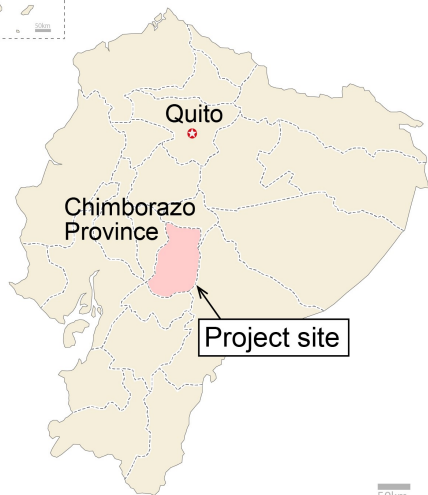


# FY2020 Simplified Ex-Post Evaluation Report of Japanese Grant Aid Project

External Evaluator: Yukiko Sueyoshi, International Development Center of Japan Incorporated (July 2021)

Duration of the Study: October 2020-February 2022

Ecuador	<b>&lt;El Proyecto de Construcción y Equipamiento de las Unidades Operativas del Ministerio de Salud Pública en la Provincia de Chimborazo&gt;</b>
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Project site



Carpi health center constructed under this project

## I. Project Outline

Background	In Ecuador, almost half of the medical facilities were over 25 years old on average, and medical equipment became inoperable, outdated, and scarce, which became an obstacle for the residents to receive medical services. Especially in Chimborazo province, which is located in a mountainous area with a high poverty rate, due to the existing medical inequality compared to the urban areas, even the basic medical services were not adequately provided because of the poor functionality of the primary medical institutions. People in these areas were forced to use remote medical facilities, which was a physical and economic burden for many of them. Therefore, the renovation and expansion of medical facilities and the improvement of medical equipment became an urgent matter to realize a healthy life for the residents. The government had identified the strengthening of primary health care services as a key issue, and has been reviewing the health care service system, promoting the construction of new facilities and the renovation of existing ones. Based on the above background, the Government of Ecuador requested Japan to provide grant assistance for the construction of primary health care facilities and medical equipment in Chimborazo Province.
Objectives of the Project	To provide appropriate healthcare services to the residents of the Chambo Riobamba first health district in Chimborazo province, by the means of constructing two primary health centers and procuring medical equipment in Santa Rosa and Carpi, thereby contributing to the improvement of healthcare services in the project target area.
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site Chambo Riobamba first health district in Chimborazo province (At the time of the ex-post evaluation, the name was changed to "Health Division Three")</li> <li>2. Japanese Side: <ul style="list-style-type: none"> <li>【Facility Construction/Procurement of medical equipment】</li> <li>▪ two primary healthcare centers in Santa Rosa and Carpi (about 4,000m<sup>2</sup> of floor space)</li> <li>▪ medical equipment (X ray instruments, ultrasound diagnostic machines, a set of dental equipment, hemocytometers, etc.)</li> <li>【Soft component】</li> <li>▪ maintenance training for medical equipment</li> </ul> </li> <li>3. Ecuador Side: <ul style="list-style-type: none"> <li>▪ Demolition of existing facilities, clearance and preparation of the land for the construction</li> <li>▪ Securing of construction infrastructure at the project sites</li> <li>▪ Securing of construction infrastructure to the project sites</li> <li>▪ Payment of relocation expenses for new facility (including purchase of furniture and equipment)</li> </ul> </li> </ol>

