions. Maintaining equipment in good condition can be considered to contribute to improving the quality of healthcare services.

Based on the above, between this project and other JICA projects, the collaborations envisaged at the planning stage, as well as the additional collaborations undertaken during implementation, can be considered to have contributed to the project’s objective of improving the quality of healthcare services.

¹⁰ Questionnaire completed by JICA Human Development Department.

¹¹ Questionnaire completed by JICA Human Development Department.

¹² Instructors certified by the Ministry of Health to provide instruction on the use of medical equipment in health facilities.

¹³ Questionnaire completed by the consultant.

¹⁴ The 5S-CQI-TQM approach is a method for improving service quality through the phased and continuous implementation of three techniques: 5S (Sort, Set, Shine, Standardise, Sustain), Continuous Quality Improvement (CQI), and Total Quality Management (TQM). JICA has systematised this approach for the health sector and is actively promoting its dissemination. It is synonymous with the 5S-KAIZEN-TQM approach.

¹⁵ Interview with the quality management team at Lira RRH and on-site inspection by the evaluator.

¹⁶ Project Completion Report of “The Project on Improvement of Health Service through Health Infrastructure Management II”.

3.1.2.3 External Coherence

No collaboration was planned between this project and other initiatives conducted by other Japanese institutions, other donors, or international frameworks, and there was no collaboration from the start of implementation to the time of the ex-post evaluation.

Based on the above, the project was consistent with Uganda's development plans and needs. Lessons learned from similar past projects were incorporated during the planning phase, and considerations were made to ensure accessibility for people with disabilities, demonstrating high relevance. Furthermore, the project was consistent with Japan's ODA policies, and the collaboration with other JICA projects, as well as its contribution to achieving project outcomes, were confirmed, indicating a high coherence. Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

3.2.1.1 Work Borne by the Japanese Side

The project's main outputs consisted of the construction of health facilities, procurement of medical equipment, and implementation of capacity building programmes (soft component) at Gulu RRH, Lira RRH, and Arua RRH in Northern Uganda. Tables 1 and 2 present the project's planned and actual outputs.

Table 1: Planned and Actual Facility Construction

Site	Planned	Actual
Gulu RRH	<u>Theatre/Casualty/Maternity Ward (approx. 2,500 m²)</u> <Ground floor> - Operation theatre unit: Operation theatre (3 rooms), Recovery room (5 beds), Operation hall, etc. - Casualty unit: Resuscitation room (12 beds), minor operation room, etc. - ICU unit: ICU (5 beds), Anteroom, etc. - Common area: Switchboard room, Generator room, Fire pump room <1 st floor> - Maternity ward: Maternity bedroom (92 beds), NICU (2 rooms plus anteroom), Delivery room, etc.	Mostly as planned (2,469.00 m ²)
Lira RRH	<u>OPD/Casualty Block (approx. 2,000 m² together with the powerhouse)</u> <Ground floor> - Casualty unit: Resuscitation room (11 beds), Minor operation room, etc. - OPD unit: Laboratory, Pharmacy, Imagery (2 rooms), etc. - MCH unit: Clinic, etc. <1 st floor> - OPD unit: General clinics (4 rooms), Dental clinic, etc. - MCH unit: Clinic, Vaccine store, etc. <u>Delivery Suite and Related Facilities (approx. 300 m² together with the Switchboard Room and Generator Room)</u> - Delivery room (6 rooms), NICU, etc.	Mostly as planned (2,312.93 m ²)

Arua RRH	OPD/Casualty Block (approx. 1,800 m ² together with the powerhouse) <Ground floor> - OPD unit: Laboratory, Pharmacy, Imagery, etc. - Casualty unit: Resuscitation room, Mitor operation room, etc. <1 st floor> - OPD unit: General clinics (4 rooms), Dental clinic, etc.	Mostly as planned (1,780.48 m ²)
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Source: Preparatory Survey Report, materials provided by JICA

Table 2: Planned and Actual Medical Equipment

Planned	Actual
156 types of medical equipment, including outpatient treatment and diagnostic equipment, emergency treatment equipment, etc.	Mostly as planned

Source: Preparatory Survey Report, materials provided by JICA

As described above, the construction of facilities and the procurement of equipment were mostly carried out as planned. However, there were some changes to the original plans, such as modifications to facility layouts and adjustments to the quantity of equipment. The details of these changes are presented in Table 3. All changes were made for reasonable and justifiable reasons, and they did not negatively affect the project duration, the expected outcomes, or the operation of the facilities and equipment. Therefore, there were no particular issues with these changes.

In this project, capacity-building programmes (soft component) were implemented to ensure the continued effective use of the procured equipment. These included 1) operational and clinical technical guidance to promote proper utilisation of the equipment, 2) training on the operation of the computed radiography system¹⁷ (hereinafter referred to as “CR system”) specifically for Lira RRH and Arua RRH, and 3) technical guidance on the operation and maintenance of the procured equipment. All components were carried out as planned.¹⁸

¹⁷ Computed radiography (CR) is a digital imaging and diagnosis technology that uses a special fluorescence plate called “photostimulable phosphor” instead of the conventional X-ray films to process X-ray images in a short time with high sensitivity (source: <https://www.hamamatsu.com/jp/en/applications/medical/CR.html> (accessed on April 21, 2025)).

¹⁸ Materials provided by JICA

Table 3: Changes in Outputs and Their Reasons

Changes	Reasons of Changes
1. Relocation of the delivery room within the theatre/casualty/maternity ward at Gulu RRH, along with the repositioning of the power house, generator house, and fire pump room located at the lower end of the slope.	The MoH and Gulu RRH requested that the slope of the theatre/casualty/maternity ward be used as the main access route for patients and attendants to the maternity ward on the first floor, and that the delivery rooms be located separately from general patient areas.
2. Relocation of the delivery suite and related facilities at Lira RRH.	The MoH and Lira RRH requested the relocation of the maternity suite and related facilities closer to the site boundary, considering the demolition of the adjacent existing NICU building and generator room, and aiming for effective land use in line with the hospital's future layout plan.
3. Adjustment in the quantity of equipment at the three hospitals.	Changes in staffing and the status of existing equipment at each hospital led to a shift in the procurement priorities for the planned equipment.
4. Scope reduction of facilities at the three hospitals and reallocation of certain construction works to be covered by the Ugandan side.	The first bidding for facility failed, and subsequent price negotiations broke down. Therefore, a review of facility specifications was necessary to reduce bidding prices while minimizing the impacts on project effectiveness.

Source: Materials provided by JICA.

