

Republic of Peru

FY 2015 Ex-Post Evaluation of Japanese Grant Aid Project

“Proyecto de Construcción de la Nueva Sede del Instituto Nacional de Rehabilitación

Dra. Adriana Rebaza Flores”

External Evaluator: Hajime Sonoda

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0. Summary

“Proyecto de Construcción de la Nueva Sede del Instituto Nacional de Rehabilitación Dra. Adriana Rebaza Flores” (hereinafter referred to as “the Project”) was implemented in order to transfer and strengthen the medical care function of the National Institute of Rehabilitation (hereinafter referred to as “INR”), by constructing a new hospital infrastructure in the Chorrillos District of Lima and providing medical equipment, thereby contributing to fulfilment of the needs required of INR to conduct advanced medical care, research and training of specialist personnel. At the time of both the ex-ante evaluation and ex-post evaluation, the Project was found to be highly consistent with the Government of Peru’s development policies for promoting the social and economic participation of disabled persons, and there was a strong need to strengthen the INR as a national specialist agency in the rehabilitation field. Moreover, since it was consistent with Japan’s aid policies at the time of the ex-ante evaluation, the Project has high relevancy. The Project cost taking into account changes in output was within the planned amount, however, because the Project period substantially exceeded the planned period due to delay in the construction of facilities on the Peru side, Project efficiency is fair. Since the relocation helped improve the INR’s location, and almost all of the main treatment facilities were constructed, the Project objectives of “relocating INR and strengthening treatment functions” were amply realized. Moreover, research and training for specialist staff have been boosted by the relocation. Accordingly, the Project effectiveness and impact have been high. It is necessary to monitor whether or not the necessary human resources will be secured for the facilities to be borne by the Peruvian side. In addition, since there are issues regarding allocation of budget for equipment operation and maintenance, the sustainability of the Project effects has been fair.

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

1. Project Description



Project Location



Main Entrance of
the National Institute of Rehabilitation

1.1 Background

In Peru around 2007, 11% of the nation's households had at least one person with a disability.¹ As a social welfare policy designed to eliminate discrimination against people with disabilities, the Government of Peru formulated “the National Plan for Equality of Opportunities for People with Disabilities” (plan period: 2003 to 2007). In the health sector, the Ministry of Health was responsible for disabilities survey, certification of people with disabilities, rehabilitation, promotion of public awareness on the medical rehabilitation of people with disabilities, provision of adaptive equipment (orthoses)² and other works. Meanwhile, the Government of Peru declared that the decade from 2007 to 2016 to be the “Decade for People with Disabilities in Peru”, intensifying its national policies to facilitate equal opportunities for and broader social participation by people with disabilities.

In 2008, INR located in the Constitutional Province of Callao of the Lima Metropolitan Area was the supreme institution in the field of medical rehabilitation in Peru and provided medical care for more than 30,000 patients a year. At the same time, as a national specialist institution, it conducted wide-ranging research in the field of medical rehabilitation as well as the training of specialist doctors and therapists. INR has two general departments; General Department of Impaired Mental Function and the General Department of Impaired Physical Function, and in total eight departments for diagnosis and treatment³. The existing facilities of INR at the time were originally constructed in 1936 as a general hospital. While a series of renovation and expansion work to respond to the ever increasing demand, completely barrier-free facilities for medical rehabilitation could not be developed and the complicated layout of the consultation rooms and treatment rooms made it difficult to provide efficient medical services. However, As the existing buildings fully occupied the available land, no further expansion was feasible. Furthermore, The Constitutional Province of Callao in which INR was located had grown around a port over many years and the poor public safety in the area meant the occurrence of armed robberies, theft of wheelchairs from people with disabilities and other crimes.

Under these circumstances, the only fundamental solution to ensure the full performance of the expected role of INR was the relocation and new construction of the necessary facilities. It was against this background that the Government of Peru decided in 2004 to relocate INR to the Chorrillos District of Lima and made a request to the Government of Japan for the provision of grant aid to make this plan a reality.