	<ul style="list-style-type: none"> <li>Construction of the entrance, fences, and gate houses</li> <li>Procurement of medical equipment, furniture and office supplies for the new facility</li> <li>Conducting environmental monitoring and construction permission, etc.</li> </ul>			
Implementation Schedule	E/N Date G/A Date	<p>E/N: June 27, 2014 G/A: October 6, 2014</p> <p>&lt;1st change&gt; E/N: June 16, 2015 G/A: June 16, 2015 (Additional funds were provided due to insufficient funds from exchange rate fluctuations.)</p> <p>&lt;2nd change&gt; G/A: April 18, 2016 (Extended the deadline to adjust the construction plan due to failed bidding.)</p> <p>&lt;3rd change&gt; E/N: December 12, 2017 G/A: December 22, 2017 (Extended the deadline for soft components due to delays in procurement of materials.)</p>	Completion Date	<p>Date of delivery of procured equipment January 30, 2018</p> <p>Completion ceremony of constructed facility February 6, 2018</p>
Project Cost	<p>E/N Grant Limit/G/A Grant Limit: 【Japanese side】Phase 1: 1,019 million yen/Phase2: 166 million yen Total: 1,185 million yen 【Ecuador side】 100 million yen 【Total cost】 1,285 million yen</p>		Actual Grant Amount 【Japanese side】 1,183 million yen 【Ecuador side】 unknown	
Executing Agency	Ministry of Public Health			
Contracted Agencies	Main consultant: Nihon Sekkei, Inc. Agents: Tokura Corporation			

## II. Result of the Evaluation

### Summary

This project was implemented in the Chambo Riobamba first health district (at that time of planning), Chimborazo Province of Ecuador, with the aim of providing appropriate healthcare services to the residents by upgrading the facilities and equipment of two health centers (Santa Rosa and Carpi). At the time of planning this project, the Ministry of Public Health was implementing a plan to upgrade medical facilities and equipment, which was consistent with Ecuador's development policy. In addition, the lack of primary level medical facilities and the aging of medical equipment were serious problems in the target areas of this project, so it can be said that the project was fully in line with the development needs. This project targeted areas with high poverty rates in Ecuador, which was in line with Japan's aid policy of emphasizing support in the health sector to improve disparities. As for the achievement of the project's effectiveness indicators, the number of outpatients generally met the target, and the number of radiographs and laboratory tests exceeded the target. As a result of this project, the medical services available at both health centers have been diversified and the number of accepted patients has increased, thereby improving the health and medical services. Qualitative effects were also confirmed, such as the newly established prevention and awareness office conducting awareness-raising activities for the residents to promote their health. In addition, the project reduced congestion at secondary level medical facilities, promoted cooperation among medical facilities, and increased the number of indigenous people using the facilities. Regarding control measures against Covid-19, the project played an important role as one of the regional medical institutions by conducting PCR tests, vaccinations, and the monitoring of patients with positive test results. Therefore, this project is deemed to be highly effective with a positive impact. The facilities and equipment were generally in line with the plan, and the project cost was also as planned, but the project period exceeded the plan, so the efficiency is fair. In terms of operation and maintenance, there were no technical problems, however, both centers were not able to secure the number of medical staff expected at the time of planning, and in terms of finances, there were issues in securing a budget for hiring medical staff, so the sustainability of the project is judged to be fair. Overall, the evaluation of this project can be said to be satisfactory.

<b>Overall Rating<sup>1</sup></b>	<b>B</b>	<b>Relevance</b>	<b>3<sup>2</sup></b>	<b>Effectiveness &amp; Impact</b>	<b>3</b>	<b>Efficiency</b>	<b>2</b>	<b>Sustainability</b>	<b>2</b>
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<sup>1</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>2</sup> ③: High, ②: Fair, ①: Low

<Special perspectives considered in the ex-post evaluation/constraints of the ex-post evaluation>

### **Implementation of a remote field survey using local survey assistants**

Due to the spread of Covid-19 in the project country, the external evaluator did not travel to the project site. However, the external evaluator conducted the field survey remotely from Japan. The survey was conducted with the help of a local survey assistant, who in turn conducted an on-site inspection of the project sites, collected information and data, interviewed the people involved in the project, etc. The external evaluator examined the information collected and made an evaluation analysis and judgment. To check the operation and maintenance status of the equipment, the local survey assistant observed the operation and maintenance status of the equipment at the two health centers on behalf of the evaluator. In addition, a list of equipment provided by the project was sent to the two centers, and they were asked to fill in the form regarding the status of the equipment. Based on these results, the evaluation of the maintenance status of the equipment was conducted.

### **Revision of quantitative indicators for judging effectiveness**

Revision of the target year: The two health centers constructed under the project were originally planned to be completed in 2016, and the target year for achievement of the indicators was 2019, three years after the original completion year. However, the project was completed in February 2018 (the reason for the delay is described in the efficiency section), so the target year was revised in this evaluation. Normally, the target year should be set at 2021, which is three years after the completion of the project (2018), but since the latest data available at the time of this evaluation is 2020, the indicator (target values) was recalculated with 2020 as the target year.