3.2.1.2 Work Borne by the Ugandan Side

At the time of project completion, the planned responsibilities of the Ugandan side were mostly completed, but the items listed in Table 4 remained incomplete. Due to staff transfers at each hospital, it was difficult to confirm the specific reasons for the delays. However, on-site inspections conducted during the ex-post evaluation at each hospital revealed that none of the incomplete items had a significant impact on the operation of the facilities. Additionally, the installation of the

LAN system required to operate the CR system in existing wards was also incomplete at the time of project completion. Nevertheless, the CR system included a printer for printing X-ray images on film, and alternative methods for image sharing using CD-ROMs were taught as part of the soft component, so alternative means of image sharing were in place even before the CR system was fully operational in the existing wards.



Photo 2: The Walkway at Arua RRH with an Unfinished Roof (source: taken by the evaluator)

Table 4: Items Covered by the Ugandan-Side That Were Delayed or Remained Incomplete at the Time of the Ex-post Evaluation

Site	Items to be Covered by the Ugandan Side	Delays ^{*1} /Incomplete	Effect on Facility Operations Due to Delays or Incomplete
Gulu RRH	Installation of window-side curtains in the theatre/casualty/maternity ward.	Incomplete	No notable effect
Lira RRH	LAN cabling work for the CR system between the existing building and the new building, as well as within the existing building.	13- to 24-month delay	In the new building, X-ray images were reviewed either by printed film or data copied onto CD-ROM.
	Installation of window-side curtains in the OPD/casualty block.	Incomplete	It is desirable to have curtains in the cervical cancer screening room of the Maternal and Child Health Clinic on the ground floor, but the room is currently being used without them.
	Construction of the foundation for the rainwater harvest tank.	Incomplete	No notable effect
Arua RRH	LAN cabling work for the CR system between the existing building and the new building, and within the existing building.	25- to 36-month delay	In the new building, X-ray images were reviewed using printed films.
	Installation of window-side curtains in the OPD/casualty block.	Incomplete	No notable effect
	Roof over the walkway between the OPD/casualty block and the existing ward.	Incomplete	Movement between building is hindered during rainy weather.
	Construction of the foundation for the rainwater harvest tank.	Incomplete	No notable effect

Source: On-site inspection by the evaluator, interview with each hospital.

Note *1: As accurate information on the completion date was not available, the results of maintenance service conducted by the consultant in the first, second, and third years after handover were referenced instead.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual project cost for the Japanese side was 2,860 million yen, and it fell within the plan (100% of the plan). Including the Ugandan side's planned amount of 454 million yen, the total planned project cost was 3,314 million yen. However, a part of the actual expenditure by the Ugandan side could not be confirmed, making it impossible to compare the total project cost. As shown in Table 4, some construction work under the Ugandan side's responsibility remained incomplete, so it can be inferred that part of the planned contribution from the Ugandan side was not spent.

3.2.2.2 Project Period

The planned project period was from April 2018 to March 2020 (24 months), whereas the actual period was from April 2018 to December 2021 (45 months).¹⁹ Of this period, the

¹⁹ The starting point was set as the month when the GA was signed, and the definition of completion was set as the commencement of facility operation.

11 months from April 2020 to February 2021 marked a temporary suspension of construction work due to the spread of COVID-19. When this suspension period is excluded from the total, the actual period of implementation amounts to 34 months, which is 142% of the planned period and exceeded the plan. Even excluding the temporary suspension period, the construction exceeded the planned period by 10 months. The main reasons for this delay included the extension of the bidding period due to the failure of the first tender, the time it took for local contractors to return to the project site after the suspension, and the need for additional construction time to resume work after the suspension.²⁰

Although the total project cost remains unknown due to the lack of information on the project cost for the Ugandan side, the Japanese side's expenditure was within the plan, whereas the project duration exceeded the original plan. Therefore, efficiency of the project is high.

3.3 Effectiveness and Impacts²¹ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

1) Gulu RRH (Table 5)

At the time of the ex-post evaluation (2023/24),²² the number of deliveries was 5,660, achieving 102.9% of the target, and the number of operations was 4,423, achieving 245.7% of the target, both exceeding their target values. On the other hand, the number of emergency patients was 5,991 (achievement rate: 95.1%), slightly below the target, and the number of ICU patients was 110 (achievement rate: 55.0%), about half of the target. Even before the implementation of this project, there were private hospitals in Gulu Municipality capable of receiving emergency patients, and their medical services were more developed than that of Gulu RRH. As a result, patients requiring emergency care tended to prefer those private hospitals, and the same applied to ICU services.²³ This preference continued even after the project's implementation is considered one of the reasons why the number of emergency patients and ICU patients at Gulu RRH did not reach the target values. However, both indicators have shown an upward trend. In the first eight months of 2024/25 (July 2024 to February 2025), the number of emergency patients reached 9,211 (achievement rate: 146.2%), and ICU patients reached 184 (achievement rate: 92.0%).²⁴ Therefore, the indicators for 2024/25 are expected to exceed the target values.

²⁰ Questionnaire completed by the consultant.

²¹ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

²² Given that the project was completed in December 2021, the third-year post-completion corresponds to FY2024/25. However, as the latest available data at the time of the ex-post evaluation pertain to FY2023/24, the evaluation was conducted based on the data from FY2023/24.

²³ Interviews with Gulu RRH staff.

²⁴ Questionnaire completed by Gulu RRH.

Table 5: Quantitative Effects of Gulu RRH

Indicator	Baseline Value* ¹	Target Value	Actual Value				
		2022/23	2019/20	2020/21	2021/22	2022/23	2023/24
		3 Years After Completion			Completion Year	1 Year After Completion	2 Years After Completion (% of Achievement)
Number of Deliveries (cases/year)	4,768	5,500	2,160	4,431	4,759	4,962	5,660 (102.9%)
Number of Operations (cases/year)	1,543	1,800	1,476	3,778	2,939	3,293	4,423 (245.7%)
Number of Emergency Patients (persons/year)	5,445	6,300	1,501	3,352	3,435	4,326	5,991 (95.1%)
Number of ICU Patients (persons/year)	0	200	No data	No data	No data	49	110 (55.0%)

Source: Questionnaire completed by Gulu RRH.

Note *1: The average values between 2011/12 and 2015/16.

2) Lira RRH (Table 6)

At the time of the ex-post evaluation (2023/24), the number of maternal and child health (hereinafter referred to as “MCH”) patients was 91,283 (achievement rate: 113.5%), and the number of emergency patients was 10,061 (achievement rate: 186.3%), both exceeding their target values. On the other hand, the number of outpatients was 108,221 (achievement rate: 75.2%), and the number of deliveries was 6,028 (achievement rate: 88.6%), both falling short of the targets. Notably, the number of outpatients was even below the baseline value. Uganda’s *Health Sector Development Plan* (2015/16–2019/20) emphasised strengthening lower-level health facilities,²⁵ and during the same period, several donors provided support to these facilities.²⁶ As a result of this strengthening, lower-level facilities became capable of handling more cases in outpatient and maternity departments, which is considered to have contributed to the decrease in the number of outpatients and deliveries at Lira RRH.²⁷

²⁵ The referral system in Uganda is structured in descending order of service level as follows: national referral hospitals, regional referral hospitals, general hospitals, and health centres. Health centres are further classified into Grades IV, III, and II, with each grade differing in the types of health services provided and the required allocation of health personnel.