In response, JICA dispatched a study team to Peru in 2005 to confirm the necessity of the proposed project. Following the completion of a preliminary study (pre-feasibility study) by the

¹ 2007 National Census conducted by the National Bureau of Statistics and Information.

² Adaptive equipment (orthoses) is a general term for equipment, etc. which is fit to people with disabilities to supplement lost parts or functions of the body. To be more precise, it includes prosthetic limbs (prosthetic arms and prosthetic legs), braces, wheelchairs, walking sticks and hearing aids, etc.

³ Under the General Department of Impaired Mental Function, there are Department of Learning, Department of Communication, Department of Psychomotor Development, and Department of Intelligence and Social Adaptation. Under the General Department of Impaired Physical Function, there are Department of Amputees, Burned and Postural Disorders, Department of Moving Organ and Pain, Department of Spinal Cord Injury and Department of Central Nerve Injury.

Peruvian side, JICA conducted the Basic Design Study from 2007 to 2008 and implemented the Project in the following years for completion in 2012.

1.2 Project Outline

In order to transfer and strengthen the medical care function of INR, by constructing a new hospital infrastructure in the Chorrillos District of Lima and providing medical equipment, thereby contributing to fulfilment of the needs required of INR to conduct advanced medical care, research and the training of specialist personnel.

E/N Grant Limit/Actual Grant Amount	2,015 million yen/2,015 million yen (total amount of detailed design and construction and procurement)
Exchange of Notes Date/Grant Agreement Date	Detailed Design: February, 2009/August, 2009 Construction: November, 2009/February, 2010
Implementing Agency	Ministry of Health
Project Completion Date	August, 2012 (Japanese side facility)
Main Contractors	Construction Work: Tokura Corporation and Konoike Construction, Co., Ltd (Consortium) Equipment Procurement: Mitsubishi Corporation
Main Consultant	Yokogawa Architects & Engineers, Inc. and INTEM Consulting, Inc. (Consortium)
Basic Design Study	June, 2007 to August, 2008
Detailed Design Study	October, 2009 to August, 2011
Related Projects	Dispatch of senior volunteers to INR (2013 onwards; physical therapist, IT engineer, interpreter, etc.)

2. Outline of the Evaluation Study

2.1 External Evaluator

Hajime Sonoda (Global Group 21 Japan, Inc.)

2.2 Duration of Evaluation Study

The ex-post evaluation study for the project was conducted over the following period.

Duration of the Study : July, 2015 to August, 2016

Duration of the Field Survey: 21st to 31st October, 2015, 1st and 2nd December, 2015, and
21st to 22nd March, 2016

3. Results of Evaluation (Overall Rating: B⁴)

3.1 Relevance (Rating: ③⁵)

⁴ A: Highly satisfactory; B: Satisfactory; C: Partially satisfactory; D: Unsatisfactory

⁵ ①: Low; ②: Fair; ③: High

3.1.1 Relevance to Development Plan of Peru

As already mentioned in 1.1 Background, at the time of the ex-ante evaluation (2008), the Government of Peru was strengthening its policies designed to facilitate equal opportunities for and broader social participation by people with disabilities through “the National Plan for Equality of Opportunities for People with Disabilities” and “the Decade for People with Disabilities in Peru”. The Ministry of Health was responsible for the health and medical care aspects of these initiatives.

One of the principal policies adopted by the Humala Administration which came into power in 2011 was “the elimination of social gaps”⁶ and it expressed its full commitment to the promotion of the participation of people with disabilities in socioeconomic activities. The administration implemented the first special national survey on disabilities in 2012, and based on it, conducted a major revision of the Basic Act on Disabilities to reinforce the welfare policies for people with disabilities. As part of these policies, the Ministry of Health implemented various measures to assist people with disabilities, including revision of the technical criteria for the certification of people with disabilities and the notification of new criteria to doctors and other medical professionals, a nationwide campaign on the certification system and the introduction of community-based rehabilitation for the early detection of disabilities and provision of necessary medical services.

