

Simplified Ex-Post Evaluation for Grant Aid Project

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Country Name	<Project Name> The Project for Upgrading Lusaka Health Centers to District Hospitals
Republic of Zambia	

I. Project Outline

Background	A high mortality rate of under 5 years of age and a high maternal mortality rate have been challenges in the health sector in Zambia, which needed to be further improved. Meanwhile, there have been difficulties in meeting the health service demands of Lusaka citizens as there were no hospitals categorized at the first or second level in the capital city Lusaka. Further, the University Teaching Hospital of Zambia (UTH), which is responsible for third-level medical services, was seriously and chronically congested since approximately 25% of patients accepted by UTH were referred from health centers (basic health service facilities). Under these circumstances, the project commenced in 2013 with the aim of improving access to health services for Lusaka citizens by strengthening the functions of two small health centers so that they can provide the same functions as a primary hospital.			
Objectives of the Project	The objective of the project is to strengthen the functions of two urban health centers (Matero and Chilenje), which are responsible for regional medical care in Lusaka, Zambia, by improving the facilities and equipment of these health centers, thereby contributing to improved access by Lusaka citizens to first-level medical services, as well as to third-level medical services by reducing congestion at UTH.			
Project Details	<ol style="list-style-type: none"> 1. Project Site: Lusaka 2. Japanese side: Construction and procurement: Renovation and construction of additional facilities for the target health centers (additional facilities include an outpatient ward and central clinic, surgery and pediatric wards and related facilities), and procurement of medical equipment Consulting services and technical assistance: Training for improving the medical environment and the operation and maintenance of medical equipment through 5S/KAIZEN/TQM activities 3. Zambian side: Construction-related activities: Demolition of existing facilities, creation and leveling of planned construction sites, relocation of existing infrastructure offsite, maintenance of infrastructure, relocation costs for new facilities, etc. Other fees for various administrative procedures: Procedures related to construction permits, tax exemptions, operation and maintenance budget for facilities and equipment, contracts and contributions related to utility expenses, etc. 			
Project Period	E/N Date	July 17, 2013 (Revised E/N: January 28, 2014)	Completion Date	July 26, 2016 (Completion)
	G/A Date	July 17, 2013 (Revised G/A: January 28, 2014)		
Project Cost	E/N Grant Limit / G/A Grant Limit: 1,908 million yen (Revised Grant Limit: 1,999 million yen)		Actual Grant Amount: 1,996 million yen	
Executing Agency	Ministry of Health (MOH)			
Contracted Agencies	Main Contractors: Construction: Shimizu Corporation, Procurement: Sirius Corporation Main Consultants: Nihon Sekkei, Inc./Fujita Planning Co., Ltd. (JV) Agent: N/A			

II. Result of the Evaluation

<Constraints on Evaluation>

- None

<Special Perspectives Considered in the Ex-Post Evaluation>

- The information collected on the qualitative effect indicators is compiled separately in the attached column “Summary of qualitative survey results.”

1 Relevance

<Consistency with the Development Policy of Zambia at the Time of Ex-Ante Evaluation>

The *Fifth National Development Plan (2006-2010)* states that the vision for the health sector is “to achieve fair access to quality, cost-effective health care by 2030,” together with the need to repair and renew deteriorated medical facilities and equipment to allow the health system to function effectively, which is one of the major challenges in the health sector. In addition, upgrading existing health centers to first-level hospitals was one of the priority strategies in the MOH’s *Fifth National Health Strategy (2011-2015)*. In its 2008 plan, the MOH set out to strengthen and expand the facilities of designated health centers in five areas in Lusaka, thereby enabling these health centers to provide the required first-level medical services.

Therefore, the project is deemed to be relevant to the development policy of Zambia.

<Consistency with the Development Needs of Zambia at the Time of Ex-Ante Evaluation >

The development needs of the project are as described in Background in I. Project Outline. It was necessary to reduce congestion in UTH by strengthening the first and second level hospitals. In relation to the development needs, the sole second-level hospital in Lusaka, Levi Mwanawasa General Hospital,¹ was opened in 2011 at the planning stage of the project. The hospital is located in the eastern part of

¹ The hospital was upgraded from a clinic with the support of the Chinese government. The hospital was upgraded to a Level 4 hospital through further

Lusaka, slightly away from the center of Lusaka. Since it was not well known at the time of its opening as a second-level hospital, the number of outpatients was small. Comparatively, the target health centers of the project were both located in the center of Lusaka, similar to UTH. Therefore, many patients had been referred from the target hospitals to UTH.