Modification of target values: Health centers in Ecuador are classified into types A to C based on the size of their beneficiary population and the type of medical services. Before the project was implemented, the two health centers were classified as type A, which is the smallest type, and the target beneficiary population was up to 10,000. (As of 2013, the actual beneficiary population was 18,925 in Santa Rosa and 6,632 in Carpi).<sup>3</sup> It was planned that both health centers would be upgraded to medium size centers, type B, through this project and the target population at that time was 10,001 to 25,000. The beneficiary population was later reviewed and by the time of the ex-post evaluation, both centers were classified as type B as planned, but the target population was changed to 10,001 to 35,000. Since the actual beneficiary population was not available at the time of the ex-post evaluation, the target values are recalculated based on the estimated population in 2020 (31,050 in Santa Rosa and 25,101 in Carpi), which was used in the planning stage.

### **Definition of project cost at time of planning**

The first G/A for this project was signed in October 2014, followed by an amended G/A to allow for additional grant. This project was signed before the introduction of the system for dealing with exchange rate fluctuations (contingencies), and it was concluded that the additional grant for this project was an appropriate adjustment to deal with the shortage of funds due to exchange rate fluctuations. Therefore, in this evaluation, the project cost after the additional grant is evaluated at the planned amount.

## **1 Relevance**

<Consistency with the development policy of Ecuador at the time of ex-ante evaluation>

Ecuador's national development plan, the *National Plan for a Good Living 2009-2013*, identified the improvement of infrastructure, medical equipment, and dissemination of and access to healthcare services as key policy issues in the healthcare sector. The *Ministry of Public Health Institutional Strategic Plan 2009-2013* (Draft), which was prepared by the Ministry of Public Health at the time of the plan, identified the improvement of medical facilities and equipment to maximize service delivery as one of the priority issues. In addition, the *Territorial Plan* clearly stated that facilities should be built or renovated for each territory according to their local health and medical needs, rather than by the administrative division. Regarding the primary health care facilities in the Chambo Riobanba health division, it was planned to construct seven type A, five type B, and two type C health centers. Of these, the Santa Rosa and Carpi health centers, the targets of this project, were to be renovated as type B. Based on the above, it is concluded that this project was consistent with Ecuador's development policy.

<Consistency with the development needs of Ecuador at the time of ex-ante evaluation>

At the time of the planning of this project, in the Province of Chimborazo, which is located in a mountainous region with one of the highest poverty rates in Ecuador, the number of people using primary health institutions had increased rapidly from 524,651 to 965,041 within the past four years between 2007 and 2010 (an increase rate of 184%). Due to the increase of the users, medical facilities and equipment became seriously damaged and deteriorated, and it also became difficult to update them in a timely manner, which became an obstacle for residents to receive basic medical services. Instead of primary medical institutions located nearby, locals started visiting secondary medical facilities located in remote areas, which were better equipped and staffed. It was a physical and economic burden for many of them. As a result, the number of patients was over-concentrated at the secondary level, even though they could be treated at the primary level. Based on the above, it is concluded that the project to provide primary-level medical facilities and equipment was consistent with the development needs of Ecuador.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

In the *Country Assistance Policy for Ecuador* (April 2012), the final goal was "Reducing inequalities and promoting sustainable development", and the medium goals were "Reducing inequalities" and "environmental conservation and disaster prevention". To achieve this goal, the policy clearly stated that assistance would be provided in the health sector, in addition to regional development, education for the poor and disabled, etc. This project was consistent with Japan's aid policy.

<sup>3</sup> The Carpi Health Center was planned to be upgraded to type B by merging with the Lican Health Center (beneficiary population: about 8,600) in the vicinity.

<Evaluation result>

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

2 Effectiveness and Impacts

<Effectiveness>

In this evaluation, the target values for the number of patients, the number of X-ray examinations, and the number of laboratory examinations at both health centers were set as quantitative effects. As mentioned in the above special perspectives to the evaluation, the status of achievement is judged based on the revised target values at the time of the ex-post evaluation. In addition, the effectiveness of this project is evaluated by confirming the following: "activities in the Prevention and Awareness Office will be continuously implemented based on the plan" and "the types of health care services will be expanded," which were assumed as qualitative effects.