As such, the Project is highly relevant to the development policies of Peru at the time of both the ex-ante evaluation and ex-post evaluation.

3.1.2 Relevance to the Development Needs of Peru

As already mentioned in 1.1 Background, at the time of the ex-ante evaluation, despite its status as the supreme institution for medical rehabilitation and relevant research and training, INR was facing problems in terms of its facilities and site conditions. The only fundamental solution for these problems was relocation and the construction of new facilities, making the Project highly necessary.

According to the first special national survey on disabilities conducted in 2012, Peru had 1.6 million people (equivalent to 5.2% of the entire population) with some kind of disability. This survey revealed the need for the expansion of the medical rehabilitation service. While 41% of people with disabilities required daily care by family members, etc. and ii) only 11% of people with disabilities were able to access the medical rehabilitation service due to the difficulty of visiting a medical institution or lack of health insurance. On the other hand, the site conditions and facilities of INR were improved by the implementation of the Project. However, the demand for the medical rehabilitation service has steadily increased with the progress of government policies aimed at people with disabilities, the expansion of health insurance schemes and other reasons, resulting in an increased number of medical consultations and treatment performed by INR. Meanwhile, as a national institute specialized in the field of medical rehabilitation, INR maintains the important role of leading the medical rehabilitation service in Peru through specialist studies and research work, constant improvement of medical techniques and medical standards, promotion of international cooperation and

⁶ General Government Policies and Their Operational Measures: 2012 – 2016 (announced in July, 2012)

continual education and training of specialist personnel. Thus, the importance of the Project is ascertained even at the time of the ex-post evaluation.

3.1.3 Relevance to Japan's ODA Policy

Japan's Country Assistance Program for Peru (August, 2000) identifies such priority fields as the elimination of poverty, support for the social sector, development of economic infrastructure and environmental conservation. In terms of support for the social sector, emphasis is placed on cooperation to provide vital equipment for health care facilities and to conduct the training of health care workers along with support for education. As the Project is part of the support for the social sector which is a priority for Japan's ODA for Peru, it conformed to Japan's ODA policies at the time of the ex-ante evaluation.

Based on the above, the Project is highly relevant to Peru's development policies and the development needs of Peru as well as Japan's ODA policies. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

INR was relocated to a publicly owned site (formerly used by the Ministry of Defense) located in the Chorrillos District of Lima, which is some 20km away from its original site in the Constitutional Province of Callao. Fig. 1 shows the location of INR before and after the relocation while Fig. 2 shows the facility layout after the relocation.