In light of the above, the project is deemed to be consistent with the development needs of Zambia.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

One of the priority policies and issues stated in *Japan's Country Assistance Policy for Zambia (October 2002)* is "enhancing cost-effective healthcare services." This policy for Zambia stated that "Japan considers ways to expand primary health care and cooperate in the area of reproductive health to achieve results that are highly effective at relatively low costs and that directly benefit the people, especially the poor. These circumstances are currently exacerbated by a high cost structure characterized by urbanization of healthcare service facilities and an emphasis on treatment services provided by higher-order hospitals." The project was implemented based on this policy; therefore, it was consistent with Japan's ODA policy at the time of the ex-ante evaluation.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impacts

<Effectiveness>

After the project was implemented, both target health centers were upgraded to level 1 hospitals in April 2017.

Quantitative effect indicators of "the number of cesarean sections" and "the number of inpatients in the adult surgery ward" were set for the project in the summary report of the ex-ante evaluation. The targets for indicator 1 "the number of cesarean sections" were achieved. Before the project was implemented, there were no doctors or facilities available at the target health centers; therefore, patients requiring surgery were referred to UTH. After the project was implemented, as level 1 hospitals with improved facilities, medical equipment, and doctor/nurse labor force, the target health centers were capable of accepting patients, handling surgeries, as well as hospitalization. Indicator 2 "the number of inpatients in the adult surgery ward," which verifies the number of inpatients in the newly constructed adult surgery ward at Matero Hospital, has also been achieved by far exceeding the target. A qualitative effect indicator of "improvement in medical services to local residents (by enhancing the medical system)" was set in the summary report of the ex-ante evaluation. As of the ex-post evaluation, both target hospitals had well-organized medical systems that enabled local residents to receive most common medical services at a high standard without relying on referrals to UTH or visiting private hospitals. Therefore, the qualitative effect of the project has been achieved. (Refer to the column "Summary of Qualitative Survey Results" for details on the qualitative effect.)

<Impact>

A qualitative impact indicator of "relieving congestion at UTH and thereby improving medical services at UTH" was set for the project based on the assumption that the project would result in the medical referral system in Lusaka becoming multi-layered and recover functionality to allow for the provision of efficient medical services according to the disease and severity thereof. Improvements in medical systems at both target hospitals contributed to a reduction in the number of patients referred to UTH, thereby significantly alleviating congestion at UTH by the time of the ex-post evaluation. As a result, UTH can now concentrate on advanced medical treatment including heart surgery and is approaching a normal operating state in accordance with its intended purpose. Therefore, the qualitative impact of the project has been achieved. (Refer to the column "Summary of Qualitative Survey Results" for details on the qualitative impact.) To supplement the qualitative impact indicator, additional quantitative indicators were set in conducting the ex-post evaluation. The actual results for both indicator 3 "decrease in the number of referral patients to UTH" and 4 "decrease in the ratio of referral patients to UTH" were below the baseline as of the ex-post evaluation, indicating that the expected impact has been achieved.

In addition to the project, other donors have been supporting improvements in the medical system in Lusaka. This assistance is considered to have also contributed to the medical referral system in Lusaka becoming multi-layered and recovering functionality. In particular, the enhancement of functions at Levi Mwanawasa General Hospital has in turn contributed to the functionality of UTH mainly by allowing the hospital to accept referral patients from health centers in the eastern part of Lusaka.

As for the other impacts, there has been a gender impact associated with the decrease in referrals for cesarean sections, which has reduced the physical and economic burden on female healthcare users. There have been no negative impacts on the natural environment or on society.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Baseline 2012 Baseline Year	Target 2018 3 Years after Completion	Actual 2017 1 Year after Completion	Actual 2018 2 Years after Completion	Actual 2019 ² 3 Years after Completion
Indicator 1 The number of caesarean sections at Matero Hospital	0	377	207	203	475
The number of caesarean sections at Chilenje Hospital	0	357	219	384	921

support and was accepting referral patients at the time of the ex-post evaluation.