<Quantitative effects: Number of outpatients, X-ray examinations and laboratory examinations at both health centers>

The status of achievement of the revised target values is as follows.

Regarding the number of outpatients<sup>4</sup>, Santa Rosa and Carpi achieved 91% and 80% of their targets, respectively. Both centers experienced a temporary decline in the number of patients after 2019 due to people avoiding the risk of Covid-19, but after taking measures to prevent the infection risk, such as building separate entrances and waiting rooms for patients with a fever and other symptoms of respiratory illness, residents feel safe using the centers again. The number of X-ray examinations at both centers significantly exceeded the target. There are no other health centers equipped with X-ray equipment in the neighborhood, so it is thought that the number of patients, including people referred from other centers, greatly exceeded the target values. It was reported that there were no negative effects such as aging of equipment and increased waiting time due to the unexpected increase in X-ray examinations. Regarding the number of laboratory examinations, both health centers achieved more than the target value. Santa Rosa achieved a significant increase, and this was due to the large number of requests for examinations from neighboring laboratories and health centers. No negative effects such as aging of equipment and increased testing time were reported here either.

Looking at the achievement status of the quantitative indicators, the number of patients has been almost achieved, and the number of X-ray and laboratory examinations has exceeded the target values. Therefore, it is considered that the facilities and equipment provided by this project are being properly utilized and are contributing to the improvement of the healthcare services provided by the two centers.

Table 1 Achievement Status of the Quantitative Indicators (2018-2020) (Unit: number of cases)

Santa Rosa health center					
	2012 Baseline	2020 Revised target	2018 Actual	2019 Actual	2020 Actual
Number of Outpatients	10,860	32,776	21,938	28,543	29,860 (91%)
X-ray Examinations	0	268	2,126	2,490	3,045 (1,135%)
Laboratory Examinations	0	31,857	101,945	136,162	107,520 (337%)
Carpi health center					
Number of Patients	19,375	26,497	28,573	31,235	21,220 (80%)
X-ray Examinations	0	703	1,633	690	1,047 (149%)
Laboratory Examinations	17,261	25,754	38,928	42,129	27,999 (108%)

Source: Questionnaire responses, % means percentage of targets achieved

<Qualitative effects: Activities in the prevention and awareness office will be continuously implemented based on the plan>

The prevention and awareness office is a unit that conducts activities to promote health and disease prevention in the community. It was planned that community health workers would mainly conduct awareness raising activities in their home communities, and the office for these activities would be established in both health centers. At the time of the ex-post evaluation, the prevention and awareness office had been set up in both centers, and various awareness raising activities were being conducted for the local residents. However, due to budget constraints, the community health workers were not hired as planned, and the center's staff, including doctors, nurses, and nutritionists, prepared a weekly plan for awareness-raising activities and conducted them on a rotation basis. On this point, it was mentioned that conducting such awareness-raising activities after medical consultation hours was a burden on the center staff, and that it would be desirable to hire community health workers in the future.

The theme of the recent activities of the prevention and awareness office has been countermeasures against Covid-19. Specifically, the office provides information on how to prevent infection at home and in the workplace, individual counseling for those who cannot go to the large-scale vaccination sites, and individual counseling for alcoholism and domestic violence. From the above, at the prevention and awareness office established in both health centers, the center staff prepares activity plans according to the local needs, and activities based on these plans have been continuously implemented.

<sup>4</sup> Number of patients who used the health center for prevention and treatment of disease (including dental).

<Qualitative effects: Types of health care services will be expanded>

Before the project's implementation, both centers were classified as type A, providing basic medical services, and their main services were internal medicine and dentistry, with only Carpi providing gynecology and basic laboratory services (blood, urine, tuberculosis, etc.). After the project, both centers were upgraded to type B. In addition to the previous services, the center now offers basic diagnostic imaging, rehabilitation, sample collection, and laboratory examinations, enabling it to meet the medical needs of a larger number of patients. It is clear from the increase in the number of patients and various examinations in the quantitative indicators that the capacity to provide medical services has been improved. In addition to the medical services, the large waiting room that is user-friendly and the design that makes it easy to find the location of each department are highly appreciated by users. The multi-purpose toilets that are designed for mothers, children, and the disabled are also appreciated not only by the users but also by the staff of the neighboring health centers (see Gender Impact).