²⁶ Under the “Uganda Reproductive, Maternal, Child Health Improvement Project” (2017–2023), implemented by the World Bank’s Global Financing Facility and the Swedish International Development Cooperation Agency, support was provided to health centres III and IV through the provision of medical equipment for operating theatres and MCH clinic, as well as the construction of maternity wards. In the “Uganda Intergovernmental Fiscal Transfers Program” (2018–2024), implemented by the World Bank, maternity ward construction, outpatient department renovations, and the provision of medical equipment were carried out at health centres II and III. Both projects included Acholi, Lango, and West Nile sub-regions as target areas.

²⁷ Interviews with MoH and Lira RRH staff.

Table 6: Quantitative Effects of Lira RRH

Indicator	Baseline Value*1	Target Value	Actual Value				
		2022/23	2019/20	2020/21	2021/22	2022/23	2023/24
		3 Years After Completion			Completion Year	1 Year After Completion	2 Years After Completion (% of Achievement)
Number of Outpatients (persons/year) *2	121,345	144,000	86,243	83,661	95,761	86,784	108,221 (75.2%)
Number of MCH Patients (persons/year) *3	67,736	80,400	78,213	50,636	90,089	85,705	91,283 (113.5%)
Number of Emergency Patients (persons/year)	4,800	5,400	No data	7,543	8,570	8,570	10,061 (186.3%)
Number of Deliveries (cases/year)	5,804	6,800	5,954	4,744	5,246	5,521	6,028 (88.6%)

Source: Questionnaire completed by Lira RRH.

Note *1: The average values between 2011/12 and 2015/16.

Note *2: These numbers consist of general OPD clinic, orthopaedics clinic, ophthalmology clinic, ENT clinic, and dental clinic.

Note *3: These numbers consist of the patients of maternity care, family planning, cancer check-up, perinatal HIV transmission prevention pack, early childhood diagnosis, and vaccination.

3) Arua RRH (Table 7)

At the time of the ex-post evaluation (2023/24), the number of emergency patients was 7,811 (achievement rate: 122.0%), exceeding the target, whereas the number of outpatients was 101,780 (achievement rate: 87.7%), which, although higher than the baseline value, fell short of the target value. One possible reason for the outpatient numbers not reaching the target is similar to the case of Lira RRH, wherein the strengthening of lower-level health facilities enabled them to handle more cases independently.²⁸

²⁸ Interviews with MoH and Arua RRH staff.

Table 7: Quantitative Effects of Arua RRH

Indicator	Baseline Value* ¹	Target Value	Actual Value				
		2022/23	2019/20	2020/21	2021/22	2022/23	2023/24
		3 Years After Completion			Completion Year	1 Year After Completion	2 Years After Completion (% of Achievement)
Number of Outpatients (persons/year) * ²	96,208	116,000	No data	83,251	85,847	95,772	101,789 (87.7%)
Number of Emergency Patients (persons/year)	5,315	6,400	No data	No data	2,144	6,553	7,811 (122.0%)

Source: Questionnaire completed by Arua RRH.

Note *1: The average values between 2011/12 and 2015/16.

Note *2: These numbers consist of the patients of general OPD clinic, medical OPD clinic, diabetes clinic, nutrition clinic, palliative clinic, paediatric clinic, surgery clinic, orthopaedics clinic, ophthalmology clinic, ENT clinic, dental clinic, and maternity clinic.

3.3.1.2 Qualitative Effects (Other Effects)

1) Improvement of Access and Quality of Healthcare Services

To assess the qualitative effects of improved access to and quality of health services resulting from facility development and equipment procurement at the target hospitals, interview surveys were conducted with hospital staff and users.²⁹ The specific feedback from staff and users regarding improvements in access and quality of health services is summarised in Table 8. Many hospital staff noted improvements in access, such that medical procedures and diagnostic tests that were not available in the past are now being provided, and the number of patients that could be accommodated increased due to expanded space. Users frequently commented on environmental improvements, including the newness and cleanliness of the buildings constructed under the project and the increased waiting areas.

At the time of project planning, one of the expected improvements in service quality was the reduction of patient waiting times. However, many users at all three hospitals reported that waiting times (for OPD and emergency services) had not changed compared to before the

²⁹ The following is an overview of the interviews conducted with hospital staff and users for this ex-post evaluation. Staff interviewees were selected through purposive sampling based on their professional roles and gender, whereas user interviewees were selected using purposive sampling with consideration to gender. At Gulu RRH, individual interviews were conducted on December 2 and 3, 2024, in the operation hall, maternity ward, OPD (existing), and laboratory (existing). The interviews covered five staff members (4 males, 1 female), including one orthopaedic surgeon (male), one dentist (male), one nurse (male), and one midwife (female), and one laboratory technician (male). In addition, interviews were conducted with 10 users (5 males, 5 females). At Lira RRH, individual interviews took place on December 4 and 5, 2024, in the OPD, radiology room, emergency room, and delivery suite. The interviews covered five staff members (3 males, 2 females), including one clinical officer (female), one oral surgeon (male), one nurse (male), one radiographer (male), and one midwife (female). Interviews were also conducted with 10 users (4 males, 6 females). At Arua RRH, interviews were carried out on November 28, 2024, in the OPD, radiology room, emergency room, and laboratory. The interviews covered six staff members (3 males, 3 females), including one radiologist (male), one dentist (male), three nurses (female), and one laboratory technician (male). As with the other hospitals, 10 users were interviewed (4 males, 6 females).

project. After project completion, all three hospitals introduced electronic medical records (hereinafter referred to as “EMRs”), which had not been anticipated during planning. The time required to input patient information at OPD reception and the need to wait for network recovery during outages, when patient registration could not proceed, were considered contributing factors to the lack of improvement in waiting times.³⁰ At Gulu RRH’s emergency department, staff shortages were also noted.³¹ Because patients with higher urgency are always prioritised, those with relatively mild conditions often experience longer waiting times.³²

The interviews also revealed a number of inconveniences related to the facilities. For example, at Gulu RRH’s maternity ward, staff pointed out that the patient toilets were located far from the delivery room, making it difficult for pregnant women preparing for childbirth to reach them. As a result, some patients had to use bedpans while on their beds. According to officials from the MoH, although facility layout plans were reviewed by Ugandan medical professionals during the project planning, certain inconveniences only became apparent after the facilities were put into use. Such feedback is being incorporated into the planning of future projects. Although these issues do not significantly compromise access to or the quality of health services, there remains room for improvement in the pursuit of higher-quality health services. It is therefore considered beneficial to document these points as lessons learned and carry them forward as reference information for future JICA projects. These will be described separately in “4.3, Lessons Learned.”