² In the plan of the project, the target year was 2018, which is three years after the completion of the project. Since the completion of the project was delayed by around one year, the comparison between the target and actual is based on the actual results for 2019.

Indicators	Baseline 2012 Baseline Year	Target 2018 3 Years after Completion	Actual 2017 1 Year after Completion	Actual 2018 2 Years after Completion	Actual 2019 3 Years after Completion
Indicator 2 The number of inpatients in the new adult surgery ward at Matero hospital	0	968	Data not obtained	1,670	1,757
Indicator 3 (Additional indicator) Decrease in the number of referral patients to UTH *1	65,219	No target (additional indicator for evaluation)	39,856	26,056	23,979
Indicator 4 (Additional indicator) Decrease in the ratio of referral patients to UTH (%) *2	24.7	No target (same as above)	16.6	13.0	15.9

Source: Materials were provided by JICA for the baseline and target, and by the target hospitals for the actual results.

*1 Total number of referral patients including patients accepted from medical institutions other than target hospitals of the project (Matero and Chilenje)

*2 Ratio of referral patients from other medical institutions to the total number of patients at UTH

3 Efficiency

The actual outputs of the project were mostly as planned (the plan is described in Project Details under I. Project Outline). Although there were changes from the plan such as the layout of the facilities, those changes did not affect the effects of the Project.

The total planned project cost was 2,019 million yen (1,999 million yen for the Japanese side and 20 million yen for the Zambian side). The actual Japanese side cost was as planned: the actual cost was 1,996 million yen whereas the planned cost was 1,999 million yen (nearly 100% of the planned cost). The planned cost for the Zambian side was 20 million yen; however, the actual cost could not be confirmed. Therefore, the evaluation of the project's cost efficiency was based on a comparison between the planned and actual cost on the Japanese side considering that the planned cost for the Zambian side was only 1% of the total and would thus not affect the comparison between plan and actual.

The actual project period was 37 months, exceeding the planned project period of 22 months (168% of the planned period). The main reasons for the actual project period exceeding the planned period were a delay in the start of bidding and construction as a result of the grant limit being revised reflecting additional grant due to exchange rate fluctuations, a delay in construction due to a delay in procurement of materials and labor, delays in the construction schedule resulting from a planned power outage (installation of additional generators) and the excavation and removal of underground rock.

<Evaluation Result>

Although the project cost was as planned, the project period exceeded the plan. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspects>

Under the operation and maintenance (O&M) system of the target health centers at the time of the ex-ante evaluation, there were no maintenance staff for the facilities and equipment in the health centers; instead, the district health office maintenance staff had been responsible for the maintenance of multiple health centers. Therefore, O&M at each health center was not deemed to be conducted in an appropriate manner. Based on the situation and in order to establish a maintenance department after upgrading to level 1 hospitals, technical assistance was planned as part of the project. Technical assistance was implemented for (1) establishment of a maintenance system for facilities and equipment including cooperation between the maintenance department and the consumables/replacement parts warehouse, and (2) establishment of medical waste collection/treatment system at the hospitals.

Under the O&M system of both target hospitals at the time of the ex-post evaluation, a maintenance department and a system for medical waste collection and treatment were established and sustained; however, the assumed cooperation between these and the consumables and replacement parts warehouse had not been established.

As for the staffing of the maintenance departments at the target hospitals, two new staff members (a department chief/person responsible for machinery and a person responsible for electricity) have been allocated to each hospital, compared to three new staff members at each hospital (a department chief, a person responsible for machinery and a person responsible for electricity) requested by the study team at the time of planning. However, in the area covered by Matero Hospital, there are a total of 9 clinics and health posts, for which maintenance of medical equipment is handled by 2 maintenance staff members and 4 student volunteers stationed at Matero Hospital. Similarly, there are a total of 11 clinics and health posts in the area covered by the Chilenje Hospital, for which maintenance of medical equipment is handled by 2 maintenance staff members and 3 student volunteers stationed at Chilenje Hospital. According to maintenance staff at both target hospitals, the number of staff members is insufficient because maintenance work must be performed at multiple clinics in the area covered by each hospital. (Refer to "Recommendations for the Executing Agency.") The management of medical waste is handled by one person at each of the target hospitals, and the number of staff members is sufficient.