From the above, it is judged that the expected qualitative effects, such as the implementation of the activities by the prevention and awareness office and the expansion of the health care services, have been achieved.



Laboratory (Carpi)



Prevention and Awareness Office and the educational materials (Carpi)

<Impacts>

The impact of the project as stated in the project objectives is the "improvement of health care services" in the project area, but no indicators were set at the time of planning. In this ex-post evaluation, interviews and questionnaires were conducted with the department of primary health care of the Ministry of Public Health, the health coordinating zone three, and the directors of the two health centers to determine the impact and identify examples showing improvement in the health service in the target areas. The specific impacts identified is as follows.

<Strengthened coordination among medical institutions>

At the time of the project planning, there were not enough medical services in Chimborazo province due to the aging of the primary medical facilities and a lack of equipment, which resulted in a concentration of patients in the secondary medical facilities. At the time of the ex-post evaluation, both health centers were able to receive a larger number of patients due to the new healthcare services added through the project, such as X-ray examination, laboratory examination, and rehabilitation. As a result, it was confirmed from the interviews with the directors of both health centers and the health coordinating zone three that the project contributed to reducing overcrowding at the secondary medical facilities.

The number of referrals from the health centers to secondary medical facilities decreased significantly from 2019 to 2020 due to Covid-19 (from 7,114 to 278 in Santa Rosa and from 423 to 119 in Carpi). Data before 2018 was not available, so it is not possible to confirm changes after the completion of this project. According to the directors of the two centers, the number of patients that can be handled by the health centers has increased, and only those patients with serious illnesses that cannot be cared by the centers would be referred and transported to higher-level medical facilities. At the same time, the number of consultations from lower-level medical facilities such as health posts increased due to the increased number of medical services and doctors at the centers. This shows that coordination among medical facilities in the region is being strengthened.

<Increase in indigenous users>

In particular, the Carpi health center is located in a mountainous area with a large population of indigenous people. They rely on traditional doctors and medicines and tended to not want to go to public medical facilities. In addition, the water quality in such areas is poor, and there are issues such as food shortages and poverty, which make malnutrition a serious problem in these areas. The prevention and awareness office, which was established after this project, aims to provide cross-cultural medical services by assigning staff who can speak indigenous languages and who visit their villages to give lectures on health and nutrition. In addition, the signboards in both

centers are written in two languages, Spanish and indigenous languages. As a result, the awareness of the health center has increased and the number of users, especially among the younger generation of indigenous people, is increasing.<sup>5</sup>

#### <Countermeasures against Covid-19 infections>

Both health centers have established emergency rooms for Covid-19, with separate entrances and spaces from general users. The center provides free PCR testing, referral of infected patients needing treatment to special facilities for Covid-19 and monitoring by phone of patients who are staying at home. In addition, the centers provide individual vaccination services for the disabled and elderly, who are unable to go to the large-scale vaccination centers, at the centers' prevention awareness room. In this way, to prevent the spread of Covid-19 infections, the centers respond to the needs of the residents and plays an important role as a part of the local medical facilities in cooperation with related institutions.

#### <Gender considerations and other impacts>

With regards to gender, there were no specific cases of impact that could be identified. Both facilities are designed with consideration for gender. Both centers have multi-purpose toilets equipped with baby cots, which are not found in any other centers, so that mothers and children can use the facilities comfortably. Another example is the educational program on nutrition for pregnant and mothers at the Carpi health center, where malnutrition among children is a serious problem. By conducting such awareness-raising activities for mothers and children, it is expected that the use of facilities by women and children will be increased, and their health checkup coverage will be improved.

Moreover, no negative impact on the natural environment has been reported since medical waste is separated from general waste and collected by a waste collection company entrusted by the city. In addition, land acquisition for the project was carried out without any problems, and no resettlement has occurred.<sup>6</sup>

#### <Evaluation result>

Therefore, the effectiveness and impacts of the project are high.