Figure 1 Location of INR before and after the relocation

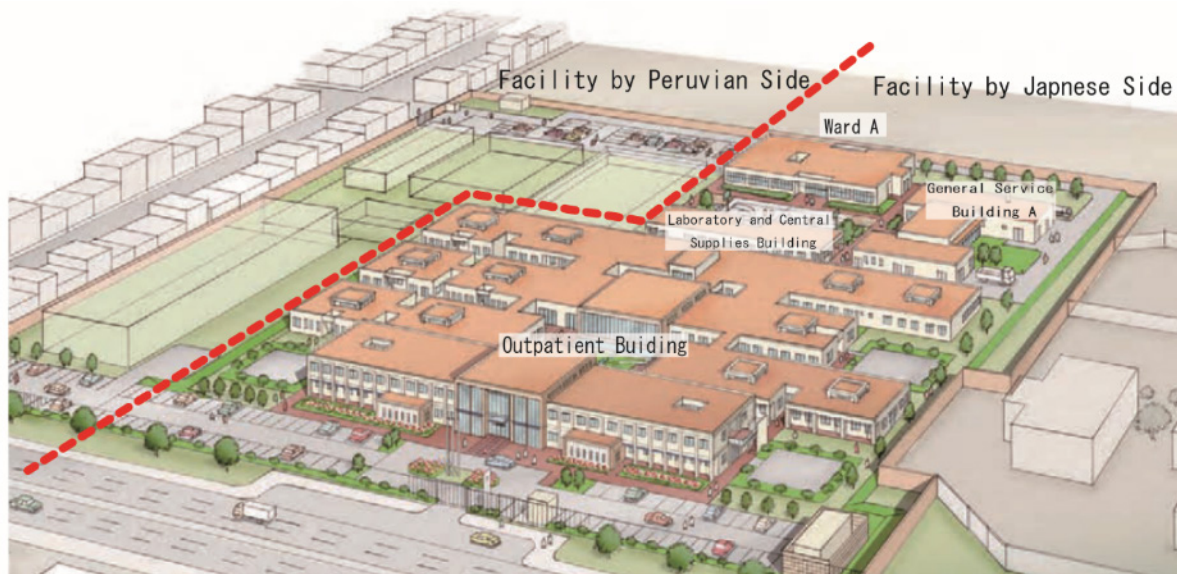


Figure 2 Facility layout of INR after the relocation

Table 1 shows the planned and actual outputs of the Project. The facilities for which the Japanese side was responsible were generally constructed as planned even though some changes were made in terms of the room layout and intended purpose of use of some rooms to accommodate imperatives discovered in the course of the detailed design.⁷ In contrast, the floor area of the facilities for which the Peruvian side was responsible increased to 124% of the planned floor area because of the addition of a gait analysis chamber and others. Improvement of gait is important for rehabilitation of motor function and improvement of the quality of life, and appropriate gait analysis is required to realize such improvement. Therefore, a gait analysis chamber is necessary to carry out related research and medical care as a national institute. Therefore, its addition is considered to be relevant. Due to this, the planned total floor area of 18,087 m² increased to an actual floor area of 19,821 m² (110% of the planned total floor area). The equipment by the Japanese side was procured and provided as planned.

According to INR, the layout plan as well as the floor plan for the facilities to be constructed by the Japanese side were generally appropriate while the quality of the construction work was found to be excellent. The opinion has been expressed that the conditions of the consultation rooms, physical exercise room and other facilities have significantly improved. Meanwhile, therapists and other INR personnel pointed out the following shortcomings to the present evaluator.

- While the physiotherapy room has 20 treatment beds, its small room size is inconvenient for the provision of efficient treatment. Number of bed is insufficient as well. Both the ventilation and daylight are rather poor. The small single entrance makes it difficult to move patients in a wheelchair or on a stretcher in or out of the room at busy times. Emergency evacuation is likely to be difficult.

⁷ These changes included an increase of the number of individual consultation rooms for social service, an additional X-ray photography room in the outpatient building, an increase of the number of shower rooms in wards and a change of a senior staff member's office to a meeting room.

Table 1 Comparison between the Planned and Actual Outputs

Planned Outputs	Actual Outputs
★Facilities by Japanese side: 10,729 m² - Outpatient building : 8,480 m ² - Laboratory and central supplies building : 435 m ² - General service building A (including canteen and laundry) : 888 m ² - Ward A (38 beds) : 926 m ² ★Facilities by Peruvian side: 7,358 m² - Administration and training building : 3,444 m ² - Ward B (38 beds) (including surgical center) : 1,989 m ² - Ward C (38 beds) : 925 m ² - Psychomotor treatment building : 240 m ² - General service building B : 541 m ² - Anatomy and pathology building : 219 m ² ★Total : 18,087 m²	★Facilities by Japanese side: 10,729 m² Generally completed as planned ★Facilities by Peruvian side: 9,092 m² - Administration and training building : 3,734 m ² - Ward B : 2,343 m ² - Ward C (total 85 beds) : 1,073 m ² - Psychomotor treatment building* : 328 m ² - General service building B** : 647 m ² - Anatomy and pathology** : 216 m ² - Psychomotor treatment** : 334 m ² - Gait analysis chamber, etc. : 417 m ² ★Total : 19,821 m²
★Equipment to be provided by Japanese side - Treatment equipment: laser therapy apparatus, electric tilting tables, etc. - Diagnostic equipment: CT scanner, microscopes, spectrophotometers, etc. - Equipment to make orthoses: lathes, carving machinery, etc. - Ward equipment: bed sets, patient care lifts, etc. - Service equipment: washing machines and high pressure steam sterilizers	★Equipment to be provided by Japanese side As planned

Source: Materials provided by JICA and INR

Notes: * A chapel was added.