The number of medical workers was increased to the level assumed necessary at the time of planning. However, interviews with the target hospitals revealed that it is necessary to further increase the number of doctors and midwives as the number of patients has continued to increase (in particular, doctors in the surgical ward of Matero Hospital and midwives in both hospitals need to be increased).

Comparison between the number of medical workers before and after the project

Classification	As of ex-ante evaluation			As of ex-post evaluation			Difference
	Matero health center	Chilenje health center	Additional workers needed (total for both health centers)	Matero Level 1 Hospital	Chilenje Level 1 Hospital	Actual increase in workers (total for both health centers)	
Doctor	2	3	4	15	18	28	+24
Physician assistant	9	8	14	16	9	8	-6

Classification	As of ex-ante evaluation			As of ex-post evaluation			Difference
	Matero health center	Chilenje health center	Additional workers needed (total for both health centers)	Matero Level 1 Hospital	Chilenje Level 1 Hospital	Actual increase in workers (total for both health centers)	
Nurse	38	41	74	167	204	292	+218
Midwife	16	21	19	21	15	-1	-20
Other	75	70	22	384	271	510	+488
Total	140	143	133	603	517	837	+704

Source: Materials were provided by JICA for the data as of the ex-ante evaluation, and by the executing agency and the target hospitals for the data as of the ex-post evaluation.

<Technical Aspects>

Regarding the technical aspects of O&M at the time of the ex-ante evaluation, there were concerns that medical services would deteriorate due to failure of facilities and medical equipment because the target health centers had no staff with skills related to operation and maintenance. There were also concerns about the deterioration of the surrounding environment and an increased risk of infection in the hospitals because the treatment methods for medical wastewater and medical waste were not appropriate. Based on these circumstances, the following technical assistance was planned for the project: (1) strengthening the capacity of the staff of the maintenance department, which will be set up as a result of upgrading to a level 1 hospital (allowing for proper use and operation of facilities, improving measures for failures, and making periodic inspections), and (2) raising awareness about appropriate waste disposal in each department (ensuring separate collection of infectious waste) and correct operation of incinerators.

As for the technical level of O&M at the time of the ex-post evaluation, there were no problems since both of the target hospitals are staffed with personnel trained through the technical assistance of the project and personnel with electrician backgrounds. The O&M staff maintain the facilities and equipment according to the O&M plan (monthly and annual periodic checklist), which was prepared with the support of the technical assistance provided as part of the project and approved by the Ministry of Health. The manuals for each type of medical equipment are stored in a cabinet in the operation and maintenance department, and O&M staff members refer to these manuals as necessary in the course of their work. Regarding the management of medical waste, separate collection of waste has generally been maintained, with such collection being strengthened through the technical assistance of the project. However, since incinerators malfunctioned at both target hospitals, medical waste has been transported to other hospitals where incinerators are operational.³ It is necessary to deal with issues involving failure to immediately incinerate infectious medical waste. (Refer to “Recommendations for both Target Hospitals.”) Since this is a financial issue stemming from budget constraints on repair and renewal, it is deemed to not be a negative technical factor.⁴

<Financial Aspects>

Regarding the financial aspects of O&M at the time of the ex-ante evaluation, the operating costs of health centers were managed by the district health office, and the budget allocated to the target health centers from the revenue of the district health office was calculated based on the health services provided by the health centers. Of the district health office’s revenue, nearly 60% was from the budget allocated by the central government, 10% was from medical treatment revenue, and over 30% was from other sources (various program budgets). The annual budget allocation to the target health centers in 2009 was 539 million Zambian Kwacha (ZMK) for the Matero Health Center and 520 million ZMK for the Chilenje Health Center. In addition, the annual maintenance budget (facilities and equipment) for the target health center was 36 million ZMK for the Matero Health Center and 35 million ZMK for the Chilenje Center. In contrast, the financial outlook of the target health centers after completion of the project was prepared assuming a significant increase in the revenue of each health center, including revenue from budget allocated by the district health office, government grants, and referral income. The annual O&M cost was estimated to be 710 million ZMK for the Matero Health Center and 737 million ZMK for the Chilenje Health Center.