### 3 Efficiency

#### <Project output>

During the construction of the two health centers, some changes were made in accordance with Ecuadorian construction standards for health facilities, such as changes in the floor plan, reduction and replacement of each room, and addition and replacement of each piece of equipment, but there were no changes that would affect the effectiveness of the project. Regarding the procurement of medical equipment, the Japanese side originally planned to procure 78 types of equipment<sup>7</sup>, but the plan was changed to 14 types by the Japanese side and the rest by the Ecuadorian side. This was because the Japanese side's budget needed to be allocated to the construction of the facility at the time of the revised G/A when the additional grant was decided. At this time, the allocation of equipment was made with consideration for the possibility of procurement by the Ecuadorian side, and no problems were observed in this process.

The Ecuadorian portion of the project, such as the procurement of medical equipment and furniture, the preparation of construction sites, and the road construction, was generally carried out as planned. However, some of the procedures for the refund of the Value Added Tax (VAT), which should be paid by the Ecuadorian government, were still incomplete at the time of the ex-post evaluation.

#### <Project input>

The total planning project cost was 1,285 million yen (1,185 million yen for Japan and 100 million yen for Ecuador). Of this amount, the actual amount of the Japanese side was 1,183 million yen (100% of the planned amount) compared to the planned amount of 1,185 million yen. The actual cost amount of the Ecuadorian side was 109 million yen, compared to 100 million yen in which was the planned amount. However, it was found that the Ecuadorian side included some construction projects that they carried out on their own, which were not included in the plan agreed with the Japanese side. Therefore, it was concluded that it is difficult to compare the planned and actual project costs..

The planned project period for this project was 21 months from the date of the consultant contract to the date of completion of construction. The actual project period was 37 months from February 2015 to February 2018 (176% of the planned period), which was much longer than planned. The reasons for exceeding the planned period were mainly due to the revision of bidding documents due to unsuccessful bidding, unstable weather conditions during the construction and procurement process, a shortage of workers, delays in import permits for equipment procured overseas, and delays in electricity receiving work.

<sup>5</sup> Evidence to confirm the increase in indigenous population was not acquired in this evaluation. According to the classification of racial groups who use the health centers (2019-2020) provided by the Ministry of Public Health, both centers had the highest percentage of mixed race (Spanish and indigenous) (approximately 80% in Santa Rosa and 60% in Carpi), followed by indigenous (approximately 10% in Santa Rosa and 30% in Carpi).

<sup>6</sup> This project was categorized as Environmental Category C by JICA's Environmental and Social Consideration Guidelines (2010).

<sup>7</sup> Based on the list of standard equipment for the health centers (type B) to be targeted by this project, the decision was made in consultation with the Ministry of Public Health on the Ecuadorian side.

Table 2 Comparison between planned and actual results for the project period (breakdown)

Task	Plan	Actual (note 1)
Detailed design	4 months	4 months (February 2015 – May 2015)
Bidding operations	3 months	7 months (note 2) (August 2015 -February 2016)
Construction and procurement	14 months	22 months (May 2016 - February 2018)

Note 1: The project period was 37 months, including 33 months required for each task, 2 months from the completion of detailed design to the start of bidding work, and 2 months from the completion of bidding work to the start of construction and procurement.

Note 2: The period from the date of the first public announcement to the date of the contract with the agent who won the second bid.

Source: Information at the time of planning: ex-ante evaluation sheets and preparatory survey reports, information on actual results: JICA-provided materials, questionnaire responses to the consultant

#### <Evaluation result>

As described above, although the project cost was as planned, the project period exceeded the planned period, so the efficiency of this project is fair.