** Facilities serving these functions were planned in separated buildings but realized in a single building.

- While family member(s) usually accompany a patient, there is not sufficient space to accommodate the family member(s) in the treatment room.⁸
- The treatment room for patients with learning disabilities is too small to accommodate a sufficient number of lockers and other types of furniture.
- In the case of the hydropathic treatment facility, the long distance between the treatment equipment and the changing room makes the use of such equipment by people with disabilities inconvenient. The changing room, etc. lacks adequate handrails. The poor ventilation makes the area stuffy because of heat from the warm water.

⁸ According to the results of the beneficiary survey (refer to next footnote), some 70% of the patients are accompanied by a family member(s).

- Both the canteen and the orthoses workshop are stuffy due to poor ventilation. The narrow entrance of the canteen makes its use by inpatients inconvenient.
- There are many long-term inpatients due to spinal cord damage but the hospital rooms lack sufficient space for them to keep their personal belongs (clothes and daily necessities). The outpatient consultation rooms where the doctors work are far away from the hospital rooms.



Physiotherapy Room



Hydropathic Treatment Room (treatment pool)



Psychomotor treatment room



Outdoor space utilized for treatment and storage due to shortage of space

According to the questionnaire survey to the medical staff of INR⁹, some 70% of the respondents affirmed improvement in reference to the outpatient consultation rooms and waiting rooms.

⁹ As part of the ex-post evaluation, a beneficiary survey was conducted in the form of a questionnaire survey with patients of INR (Family members were interviewed when the patients themselves could not answer. Number of samples were distributed according to the number of patients in each specialty of INR.) as well as doctors and therapists working at INR. The number of effective replies was 108 for patients (of which 33 patients are continuously visiting INR since before the relocation), 16 for doctors and 24 for therapists. The patients were randomly selected from among outpatients

In contrast, however, only 33% affirmed improvement of the treatment rooms which is lower than the number of people indicating a worsening situation of these rooms (55%). In regard to the facility layout, 33% of the respondents said that the new layout was worse than before (Figure 3).

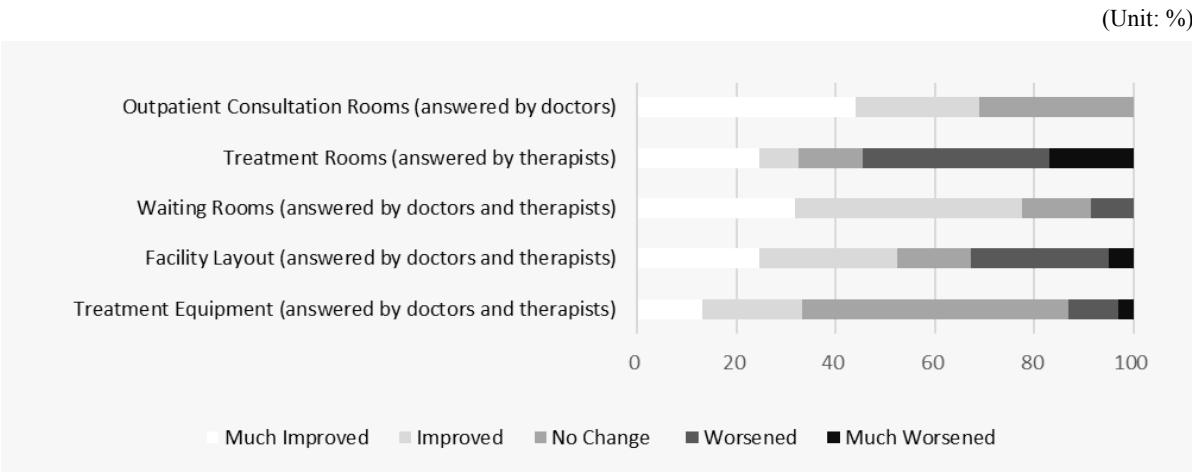


Figure 3 Evaluation of Facility Improvement Due to the Relocation by Doctors and Therapists

Source: Questionnaire survey with doctors and therapists as part of the beneficiary survey.