At the time of the ex-post evaluation, the allocation of government subsidies to both target hospitals was less than the budget requirement (less than half of the budget requirement), resulting in insufficient revenue to these hospitals. Therefore, although the hospitals remain in operation, the budget for O&M of medical equipment is insufficient (particularly the cost of purchasing test reagents and spare parts as well as repair costs) according to the persons in charge of finance at the target hospitals. (Refer to “Recommendations for the Executing Agency.”)

Comparison between forecasted and actual revenue and expense

(Unit: ZMK)

Revenue and expense items	Matero Level 1 Hospital			Chilenje Level 1 Hospital		
	As of ex-ante evaluation (Actual in 2009)	Forecast at the time of planning (As of 2015)	As of ex-post evaluation (Actual in 2018)	As of ex-ante evaluation (Actual in 2009)	Forecast at the time of planning (As of 2015)	As of ex-post evaluation (Actual in 2018)
Revenue:						
Government subsidies	-	8,000,000	1,211,578	-	8,000,000	1,322,151
Budget allocated by district health office	539,000	4,520,000		520,000	4,490,000	
Referral income from urban health centers	-	1,288,000	N/A	-	1,932,000	N/A
Medical treatment revenue	-	400,000	1,245,344	-	400,000	1,041,685

³ The incinerators have been out of order since March 2018 at Matero Hospital and since around April 2019 at Chilenje Hospital.

⁴ The incinerators were not procured through the project; rather, they were installed at the health centers prior to project implementation. For this reason, this issue is not separately described under Financial Aspects in the Sustainability section.

Revenue and expense items	Matero Level 1 Hospital			Chilenje Level 1 Hospital		
	As of ex-ante evaluation (Actual in 2009)	Forecast at the time of planning (As of 2015)	As of ex-post evaluation (Actual in 2018)	As of ex-ante evaluation (Actual in 2009)	Forecast at the time of planning (As of 2015)	As of ex-post evaluation (Actual in 2018)
Total revenue	539,000	14,208,000	2,456,922	520,000	14,741,000	2,363,836
Operating costs	No info	No info	1,695,287	No info	No info	2,140,470
Maintenance costs	36,000	710,000	641,635	35,000	737,000	112,656
Surplus	No info	No info	120	No info	No info	110,709

Source: Materials were provided by JICA for the data as of the ex-ante evaluation (including the assumption at the time of planning), and by the executing agency and the target hospitals for the data as of the ex-post evaluation.

Note: Since the currency of Zambia was devalued (1,000 ZMK → 1 ZMK) in 2013 (denomination), figures in the above table for the actual in 2009 and the forecast in 2015 represent the amounts after denomination conversion for the purpose of comparing amounts before and after the project. Actual budget allocations from the government and the district health office as of the ex-post evaluation are not separately recorded. Medical treatment revenue is based on the standard remuneration rates of public hospitals.

<Current Status of Operation and Maintenance>

With regard to the condition of the procured equipment, some of the equipment has not been in operation for nearly one year. There have been difficulties in obtaining test reagents for test devices used in laboratories and spare parts for medical equipment mainly due to budget shortages. In addition, the agency has not appropriately responded to the situation, and the markup is too high for the necessary items to be acquired at reasonable prices. For equipment that cannot be operated for these reasons, hospitals are relying on equipment provided by donors. (Refer to “Recommendations for the Executing Agency,” “Recommendations for both Target Hospitals and Chilenje Hospital” and “Lessons Learned by JICA.”)

<Evaluation Result>

Some minor issues were observed with regards to the institutional and financial aspects. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The relevance of the project is high as the implementation of the project is sufficiently consistent with the development policy and development needs of Zambia as well as with Japan’s ODA policy. The number of patients referred to UTH has been reduced since cesarean sections are now being performed at both target hospitals and since medical services are improving at other outpatient clinics. As a result, congestion at UTH has been greatly reduced, and it is now possible for UTH to concentrate on its primary purpose, advanced medical care. Therefore, the effectiveness/impact of the project is high. Although the outputs of the project and the project period were mostly in line with plans, the project period exceeded the plan. Therefore, the efficiency of the project is fair.