Table 8: Specific Improvements Confirmed in Access to and Quality of Health Services

	Access* ¹	Quality* ¹
Gulu RRH	- Tooth preservation treatments, rather than extractions, have become possible. (Dentist) - The maternity ward has been expanded, allowing more pregnant women to be admitted. (Midwife) - The number of operating theatres has increased, enabling a higher volume of orthopaedic surgeries. (Nurse)	- Improved access to water has allowed cleaner and safer deliveries. (Midwife) - The cleanliness of the building has improved. (User) - The environment has become more comfortable for patients and their families to stay. (Maternity ward user) - The variety of diagnostic equipment has increased, improving diagnostic accuracy and enabling faster recovery for patients. (User)
Lira RRH	- Fluoroscopic examinations have become available. (Radiographer) - Tooth preservation treatments, rather	- A public address system in the OPD has made it easier to call patients. (Clinical officer*²) - Delivery rooms are now partitioned, ensuring

³⁰ Interviews with Lira RRH staff and Arua RRH staff.

³¹ Although information on staffing levels in the emergency department at Gulu RRH was not available, data for the hospital as a whole indicated that, as of August 2024, there were 352 actual staff members compared to the standard staffing level of 1,195, resulting in a staffing rate of 29%. However, this standard staffing figure was revised in March 2023 and is approximately three times higher than the previous standard. Although this new standard applies uniformly to all RRHs, staff at Gulu RRH noted that it does not reflect the actual situation on the ground and that no RRH currently meets this staffing standard.

³² Interviews with Gulu RRH staff.

	than extractions, have become possible. (Oral surgeon) - The number of delivery beds has increased, allowing more pregnant women to be accommodated at the same time. (User)	privacy for pregnant women. (Midwife) - The cleanliness of the building has improved. (User) - The variety of diagnostic equipment has increased, leading to more accurate diagnoses. (User)
Arua RRH	- Tooth preservation treatments, rather than extractions, have become possible. (Dentist) - Blood tests that were previously unavailable can now be conducted. (Laboratory technician) - Tests that previously required referral to other hospitals can now be performed in-house. (User)	- The introduction of a public address system in the outpatient department has eliminated the need for staff to shout names. (User) - Patients can now receive consultation, laboratory tests, and prescriptions all within the outpatient building. (User) - The cleanliness of the facility has improved. (Users and staff) - The outpatient waiting area has been expanded, allowing patients to sit while waiting. (User) - Delivery rooms are now partitioned, ensuring privacy for pregnant women. (User)

Source: Interviews with hospital staff and users

Note 1: In the interview responses, “improvements in access” and “improvements in quality” were often conflated; therefore, the evaluator categorised the access and quality in this table.

Note 2: A clinical officer is a healthcare professional trained through a shorter educational program than physicians and is qualified to conduct patient examinations, prescribe medications, and perform minor surgical procedures.



Photo 3: OPD Waiting Area on the First Floor of Arua RRH Crowded with Many Patients (source: taken by the evaluator)



Photo 4: Maternity Ward of Gulu RRH Constructed under the Project (source: taken by the evaluator)

2) Improvement of Access and Quality of Healthcare Services for Refugees Living in the Target Area

Because this project was designed to benefit refugees residing in the target areas, interviews were conducted with relevant organisations to assess whether improvements in access to and quality of health services were also realised for refugee populations.

Northern Uganda is home to seven refugee settlements, accommodating approximately 920,000 refugees, about half of all refugees in Uganda, as of 2025 (UNHCR). Although the western region of Uganda hosts many refugees from the Democratic Republic of the Congo,

most refugees residing in the northern region are from South Sudan.³³ Refugees typically seek primary healthcare at health centres near their settlements, and when cases exceed the capacity of these facilities, patients are referred to nearby RRHs.³⁴ At the time of the ex-post evaluation, it was confirmed that patients from the Imvepi, Rhino, and Lobule settlements were referred to Arua RRH, whereas those from the Adjumani, Palorinya, and Palabek settlements were referred to Gulu RRH (see Figure 2).³⁵ Patients requiring orthopaedic surgery, such as for fractures, were all referred to Gulu RRH, which is equipped to perform such procedures. Lira RRH did not receive referrals from refugee settlements due to its greater distance from those areas.

Table 9 shows the number of patients referred from health centres near refugee settlements to Arua RRH.³⁶ Since 2020/21, the number has ranged between 3,700 and 4,000 annually, though it should be noted that this figure includes both Ugandan nationals and refugees. Assuming the same 4:6 ratio³⁷ of refugees to nationals as during the project planning, the number of refugee patients referred to Arua RRH in 2023/24 is estimated to be around 1,500. Representatives from UNHCR and the Arua Refugee Desk under the Department of Refugees at the Office of the Prime Minister³⁸ stated that improvements brought about by the project, such as expanded waiting areas, enhanced emergency department functions, and increased operating theatre capacity at Gulu RRH, have also contributed to improved access to and quality of health services for refugees.³⁹

In conclusion, a certain number of refugees have utilised services at Gulu RRH and Arua RRH following the completion of the project, and it can be determined that they have benefited from the improvements in access to and quality of health services described above.

Table 9: Number of Patients Referred from Health Centres
Around Refugee Settlements to Arua RRH

(Unit: person)				
2019/20	2020/21	2021/22	2022/23	2023/24
960	3,787	3,748	4,038	3,803

Source: Questionnaire completed by UNHCR.

Note: The combined number of refugees and Ugandan nationals.

³³ UNHCR, Uganda Population Dashboard Annex II, URL address <file:///C:/Users/kon/Downloads/Map%20-%20Refugees%20and%20Asylum%20Seekers%20-%2031%20Mar%202025.pdf> (accessed on April 1, 2025).

³⁴ When refugees use public health facilities, the consultation fee is free of charge, except for some services such as pay beds, as is the case for Ugandan citizens.

³⁵ Interview with UNHCR.

³⁶ Attempts were made to obtain data from UNHCR regarding the number of refugee patients referred to Gulu RRH, but the data could not be obtained, and Gulu RRH itself did not have the information.

³⁷ Preparatory Survey Report.

³⁸ Under the jurisdiction of the Department of Refugees at the Office of Prime Minister, there are four regional desk offices, in Mbarara, Hoima, Arua, and Adjumani, each responsible for managing the refugee settlements within their respective areas (source: the Office of the Prime Minister of Uganda website, <http://urms.opm.go.ug/settlement.html> (accessed on September 24, 2024)).

³⁹ Interviews with UNHCR and Arua Refugee Desk Office.