As described above, the building design of the Project appears to have not fully accommodated the needs of users. In the case of some facilities, the original intended purpose of use has been changed. Some examples of this are the introduction of treatment beds in the body temperature adjustment room for hydropathic treatment to compensate the insufficiency of physiotherapy room and the use of the magnetic treatment room for physiotherapy massages which should be made only at the physiotherapy room. A statutorily required study conducted by INR featuring the labor safety and environmental conditions found such shortcomings as insufficient ventilation and sunlight and noise caused by ventilation fans.

One possible reason for these shortcomings is the fact that only senior staff members of INR who were medical doctors were consulted in the course of the basic design and detailed design, neglecting any direct interviews with such frontline workers as therapists and nurses and consider their views in the planning. According to the Japanese consultant in charge of planning and design, the given design period was not long enough despite the complexity of the planned facilities, resulting in a lack of time to observe and establish the usage situation of the old facilities in detail and to obtain opinion of the users on the layout plan. As a result, it was necessary to refer to examples of similar facilities in Japan in the concrete planning and design process.

A Peruvian engineer who has knowledge on the building standards in Peru was employed as a member of the design team by the Japanese consultant in charge of the detailed design. However, it

as well as inpatients of INR while the doctors and therapists were randomly selected at a rate of five doctors and five therapists from each department. The questionnaire survey was conducted in the form of a face to face interview survey.

was difficult to recruit an engineer with extensive knowledge on the building standards for hospitals which are under the jurisdiction of the Ministry of Health and rather complex, and some parts of the design failed to conform to such standards, necessitating their redesign or remodeling after their completion.

In the case of equipment, most of the equipment provided under the Project was to renew existing equipment. The only exception was the CT scanner which was newly provided to replace the work hitherto contracted out. According to INR, the selection of equipment was generally adequate. However, some of the machinery to make orthoses are not familiar brands in Peru and as their repair has been found to be difficult (see the section of Sustainability).

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned project cost was 2,015 million yen for the Japanese side and 1,636 million yen for the Peruvian side, totaling 3,651 million yen.¹⁰ As shown in Table 2, the actual project cost consisting of the cost of the detailed design and project proper (construction, equipment procurement and project supervision costs) for the Japanese side was 1,936 million yen¹¹ and the actual cost for the Peruvian side was 1,955 million yen. The combined total of 3,891 million yen exceeded the planned overall project cost (107% of the planned cost). Meanwhile, as the output in terms of floor area reached 110% of the planned level (total of Japanese and Peruvian side buildings; planned 18,087m² versus actual 19,821m²), an average investment per floor area considered to be 97% of the planned level. Therefore, it can be concluded that the cost efficiency of the Project is high. It should be noted that, although the construction cost for the Peruvian side increased due to the need to conduct a second detailed design, increase of the floor area and extension of the construction period, the actual cost increased was kept at some 20% of the planned cost due to measures employed to suppress the project cost, including the use of equipment, furniture and fixture from the old facilities.

Table 2 Planned and Actual Project Costs

	Planned	Actual	Actual/Planned
Japanese side	2,015 million yen	1,936 million yen	96%
Peruvian side	1,636 million yen	1,955 million yen	119%
Total	3,651 million yen	3,891 million yen	107%

Sources: JICA, INR

Note: The actual project cost for the Peruvian side is the total cost estimated at the time of ex-post evaluation.