Regarding sustainability, some minor issues were observed with regards to the institutional and financial aspects. Both target hospitals have established and maintained a maintenance department and a medical waste collection and treatment system as planned; however, the number of maintenance staff is insufficient, and the budget for maintenance of medical equipment is inadequate. Therefore, the sustainability of the project effect is fair.

Considering all of the above points, the project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for the Executing Agency:

- Budget allocation for the cost of spare parts for medical equipment (e.g., probes for ultrasonic diagnostic equipment) and consumable parts (e.g., reagents for biochemical analyzers): Medical treatment at the target hospitals has been impeded by the inoperability of ultrasonic diagnostic equipment and electrocardiographic diagnostic equipment (ECG). Under such situation, it is desirable that the Ministry of Health allocate a budget to each target hospital for the operation and maintenance of medical equipment in the order of priority, including costs for purchasing spare parts and repair costs.
- Budget allocation for ensuring a sufficient number of maintenance staff: At both of the target hospitals, the current number of staff members is insufficient given that maintenance staff must perform maintenance work at multiple clinics in the area covered by each hospital (they are able to perform regular inspections but not repair medical equipment, inquire about purchasing spare parts with parties other than the agency, handle administrative procedures, etc.). Therefore, it is desirable to allocate a budget for recruiting and allocating maintenance staff according to the number of clinics and health posts in the areas covered by the hospitals.
- Sufficient consideration of the need for medical equipment procured with donor support: Cases have been observed in which medical equipment is left unused despite being usable if the necessary spare parts and consumables were to be purchased, due to duplicate medical equipment being provided by other donors. Therefore, in order to eliminate the provision of such duplicate medical equipment and use the aid funds more efficiently by sending them where they are needed the most, it is desirable that the staff of the Ministry of Health and the State Health Office carefully consider which medical equipment to provide based on close communication with the medical facilities and an understanding of what kind of support they need.

Recommendations for both Target Hospitals:

- Purchasing probes for ultrasonic diagnostic equipment and using the equipment in the maternity department: Both target hospitals have pointed out a shortage in ultrasonic diagnostic equipment in their maternity departments. If the budget for purchasing spare parts is secured, it is desirable to restore the ultrasonic diagnostic equipment to an operating state and utilize it for examinations in the maternity departments at both hospitals.
- Reinstallation of incinerators: At both target hospitals, the incinerators (although not procured through the project) have failed and cannot be used. For this reason, medical waste has not been disposed of properly; rather than being incinerated at these hospitals, it is transported to other hospitals for disposal. If the budget for replacing or repairing the incinerators is secured, it is desirable to restore

medical waste management to the appropriate state by utilizing incinerators.

Recommendation for the Chilenje Hospital:

- Repair and utilization of ECG: At Chilenje Hospital, patients who need to be examined with ECG are referred to UTH due to failure of the equipment. If the budget for repairing medical device is secured, it is desirable to repair the ECG and use it for examinations at the hospital.

Lessons Learned by JICA:

- Measures to secure long-term supplies of spare parts, consumable parts, test reagents, etc. for medical equipment: The difficulty in securing spare parts, consumable parts, test reagents, etc. for medical equipment is recognized as a common issue at other public hospitals in Zambia, mainly due to financial reasons. In other words, the current situation (i.e., that some of the medical equipment procured through the project has been out of service) could have been foreseen. Considering the situation, it would be effective at the planning stage for future grant aid projects to have discussions about expanding the scope of cooperation as follows and extending the period involving the Ministry of Foreign Affairs. For example, securing a certain amount of inventory needed within the useful life period is considered to be a measure which can be taken in advance: consumable parts and parts that are frequently used, and thus need to be replaced due to reasons such as breakage, could be procured at reasonable prices together with the medical equipment. For test reagents, which cannot be stored for long periods of time due to short expiration dates, long-term purchase contracts with medical equipment dealers could be concluded at the time of procurement. When implementing such countermeasures, it would be necessary to decide upon the ratio of the cost burden between the Japanese side and Zambian side and conduct a thorough investigation on and study the frequency of component damage and the consumption of reagents under similar usage conditions during the preparatory survey for cooperation. In addition, since the possibility of unauthorized use (e.g., resale) cannot be ruled out during inventory management and purchasing based on contracts, it is desirable for JICA to be involved in the management and checking of inventory and transactions. Specific methods of technical cooperation would be dispatching volunteers and implementing technical cooperation projects related to hospital operation management.