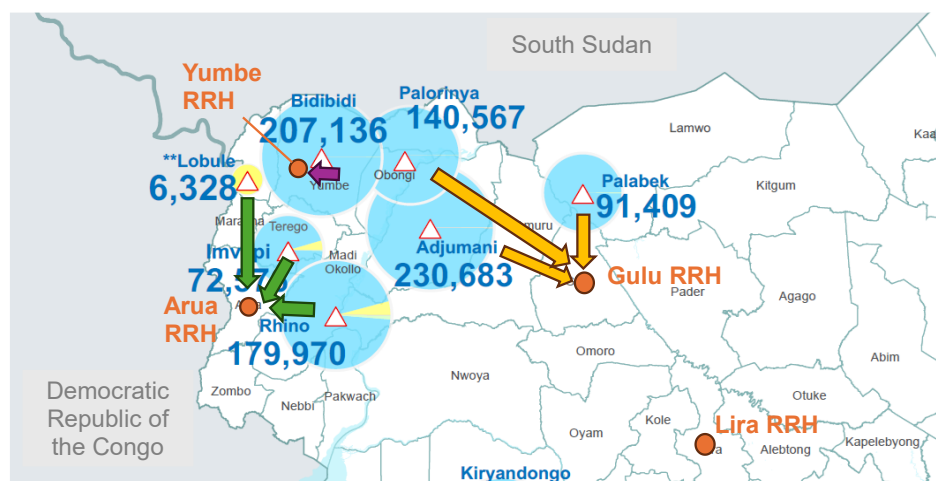


Figure 2: Patient Flows from Refugee Settlements in Northern Uganda to RRHs

Source: Prepared by the evaluator based on the UNHCR map (April 2025)

Note: Names of refugee settlements are shown in blue, and the size of the circles represents the number of refugees.

3.3.2 Impacts

3.3.2.1 Intended Impacts

Among the qualitative impacts anticipated in this project, “the increased trust and satisfaction among residents in Northern Uganda,⁴⁰ including refugees, toward the hospitals” was identified as an impact. Based on interviews conducted with hospital users at the target hospitals, the majority of them reported increased trust and satisfaction with the hospitals following the implementation of the project (see Table 10). The reasons cited were consistent with the specific improvements in access to and quality of health services described in Table 8. Therefore, it can be concluded that the project contributed to enhancing hospital users’ trust and satisfaction with the target hospitals.

Table 10: Changes in Hospital Users’ Trust and Satisfaction with Hospitals Resulting from the Implementation of the Project

(Unit: person)

Was there an improvement in trust and satisfaction with hospitals following the implementation of the project?	Yes	No	Don’t know
Gulu RRH	9	1	0
Lira RRH	10	0	0
Arua RRH	8	2	0

Source: Interviews with hospital users.

⁴⁰ In this context, the term “Northern Uganda” refers to the three sub-regions targeted by the project, Acholi, Lango and West Nile, and does not include Karamoja sub-region (source: Questionnaire completed by JICA Financial Cooperation Implementation Department).

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Environment

The project was deemed to have minimal adverse impacts on the environment and was classified as Category C under *the Japan International Cooperation Agency Guideline for Environmental and Social Considerations* (issued in April 2010). At the time of the ex-post evaluation, through questionnaires and interviews with the MoH and the target hospitals, it was confirmed that no unforeseen negative environmental impacts had occurred.

2) Resettlement and Land Acquisition

Because the facilities developed under this project were located within the premises of each RRH, no land acquisition or relocation of residents occurred because of the project implementation.

3) Gender Equality

Based on interviews conducted with hospital staff and users at the target hospitals, all respondents stated that there was no gender-based inequality in the use of hospital facilities developed under this project. Furthermore, while the construction of delivery rooms at Gulu RRH and Lira RRH in this project improved the childbirth environment and safety for women, an unexpected positive impact that men are encouraged to be present during childbirth was also observed. Before the project, delivery beds were placed in open rooms without partitions and husbands were not allowed to enter the delivery rooms. However, the delivery rooms constructed under this project were partitioned with walls, allowing husbands to accompany their partners during childbirth.⁴¹

Therefore, it can be concluded that the project did not result in gender inequality, and although the delivery room improvements primarily benefited women, they also had a positive impact on men.

4) Marginalised People

As stated in the section “Effectiveness (2) Qualitative Effects”, refugees have been



Photo 5: The Delivery Suite Constructed at Lira RRH. In the Foreground is the Generator Room (source: taken by the evaluator)

⁴¹ Interviews with hospital staff and users at Gulu RRH and Lira RRH.

utilising Arua RRH and Gulu RRH, and it is believed that they have benefited from the project's contribution to "improving access to and quality of health services". On the other hand, it was confirmed that there have been cases where refugees were unable to adequately communicate their symptoms to doctors due to language differences when visiting Arua RRH, resulting in unsatisfactory medical consultations.⁴² Although UNHCR provides interpretation support during medical visits, the large number of refugees has resulted in a shortage of personnel, and many refugees are unable to receive interpretation assistance.⁴³ Although interpretation support is outside the scope of this project, it was found that language barriers can prevent refugees from receiving appropriate health services.

5) Social Systems and Norms, People's Well-being and Human Rights

In this evaluation survey, no cases were identified in which the project appeared to have contributed to changes in the subjective well-being or satisfaction of hospital staff or users.

6) Unintended Positive / Negative Impacts

- The general X-ray machine provided to Lira RRH and Arua RRH through this project proved useful in diagnosing COVID-19 patients at these hospitals.⁴⁴ At the time of project planning, although the existing X-ray machine at Lira RRH was operational, it was significantly deteriorated, and the equipment at Arua RRH was out of order and non-functional.⁴⁵ The installation of new general X-ray machine through this project contributed to the COVID-19 response in the target areas.
- After the implementation of this project, some hospital users expressed that the staff's attitude and manner of patient care had improved. This may be attributed to the enhancement of facilities and equipment necessary for operations as well as the expansion of consultation spaces that helped streamline workflows, thereby reducing staff stress and contributing to better patient interactions. Additionally, both hospital staff and users noted that the introduction of a public address system for outpatient calls eliminated the need for staff to shout when calling patients, which may have further contributed to users perceiving an improvement in service quality.

As a result of this project, the target hospitals expanded the scope of medical consultations, examinations, and treatments, and the expansion of space has increased their capacity to accommodate patients. Both hospital staff and users reported improvements in service quality, such as enhanced cleanliness of the facilities and better privacy in consultation rooms.

⁴² Interviews with Gulu RRH users.

⁴³ Interview with UNHCR.

⁴⁴ Questionnaire completed by the MoH.

⁴⁵ Preparatory Survey Report.

Consequently, users' trust and satisfaction with the hospitals also increased. On the other hand, due to the strengthening of lower-level health facilities implemented by the MoH and other donors, some of the quantitative indicators expected to increase, such as the number of outpatient and deliveries, did not reach the target values. However, the number of emergency patients mostly met the target, and the number of operations significantly exceeded expectations. This suggests a clearer functional distinction between RRHs, which handle severe cases, and lower-level health facilities, which treat patients with minor conditions or uncomplicated cases. In terms of qualitative effects, both anticipated and unanticipated positive impacts were observed.