3.2.2.2 Project Period

Project period for the Japanese side facility was planned to be around 26 months including detailed design and procurement period. Construction of the Peruvian side facility was planned to be

¹⁰ The planned project cost for the Japanese side was based on the grant limit specified in the E/N and G/A while the planned project cost for the Peruvian side was based on the basic design study.

¹¹ For the Japanese portion of the project cost, the construction cost accounted for 1,533 million yen, the equipment procurement cost for 291 million yen and the detailed design and project supervision cost for 198 million yen.

completed together with the completion of the Japanese side facility. The actual project period of the Japanese side facility is shown below.

Grant aid agreement	31 August, 2009 (detailed design) 5 February, 2010 (construction and procurement)	
Detailed design	30 October, 2009 – 30 August, 2011	23 months
Tender and contract	15 June, 2010 – 20 December, 2010	7 months
Construction, installation of equipment	13 January, 2011 – 15 August, 2012	20 months
Project Period	31 August, 2009 – 15 August, 2012	36 months

In the case of the Japanese side facilities, the detailed design was completed in August, 2011 following the signing of the G/A relating to the detailed design in August, 2009. Construction and installation of equipment completed in August, 2012. The actual project period of 36 months exceeded the originally planned project period (138% of the originally planned project period). The principal reasons for the delayed completion were that; i) it took some two months for the Peruvian side to make the G/A legally effective, ii) after the public announcement of the tender for the main construction work, it became necessary to change the design due to a request made by the Peruvian side on the grounds of conforming to building laws and regulations, delaying the tender by nearly four months, iii) various procedures regarding permits and authorization and the local construction conditions lengthened the construction period by nearly two months, and iv) the procurement of some equipment was delayed by approximately two months.

In contrast, the construction work by the Peruvian side which commenced in January, 2013 after the completion of the facilities constructed by the Japanese side has not yet been completed as of April, 2016¹². As a result, overall project period is more than 81 months (August, 2009 – April 2016), which is at least 312% of the planned period. The principal reasons for this delay are; i) the insufficient capability of the design company which was charged with the work, making subcontracting of the work necessary, ii) a series of revisions of the design under the instruction of the Ministry of Health and iii) delayed approval of the detailed design due to the replacement of the people in charge at the Ministry of Health. The lack of INR personnel who has sufficient experiences in supervising the detailed design work has aggravated this delay. Moreover, the construction work was temporarily halted after its commencement due to the discovery of shortcomings with the detailed design. Later, following inadequate construction work by the contractor, the contract with the consultant responsible for supervision of the work was cancelled on the grounds of negligence. Under the supervision of the newly appointed consultant, 90% of the planned construction work has been completed as of December, 2015.

¹² INR intends to complete the construction at latest during 2016.

In short, the Project, including the facilities by the Peruvian side, is not completed at the time of the ex-post evaluation, considerably exceeding the planned project period.

According to interviews with INR and the Japanese consultant, the principal reason for the lengthy time required to solve the problems associated with project implementation is the lack of experience of a large-scale construction project on the part of INR which is a medical care institution. In particular, INR did not have sufficient knowledge on various permits and authorizations involved in construction work and on the available legal measures to deal with an insincere contractor. The second reason is that the Directorate General for Infrastructure and Medical Equipment of the Ministry of Health which had been assigned to assist the Project in relation to problems encountered in the course of project implementation was unable to perform such assignment at a certain time due to a shortage of human resources caused by organizational restructuring, etc. In addition, the specialist team created by INR in order to support implementation of the Project experienced frequent changes of personnel due to the changes of the general director of INR, and the Directorate General for Infrastructure and Medical Equipment needed to provide guidance repeatedly to the team.

Based on the above, while the project cost was within the plan considering the changes in output level, the project period significantly exceeded the plan due to the delays in construction of Japanese as well as Peruvian side facility. Therefore, efficiency of the project is fair.