Matero Level 1 Hospital



External appearance (main entrance)



Many patients are visiting the outpatient waiting room



Inpatients in the pediatric ward

Chilenje Level 1 Hospital



External appearance (main entrance)



Same as the left



Emergency room

Purpose of the Survey:

A qualitative survey was conducted to obtain the following qualitative information that cannot be obtained from existing data.

- Effectiveness: Improvement of medical services for local residents at both Level 1 hospitals, Matero and Chilenje
- Impact: Alleviation of the congestion and thereby improved medical services at UTH as a result of the medical referral system becoming multi-layered and recovering functionality

Survey Results regarding the Effectiveness of the Project:

1. Improvement of medical services for local residents (interviews within a total of 26 waiting outpatients at the target level 1 hospitals and 50 residents in the surrounding areas)
 - When they were health centers, both target level 1 hospitals were small in terms of the size of their facilities, and the number of doctors and nurses was insufficient. Some patients could not be seen due to limited medical services, and some tests and treatments could not be provided. For this reason, many patients were referred to UTH, and some residents chose to visit private hospitals despite high medical costs. Because of the low capacity, the waiting time before consultation was longer than half a day.
 - After being upgraded, both level 1 hospitals have been ready to accept patients with enhanced facilities and equipment and sufficient doctors and nurses. Patients are now able to receive quality medical services without being referred to UTH or going to private hospitals. The advantages of receiving quality medical services at a local level 1 hospital are reduced travel time, costs and consultation costs for the local residents. Waiting times for patients have also been reduced.
 - Most of the interviewees replied that the frequency of consultations at both hospitals has been increased, and that having a level 1 hospital is contributing to the health of the residents in surrounding area.
 - However, many interviewees at both of the target level 1 hospitals have pointed out that the shortage of medicines is a challenge.
2. Improvement of medical services for women who are the users of maternity and gynecology and pediatric medical services (interviews with a total of 27 female patients for maternity and gynecology and pediatric medical services at the target level 1 hospitals)
 - The medical services provided by the doctors and nurses at both target hospitals have been improved since the hospitals have been upgraded to level 1 hospitals. Most of the necessary medical services are being provided now, including cesarean sections that were not performed when the two target hospitals were health centers. Therefore, the need for referrals to UTH has been reduced, except in complex cases (such as large fetuses). The advantages of reducing the need for referrals to UTH are reduced travel time, costs, and consultation costs. Waiting times for patients have also been reduced.
 - Most of the interviewees replied that the frequency of consultations at both hospitals has been increased, and that having a level 1 hospital is contributing to the health of the residents in surrounding area.
 - However, interviewees have pointed out that the shortage of medicines and issues related to testing using ultrasonic diagnostic equipment are challenges.
3. Improvement of medical services through the development of facilities and equipment as a result of the upgrade to level 1 hospitals (interviews with a total of 5 medical workers at the target level 1 hospitals)
 - 1) Doctors in the maternity and general outpatient departments at Matero Level 1 Hospital
 - Doctor in the maternity department: When the hospital was a health center, it only had midwives instead of obstetricians. Therefore, cesarean sections could not be performed, and many patients were referred to UTH. There were also problems with facilities, such as insufficient space, lack of a bathroom for patients, and lack of beds for newborns. In comparison, the department is now run by 2 or 3 physicians, although this is not necessarily enough. As a result, referrals of patients to UTH have declined significantly. Currently, most of the patients who are referred to UTH are those with complex gynecological disorders. However, the number of beds is becoming insufficient due to patients coming from areas such as Chipata outside of the area covered by the hospital. Regarding the obstetric medical care system, the hospital is making efforts to increase the number of midwives, which are also

currently insufficient. In addition, there has been a shortage of some consumables and medicines due to an insufficient budget.