Based on the above, this project has mostly achieved its objectives. Therefore, effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ②)

3.4.1 Policy and System

In Uganda's health sector development plan at the time of the ex-post evaluation, *the Ministry of Health Strategic Plan 2020/21–2024/25*, “improving the functionality and appropriateness of health infrastructure and logistics” is identified as one of the seven major strategic objectives. Furthermore, RRHs are planning to increase the number of hospital beds and strengthen specialised departments, such as oncology and cardiology.⁴⁶ Based on this, it can be said that the Ugandan government places a high priority on strengthening health infrastructure, including RRHs, and sustainability in terms of policy and system aspect is ensured.

3.4.2 Institutional/Organisational Aspect

In Uganda, the country is divided into 12 sub-regions, each equipped with a workshop responsible for repairing medical facilities and equipment. The central workshop is in the capital, Kampala, and the remaining 11 are regional workshops affiliated with RRHs. At these hospitals, workshop technicians perform daily maintenance of facilities and equipment, and maintenance or repairs are conducted through external agencies or other channels as needed.⁴⁷ As shown in Table 11, the number of workshop personnel at the three target hospitals at the time of the ex-post evaluation included at least one BME at each hospital, exceeding the initial plan which confirmed at least four technicians per workshop. However, Gulu RRH had only one BME, resulting in a heavy workload for the existing staff, and an increase in the number of BMEs is desired.⁴⁸ A review of the personnel trends at each hospital since 2019/20 showed that the number of workshop staff has remained generally stable at all hospitals, suggesting that a sudden

⁴⁶ Questionnaire completed by the MoH.

⁴⁷ Preparatory Survey Report

⁴⁸ Questionnaire completed by Gulu RRH.

shortage of personnel is unlikely in the near future. Additionally, all hospitals had a well-established system for reporting facility and equipment malfunctions, which was well known by staff in each department. At Lira RRH, an innovative approach was observed where staff used a messaging application to report issues with accompanying photos.

Table 11: Number of Workshop Personnel at the Time of the Ex-Post Evaluation
(Unit: person)

	BME	Mechanical Engineer	Electrician	Plumber	Carpenter	Civil Engineer	Total
Gulu RRH	1	1	4	1	1	0	8
Lira RRH	3	0	1	1	0	1	6
Arua RRH	2	0	2	2	1	1	8

Source: Questionnaire completed by Gulu RRH, Lira RRH, and Arua RRH.

To prevent situations in which medical equipment becomes non-functional due to malfunctions shortly after delivery, this project included a three-year maintenance contract with the authorised local agents of the manufacturer for equipment requiring essential maintenance by them⁴⁹ as outputs from the Japanese side. The contract included regular maintenance services; on-call services for repairs, provided free of charge by the local agent; and repair/replacement parts. Each type of equipment had a set number of on-call service visits and scheduled maintenance sessions. Among these services, regular maintenance was carried out as planned under the initiative on the Japanese side. At the time of the ex-post evaluation, the equipment the maintenance contracts cover was generally functioning well, and regular maintenance was believed to have contributed to the proper upkeep of the equipment. However, awareness of the on-call services and the availability of repair and replacement parts was low among hospital staff, resulting in limited use during the contract period.⁵⁰ Although MoH officials shared information about the maintenance contracts with hospital staff at the time of project completion,⁵¹ the lack of information transfer during staff turnover is believed to have contributed to the underutilisation of these services. Going forward, the MoH plans to conclude maintenance contracts with local agents at the central level. Therefore, it is desirable to establish clear procedures for utilising these contracts at each hospital and to ensure that information is properly handed over during staff transitions.

In conclusion, although there is a need to increase the number of BMEs at Gulu RRH, the overall staffing for facility and equipment maintenance has aligned with the initial plan, and malfunction reporting systems are well-structured. With the MoH expected to continue

⁴⁹ The equipment covered under the maintenance contract includes six items: an anaesthesia machine, a biochemistry analyser, a CR system, a fluoroscopy X-ray machine, a haematology analyser, and a ventilator.

⁵⁰ Interview with hospital staff at the target hospitals.

⁵¹ Interview with the MoH.

maintenance contracts with local agents of the manufacturer, it is highly likely that equipment maintenance by them will be sustained. Therefore, organisational and structural sustainability is high.

3.4.3 Technical Aspect

As noted in “3.1.2.2 Internal Coherence”, it was expected that user trainers would provide continuous guidance by regularly conducting in-hospital training sessions on proper equipment operation and daily maintenance. At the time of the ex-post evaluation, it was confirmed that most of the user trainers trained under the TC Project (7 of 8 across the three hospitals) continued to work at the same hospitals. At Lira RRH and Arua RRH, user trainers were found to be collaborating with BMEs to plan quarterly training sessions and had submitted budget requests to the hospitals for these activities. However, due to budget constraints for facility and equipment maintenance, Arua RRH was only able to conduct one training session in 2022/23 (15 participants) and two sessions in 2023/24 (total of 22 participants),⁵² despite planning four sessions annually.⁵³ No training records were obtained from Gulu RRH and Lira RRH. At the time of the ex-post evaluation, there was no expectation of an increase in training budgets and therefore no expectation of an increase in training frequency. On the other hand, in February - March and August - September 2024, JICA conducted follow-up cooperation under the “Knowledge Co-Creation Program: Medical Equipment Management and Maintenance (C)”, providing training on equipment handling and daily maintenance to medical staff at the three target hospitals. These sessions, led by user trainers and BMEs, were reported to have strengthened their leadership and boosted their confidence in conducting training.⁵⁴

Based on the above, although the necessary personnel and plans for in-hospital training are in place, the actual number of training sessions remains limited due to budget shortages, and there is little prospect for expansion. Therefore, sustainability of the technical aspect is moderately low.

3.4.4 Financial Aspect

Financial statements from Gulu RRH and Lira RRH for the past five years were obtained; however, expenditures specifically related to facility and equipment maintenance were not itemised, making tracking trends in maintenance-related spending impossible. Reviewing each hospital’s financial performance, Gulu RRH has shown a steady increase in both revenue and expenditure since FY2018/19, with a surplus recorded in all five years. Lira RRH similarly

⁵² Interview with BME at Arua RRH.

⁵³ Each RRH’s workshop is responsible for the maintenance of facilities and equipment across all health facilities within its respective region (in this project, Acholi, Lango, and West Nile). The plan is to conduct one training session per quarter at the RRH and one at lower-level health facilities. In other words, the total number of planned training sessions per region per year is eight: four at the RRH and four at lower-level health facilities.