Residents using the health center (Carpi)



Japanese flag near the entrance (Santa Rosa)

## 4 Sustainability

### <Institutional aspect>

There are nine regional health coordinating zones under the department of primary health care, Ministry of Public Health. This project was implemented in the Chambo Riobanba first health district, which was managed by the first health district office under the health coordinating zone three. There are no major changes in the organizational structure related to this project, but the name of the district office that is responsible for both centers was changed from "the first health district office" to "the third health district office". In addition, the health administrative district was reorganized, and the name of "the Chambo Riobanba first health district" was changed to "health district three", but the area of responsibility remains the same as when the project was planned. As for the maintenance and management system of facilities and equipment, whenever a problem occurred that could not be handled by the health centers, a report was submitted to the third health district office. At the time of ex-post evaluation, two engineers and one architect are assigned to the office. Based on the reports submitted from the health centers, they visit the centers as needed and repair them. The number of health centers in the district has increased from 20 at the time of the plan to 23 at the time of the ex-post evaluation, but there have been no delays in repairs that would affect the daily operations of the health centers, and therefore there are no major problems in terms of both systems and manpower.

The number of staff in the health centers is overall low compared to the staffing plan prepared by this project (52% of the planned staffing in Carpi and 72% in Santa Rosa). Among them, community health workers, who were planned to be assigned at the time of planning, have not been hired due to budget constraints. In each health center, when a doctor or nurse retires, they are not automatically replaced, but the health center must apply to the Ministry of Public Health to hire new staff. As a result, some positions may remain vacant for a long time. Currently, the necessary doctors and nurses are assigned to each section, and with the current staffing level, the health center can continue to provide medical services. However, as the population of Chimborazo is expected to increase in the future<sup>8</sup>, it is desirable to increase the number of staff at the health center to reduce the workload of the staff and to cope with the increasing number of patients. During the busy periods, such as the response to the Covid-19 infections, the medical institutions cooperate with each other to overcome the shortage of medical staff by sending doctors and nurses from neighboring medical institutions. This shortage of medical staff is a common problem not only in the two health centers but also in medical institutions in Ecuador and is caused by the lack of financial resources of the Ministry of Public Health.

<sup>8</sup> According to the 2017 provincial population estimates of the National Information System (<https://sni.gob.ec/inicio>), the population of Chimborazo province was expected to increase from 510,935 in 2017 to 524,004 in 2020.

Table 3 Staff allocation at both health centers (planned and actual) (Unit: person)

Position	Carpi		Santa Rosa	
	Plan	Actual	Plan	Actual
Manager (Director)	1	1	1	1
Obstetrician/Gynecologist	1	0	1	1
Dentist	4	3	4	3
Physician	10	6	7	6
Nurse	10	4	7	6
Community Health Worker	10	0	7	0
Psychiatrist	1	1	1	1
Psychiatric Rehabilitator	1	1	1	1
Laboratory Technician	5	1	5	3
Radiologists	2	2	2	6
Other Staff	8	10	8	8
Total	53	28 (52%)	44	32 (72%)

Source: Information at the time of planning: preparatory survey reports, information on actual results: questionnaire responses from the health center directors  
(%) means percentage of targets achieved

#### <Technical aspect>

Although the equipment to be procured under this project does not include equipment that is complicated to operate and maintain, it was thought that the maintenance and inspection by the center staff should be strengthened to respond quickly and accurately in instances of medical equipment breakdowns. Therefore, a soft component was conducted for the center staff to acquire the knowledge and skills necessary for the maintenance and operation of medical equipment. At the time of the ex-post evaluation, it was not available to confirm whether the staff who received training through the soft component are still working at the center, but it was found that the inspection list for medical equipment created by the software component was still being used. It was reported that by using this list, the condition of equipment is checked daily, and equipment breakdowns are handled quickly, resulting in fewer instances of broken equipment. In addition, since technical guidance is provided to new staff using manuals and inspection lists, it is concluded that there are no major technical problems in operation and maintenance.

#### <Financial aspect>

At the time of planning the project, the Ministry of Public Health had committed to budgeting for both health centers (estimated operating costs including personnel costs upon completion of the facilities: USD1,475,691 for Carpi and USD1,332,652 for Santa Rosa). Regarding the question of whether this budget allocation has been realized, the health center confirmed that they were not aware of this, as all financial management of the health center is handled by the health coordinating zone three. Table 5 shows the annual budget allocation (2017-2021) from the Ministry of Public Health to the health coordinating zone three. However, since no data was provided on the budget allocation to the two health centers, it was difficult to identify the financial status of each center after the completion of the project. It shows that the annual budget has been gradually decreasing since 2018.<sup>9</sup> According to the health centers, the budget for personnel, activity, and maintenance costs necessary to continue daily medical operations has been allocated, however, it is necessary to hire new doctors and nurses to handle the increasing number of patients in the future.