- Doctor and nurse in the general outpatient department: Compared to when it was a health center, the hospital can now offer a wide range of medical services as a level 1 hospital. Therefore, a large number of patients are coming from George Compound, where there is a lack of public medical institutions, and from outside the area covered by the hospital (Chipata, Kanyama, etc.). This increase in the number of patients has led to a shortage of doctors and space at the hospital. In addition, there is a shortage of medicines at the hospital due to an insufficient budget.

2) Doctors in the maternity and general outpatient departments at Chilenje Level 1 Hospital

- Doctor in the maternity department: When the hospital was a health center, there was insufficient infrastructure and staff members; therefore, it was not able to provide effective medical care. The ability to provide medical services has been improved, thus bringing the hospital closer to the level of medical services that should be provided. Medical workers have also become more motivated and are doing what they need to do effectively. Capacity for inpatients was insufficient when the hospital was a health center; however, beds are now generally available and privacy is assured (However, the number of beds is becoming insufficient recently as a result of the population increasing in the area covered by the hospital due to factors such as an influx from surrounding areas, thus sometimes requiring 2 or 3 patients to share a bed). As for the medical care system in the maternity department, the number of doctors is not necessarily insufficient, but the number of midwives is insufficient (especially at night). The significant increase in cesarean sections is due to an increasing number of patients in complex situations requiring advanced medical care. Currently, cesarean sections are performed mainly in cases of gynecological diseases, HIV, high blood pressure, and for young pregnant women such as those who are 14-15 years old.
- Doctor in the general outpatient department: Compared to when the hospital was a health center, waiting space has been expanded, and there have been improvements in the screening room, internal telephone communication network, slopes going up to the second floor, and toilets. Together with the enhancement of facilities, the organization of the medical system in the hospital has been improved. As a result, waiting times for patients have been reduced. However, problems such as not enough space in operating rooms and a lack of privacy in examination rooms have arisen due in part to an increasing number of patients. In terms of the medical system, the number of doctors is sufficient, while the number of nurses has become insufficient.

Survey Results regarding the Impact of the Project:

1. The effects of medical referral system becoming multi-layered and recovering functionality (interviews with a total of 3 medical workers at UTH and Levi Mwanawasa General Hospital)
 - 1) Doctors in the maternity and adult surgery departments at UTH
 - As a result of the expansion of the facilities at the Matero and Chilenje health centers and their consequent upgrade to Level 1 hospitals, the number of referrals of patients has been reduced, not only from both hospitals but also from health centers in the city. As a result, congestion at UTH has been significantly alleviated. UTH can now concentrate on advanced medical treatment including heart surgery and is approaching a normal operating state in accordance with its intended purpose. The respondents are aware that the other three level 1 hospitals were expanded in phase 2⁵ of the project and expect further normalization of referrals after completion.
 - 2) Chief of general administration at Levy Mwanawasa General Hospital
 - When Levy Mwanawasa General Hospital was a clinic (before it began operating as a level 2 hospital in 2011), patients with complex symptoms were referred to UTH. The hospital was upgraded to a level 4 hospital in May 2019, and, like UTH, has been rated as a university hospital. At present, specialists in all fields are available at the hospital, and it can now accept referred patients. Patients have been referred from the eastern Lusaka area. The respondent expects that upgrading and/or newly establishing

⁵ “The Project for Upgrading Lusaka Health Centers to District Hospitals (Phase 2)” commenced in 2017 as a follow-up to the project described herein and is being implemented as of the ex-post evaluation. Under the MOH’s plan (2008), both phases of this series of projects aim to strengthen and expand the functions of one health center in each of five areas in Lusaka to provide level 1 medical services. The second phase covers the remaining three areas. These three health centers were upgraded to level 1 hospitals in April 2017 prior to project implementation, on the premise of strengthening facilities and expanding functions.

lower-level hospitals will help bridge the referral system gap, specifically, further reduction of referrals through the completion of construction at the three level 1 hospitals where facilities are currently being expanded.