⁵⁴ Material provided by JICA.

experienced annual increases in both revenue and expenditure since FY2018/19, with surpluses until FY2021/22, but recorded a deficit of approximately 6 million Ugandan shillings in FY2022/23 (see Table 12). Financial statements from Arua RRH could not be obtained. Meanwhile, according to workshop technicians of the three target hospitals, the budget for facility and equipment maintenance is insufficient and they are required to prioritise repairing malfunctioning equipment and purchasing replacement parts. In practice, several issues, such as broken doorknobs and faucet handles in restrooms, were identified but left unaddressed due to their low priority. As noted in “3.4.3 Technical Aspect”, in-hospital training sessions on equipment operation were also only partially implemented due to budget constraints. In response, the MoH developed *the National Medical Equipment Guidelines* in November 2024, which stipulate that 2-7% of the capital expenditure cost of the equipment should be secured as an operation and maintenance budget, and issued a letter to the Ministry of Finance requesting an increase in the budget allocated to maintenance costs for RRHs. However, there is no clear prospect for a budget increase at the time of the ex-post evaluation.

Based on the above, both the budget for facility and equipment maintenance and the budget for training equipment operators are insufficient, and there is no clear prospect for improvement. Therefore, sustainability of the financial aspect is moderately low.

Table 12: Income and Expenditure in Gulu RRH and Lira RRH for the Last 5 Years

(Unit: million Ugandan Shillings)

		2018/19	2019/20	2020/21	2021/22	2022/23
Gulu RRH	Income Total	8,767	9,299	10,046	11,302	12,661
	Expenditure Total	8,670	8,856	9,675	11,269	12,594
	Balance	97	443	371	33	67
Lira RRH	Income Total	No data	9,036	10,040	10,669	17,444
	Expenditure Total	No data	8,756	9,895	10,649	17,450
	Balance	-	280	145	20	-6

Source: Financial statements provided by Gulu RRH and Lira RRH.

3.4.5 Environmental and Social Aspect

No negative environmental or social impacts or risks were identified, and the likelihood of such issues arising in the future is considered low.

3.4.6 Preventative Measures to Risks

As noted in “3.4.4 Financial Aspect”, the lack of budget for facility and equipment

maintenance poses a risk to the realisation of project effects and the MoH has been working to increase the budget allocated to maintenance costs for RRHs. However, there is currently no clear prospect for a budget increase.

3.4.7 Status of Operation and Maintenance

At the three target hospitals, facility cleaning was outsourced to external contractors and was generally well maintained. However, multiple cases of broken or missing components, such as toilet doorknobs, shower handles, and faucet taps used by patients, were observed. These issues had not been addressed due to their low repair priority and budget constraints. Additionally, some patient toilets at Gulu RRH and Lira RRH were locked and unusable due to plumbing problems. According to hospital staff, not a few hospital users were unfamiliar with flush toilets and tended to dispose of garbage in the toilet bowls, similar to the pit latrines commonly used in rural areas, which contributed to the damage. The evaluator advised both Gulu RRH and Lira RRH to promptly repair the plumbing and ensure that patients could use the toilets and to thoroughly inform users not to dispose of garbage in the toilet bowls.

Regarding medical equipment, an assessment was conducted focusing on major equipment and those identified with defects during the defect inspection carried out a year after project completion. This assessment revealed several items that were not operational due to equipment malfunctions, deterioration or loss of parts, and lack of space (see Table 13). Given the insufficient maintenance budget, responding immediately to all equipment failures was difficult. Nevertheless, BMEs at each hospital were prioritizing repairs based on their urgency. Many cases of physical damage to equipment were observed, indicating that in addition to training on operation, improvements in basic handling practices are necessary. The hospitals host many interns and trainees undergoing postgraduate training, and the lack of opportunities to instruct them on proper equipment handling was also considered a contributing factor to equipment damage and malfunction.⁵⁵ It is recommended that regular reminders and guidance on proper equipment handling be provided, including for interns and trainees.

Regarding the CR systems provided to Lira RRH and Arua RRH, it was confirmed during the on-site inspection for this evaluation that neither hospital had a functioning CR system. At Lira RRH, as an alternative means of image sharing, images were saved onto CD-ROMs as instructed in the soft component and the data were physically transported. At Arua RRH, this method was not successful, and staff resorted to photographing X-ray images displayed on a computer screen with smartphones to share with relevant personnel, resulting in a decline in diagnostic image quality. The consultant confirmed the malfunction of the CR system at Lira RRH in November 2023. It was determined that the issue stemmed from the EMRs the MoH introduced after the project, which shared the same network as the CR system the project

⁵⁵ Interviews with hospital staff at the target hospitals.

provided.⁵⁶ Since then, the consultant repeatedly asked Lira RRH to establish a separate network for the CR system. The JICA Uganda Office also issued multiple letters to the MoH requesting the same action, but due to budget constraints, no action had been taken as of the ex-post evaluation. Overall, it cannot be said that the Ugandan side has taken adequate measures to address the CR system malfunctions.⁵⁷ At Arua RRH, the CR system was experienced malfunctions probably due to the same causes. However, information received from the MoH indicated that the issues were resolved after the on-site inspection of this ex-post evaluation, allowing images to be viewed in the existing wards.

Table 13: Examples of Equipment Not in Use

Hospital	Equipment	Status at the Time of Ex-Post Evaluation
Gulu RRH	Examination Light	Five out of 10 units are not in use due to malfunctions or other issues.
	Electro Surgical Unit	One of the two units is out of order and under repair.
	Suction Machine (Electrical)	Not in use due to a missing cable.
	Weighing Scale for Adult	Two out of seven units are not in use due to malfunctions.
	Wheelchair	Two out of four units are out of order and under repair.
Lira RRH	Nebuliser	The plastic tube is deteriorated and has holes, requiring replacement.
	Autoclave (Stand Alone)	The equipment itself is functioning properly, but it is unusable due to the absence of a three-phase power supply in the room.
	CR System	The CR system does not operate when using the same LAN system as the EMRs introduced by the MoH.
Arua RRH	Biochemistry Analyser	Due to a UPS failure, the CPU inside the PC was damaged, rendering it unusable.
	Electrical Dermatome	The blade is worn out and needs to be replaced.
	Patient Monitor	Two out of twelve units are not in use due to battery issues (replacement required) and missing cables.
	CR System	The PC used for image viewing does not display images. The issue is believed to be caused by a network malfunction.

Source: on-site inspection by the evaluator

⁵⁶ Interview with the consultant, materials provided by JICA.

⁵⁷ The introduction of EMRs at the target hospitals became known only after the completion of this project. Therefore, it was difficult for the Japanese side to anticipate and prepare countermeasures for such issues during the planning and implementation phases. In addition, this project included a three-year maintenance contract for the CR system as part of its outputs, with the contract valid until December 2024. Given this, the consultant had repeatedly asked Lira RRH to complete the installation of a dedicated LAN system for the CR system by the end of the contract period so that the manufacturer's agent could carry out the system setup following LAN development. However, as of the ex-post evaluation, the issue remained unaddressed.