The budget of the health coordinating zone three is decreasing, and a sufficient number of staff, including community health workers, are not employed in each health center. Considering all this information, it can be concluded that each health center is under budget constraints. The number of patients is expected to increase in the future, and in addition, considering the possibility of another emergency situation like Covid-19, it is desirable to secure budget to increase the number of medical staff.

Table 4 Budget from the Ministry of Public Health to the health coordinating zone three (Unit: USD)

	2017	2018	2019	2020	2021
Budget of the health coordinating zone three	196,561,515	235,651,263	225,198,494	212,160,663	201,035,917

Source: questionnaire responses from the Ministry of Public Health

#### <Current status of operation and maintenance>

The status of the medical equipment was checked by the on-site visit by the local survey assistants and the questionnaire survey, and it was found that the equipment procured under the project was in generally good condition. As for the equipment procured by the Japanese side, one hematology analyzer at each center had not been used since the reagents were no longer in stock. The reagents were initially available at a dealer in Ecuador, but later the dealer closed the store, so it became necessary to order them from Japan. Since hematology analyzers are indispensable for blood tests to measure the number of red and white blood cells in blood, it is desirable to obtain the reagents again and restart their use.

As for the equipment procured from Ecuador, the locations of some equipment were unknown, some were on rent to other centers, and some were out of order, but it was confirmed that about 80% of the equipment was in normal use at both centers.

As for the mechanical facilities, the purification tank system, air conditioning system, and oxygen supply system (only in Santa Rosa)

<sup>9</sup> According to the report "2020: the year of budget cuts in the social sector (2020: un año de reducciones en el presupuesto para los sectores sociales)" published in Observatorio de Gasto Público (<https://www.gastopublico.org/>), the social sector (education, health, labor, and social welfare) budget for 2020 was the lowest in the last four years from 2017 to 2020. Among them, the budget for the health sector has been decreasing since 2018, despite the response to the Covid-19.



are not properly functioning, although the problems do not affect daily operations. According to the directors of both health centers, they reported the problem to the third health district office and an engineer have made several repairs but have not been able to completely fix the malfunction. In this study, interviews were conducted with the directors of both health centers and the third health district office, but no clear answers were obtained about the reasons for the problems and how to deal with them in the future.

<Evaluation result>

From the above, there are no technical problems in terms of operation and maintenance, but in terms of systems, both centers have not secured the number of health care staff that was expected at the time of the project planning, and in terms of finances, there are issues in securing budget for hiring health care personnel in the future, considering the increasing number of outpatients. In addition, some of the equipment has not been used and some problems with the facilities have been reported, so the sustainability of the project is judged to be fair.



Director of the Santa Rosa health center explains the facility



Director of the Carpi health center explains the facility

### III. Recommendations & Lessons Learned

#### Recommendations to the Ministry of Public Health:

The hematology analyzers provided to both health centers are in good condition, but they are not currently being used. This is due to the stock of the testing reagents running out. During the planning of the project, the reagents could be procured in Ecuador, but since the agent was closed, it became necessary to procure them from Japan. This situation was not anticipated at the time of the project planning, and the current condition of the equipment not in use is unavoidable due to the cost and time required for procurement. However, it is desirable to restart the use of the equipment at both health centers as this is the basic equipment required for blood tests. Therefore, it is recommended that the Ministry of Public Health contact the supplier of the reagents for the equipment, confirm the cost of the reagents and the number of days required, and continue to discuss with the health centers about restarting the use of the equipment. As for the problems with the mechanical facilities reported by both health centers, it would be desirable to identify the cause of the problems by an engineer and discuss the necessary measures, budget, and possibility for the Ecuadorian side to handle the problem.

#### Recommendations to JICA:

It is recommended that JICA follow up on the results of the discussions between the Ministry of Public Health and the health centers regarding the problems of equipment and mechanical facilities identified at both centers and discuss with the Ministry of Public Health how to deal with the problems in the future as necessary.