Photo 6: The Patient Toilet at Gulu RRH with a Missing Doorknob (source: taken by the evaluator)



Photo 7: A Broken Weighing Scale Placed in the OPD of Gulu RRH (source: taken by the evaluator)

Based on the above, some issues have been observed in the technical and financial aspects, including the current status of operation and maintenance. The prospects for improvement/resolution remain uncertain. Therefore, sustainability of the project effects is moderately low.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aims to strengthen the functions of RRHs by improving the facilities and equipment of Gulu RRH, Lira RRH, and Arua RRH in Northern Uganda, thereby contributing to improved access and quality of healthcare services in Northern Uganda. This objective aligns with Uganda's development plans and corresponds to the development needs in maternal and child health in the region, as well as the needs of the RRHs. Although there was no collaboration with other agencies or donors, the project was consistent with Japan's ODA policies for Uganda, and the contribution to improving the quality of health services was confirmed through collaboration with other JICA projects. Therefore, its relevance and coherence are high. The Japanese side's outputs were mostly implemented as planned. Although the project duration exceeded the original plan, the Japanese side's project cost remained within the plan. Therefore, efficiency of the project is high. As a result of the project, the number of patients that the target hospitals can accommodate increased, and improvements in service quality were confirmed. Consequently, users' trust and satisfaction with the hospitals also improved. Although the number of operations and of emergency patients met the targets, the number of outpatients and of deliveries did not reach the target values. Additionally, several expected and unexpected positive impacts were confirmed. Therefore, effectiveness and impact of the project are high. On the other hand, some issues have been observed in the technical and financial aspects including the current status of operating and maintenance and the prospects for improvement/resolution remain uncertain. Therefore, sustainability of the project effect is moderately low.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Completion of LAN Installation for the CR System and Ugandan-Side Construction Works

The MoH should provide guidance and advice to Lira RRH and Arua RRH to secure the necessary budget for LAN system installation and promptly carry out the construction work required for the early operation of the CR system. In addition, it is desirable that the MoH conduct regular monitoring of the progress. Each hospital should prepare a detailed work plan covering the process from budget application to construction and submit it to the MoH. Based on these plans, the MoH should regularly visit each hospital to confirm progress. Similarly, regarding the construction of a roof over the walkway between the newly constructed and existing buildings at Arua RRH, it is recommended that Arua RRH prepare a work plan and that the MoH monitor its implementation.

Clarification of Maintenance Contract Usage with Local Agents of the Manufactures

Regarding the three-year maintenance contracts for six types of medical equipment included as part of the Japanese side's outputs in this project, the MoH is expected to enter into contracts with the authorised local agents of the manufacturer going forward. Based on these contracts, maintenance services will be provided to each RRH. To ensure that each hospital can make full use of the contracts and properly maintain the relevant equipment, it is recommended that the MoH clearly communicate the details of the services and usage procedures to each hospital in written form or other appropriate formats. Furthermore, to prevent disruptions in service utilisation due to staff turnover, it is advised that the MoH instruct each hospital to manage maintenance contract information at the departmental level rather than by individual staff member.

Implementation of Equipment Failure Prevention Measures by Departments at RRHs

In-house training sessions conducted at each hospital to instruct staff on the operation and daily maintenance of medical equipment are limited due to budget constraints. Therefore, to help prevent equipment malfunction, it is recommended that each hospital establish departmental systems to regularly remind equipment users of proper handling and operating procedures as part of their daily duties. Specifically, this may include displaying operating manuals or warning notices on or near the equipment, sharing information about malfunctioning devices during departmental meetings, and using such opportunities to reinforce proper handling practices. It is also recommended that hospitals ensure thorough instruction on equipment precautions and usage is provided before new staff members, interns, or trainees begin using

medical equipment.

4.2.2 Recommendations to JICA

During interviews with hospital staff and users conducted as part of this ex-post evaluation, several comments were made regarding inconveniences in facility design. Although these issues were not significant enough to undermine the overall achievements of the project, they were nonetheless noted. Due to space limitations in the evaluation report, it is not feasible to include all feedback that does not directly affect the evaluation results. Additionally, considerations related to local customs and cultural practices tend to have low generalisability and vary widely in content, making them unsuitable for inclusion in a lessons-learned sheet. Given that Uganda has implemented numerous health infrastructure development projects in the past and plans to continue similar projects in the future, it would be useful for the JICA local office to compile detailed design-related considerations that are not included in the evaluation report. Therefore, it is recommended that JICA establish a system in which the local office collects and documents considerations related to facility design and equipment selection for projects involving facility construction and equipment provision.

4.3 Lessons Learned

Including Maintenance Contracts for Medical Equipment Requiring Regular Servicing as Part of the Japanese Side's Contribution

In this project, to prevent situations where equipment becomes non-functional due to early malfunctions after delivery and is subsequently left unused, a three-year maintenance contract was included as part of the Japanese side's contribution for equipment requiring significant maintenance by authorised local agents of the manufacturer. Regular maintenance inspections were conducted under the initiative of the Japanese side. Although there were some challenges in utilising the on-call support and spare parts included in the contract, regular maintenance inspections were carried out as planned throughout the third year after delivery and contributed to the proper upkeep of the equipment. Therefore, for future projects involving the provision of medical equipment that requires maintenance by manufacturers or their local agents, it is recommended that a maintenance contract of approximately three years be included as part of the Japanese side's outputs. Because the recipient hospitals themselves must conclude maintenance contracts beyond the fourth year after delivery, attention should also be paid to the need to remind the hospitals early to ensure that the necessary budget is secured for these contracts.

Conducting Pre-Implementation Verification for IT Software

At the time of the ex-post evaluation, the CR system provided under this project was found to be non-functional, and the issue was believed to stem from interference with the EMR system

introduced after the project, as both systems operated on the same network. Because the introduction of the EMR system at the target hospitals occurred after the completion of this project, foreseeing such a problem during the planning phase was difficult. However, in the case that some software is already in use at the target facilities or future software installations are known at the time of planning, conducting pre-implementation verification to the extent possible can help prevent functionality issues with software provided through JICA projects. Therefore, when IT software is included as part of the project outputs, it is recommended to verify in advance its compatibility with existing LAN systems and check for potential interference with both existing and planned software systems.

5. Non-Score Criteria

5.1 Performance

5.1.1 Objective Perspective

During the maintenance service work by the consultant in November 2023, two years after the project completion, it was confirmed that the CR system provided to Lira RRH was not functioning. As a solution, the consultant recommended that Lira RRH install a dedicated LAN system for the CR system. While the consultant repeatedly requested LAN installation from Lira RRH, the JICA Uganda Office also issued official letters to the MoH in January and November 2024, requesting the same. In addition, the JICA Uganda Office has visited the target hospitals two to three times per year to provide guidance on the use of the CR system and other equipment.⁵⁷ Based on these actions, it can be concluded that the JICA Uganda Office maintained appropriate communication with the consultant and provided adequate support.

5.2 Additionality

None.

(End)

⁵⁷ Information provided via email from the JICA Uganda Office.