3.3 Effectiveness¹³ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

(1) Provision of Medical Care Services at INR

The purpose of the Project was to increase the capacity of INR's medical care function and the relevant indicator was an increase of the medical care service provided by individual departments of INR compared to the corresponding level in 2006. Table 3 shows the historical changes in terms of several parameters of such service of INR since 2006.

Following the completion of the construction work by the Japanese side in August, 2012, the medical care function of INR was transferred to the new facilities in the period from September to December, 2012. While the construction work by the Peruvian side was delayed, the administration, research and education departments of INR were relocated in the period from September to November, 2013 to rented offices located opposite INR's new premises.

¹³ The effectiveness is rated in consideration of not only the effects but also the impacts.

Table 3 Historical Data on Medical Care at INR

	2006	2011	2014	2015	2015/11	2015/06	2014	2015
	Baseline at planning	Before relocation	2 years after relocation	3 years after relocation (ex-post evaluation)	Ratio of increase	Ratio of increase	Planned level (real/plan)	Planned level (real/plan)
Number of Outpatients	12,629	21,160	21,802	20,194	95%	160%	16,945 (129%)	16,664 (121%)
Number of Consultations	25,499	39,382	42,541	38,657	98%	152%	35,221 (121%)	35,571 (109%)
Number of Treated Patients	10,916	19,907	25,063	25,804	130%	236%	19,473 (129%)	19,617 (132%)
Number of Treatments	187,884	274,148	341,246	358,967	131%	191%	362,874 (94%)	365,386 (98%)

Source: INR

Notes: The relocation of INR was completed in December, 2012.

Planned level (2014, 2015) is based on the demand forecast at the time of Basic Design Study.

Number of Outpatients: total number of patients who received consultation at least once during the year.

Number of Consultations: total number of consultations realized during the year.

Number of Treated Patients: total number of patients who received treatment at least once during the year.

Number of Treatments: total number of treatments realized during the year.

Following this relocation, INR lost most of its former patients. However, the steady acquisition of new patients meant that its performance in 2014 exceeded the pre-relocation level in 2011. Although the number of outpatients and the number of consultations were only slightly above their corresponding levels in 2011, the number of treated patients and the number of treatments were 26% and 24% higher than their pre-relocation levels respectively. Principal reasons for the increase of medical care services after the relocation are; i) elimination of constraints in terms of public safety and site access compared to its previous location, ii) increased medical care capacity of INR with the improved facility, and iii) prolonged hours of clinical service due to the improvement in security and extended hours in the late afternoon and evening.

On the other hand, the number of outpatient and number of consultations decreased slightly in 2015 compared to 2014. Reasons for this are considered to be as follows;

- Because INR enforced stricter admission criteria as part of its strengthening of the referral system, there were more cases of patients being counter-referred to other medical agencies¹⁴.
- From June 2015 onwards, the Comprehensive Health Insurance System (SIS; *Sistema Integral du Salud*) has been applicable at INR¹⁵, making it necessary to prepare additional documentation for admission of those who are insured. As a result, there have been situations where some patients could not be admitted immediately despite coming to the hospital.

¹⁴ See 3.3.2 (2) Referral System.

¹⁵ The Comprehensive Health Insurance, which provides free health care for low-income people, is under the jurisdiction of the Ministry of Health and has witnessed a nationwide increase in subscribers in recent years. Since its subscribers need to be referred by a low-level medical institution in order to receive treatment at a high-level institution, referral by a secondary medical care institution is required in order to receive treatment at INR. Moreover, according to INR, improvement of the facilities in line with the relocation was one of the factors behind the decision to start application of the Comprehensive Health Insurance. Negotiations have already started with private health insurance companies and it is predicted that application of health insurance schemes will grow in future.

The decrease in the number of patients due to strengthening of the referral system is deemed to be a desirable change because it means that patients who do not require treatment at INR have decreased. Moreover, the decrease arising from application of the Comprehensive Health Insurance is only temporary. This system, which allows low-income patients to receive treatment without using their own funding, will eventually lead to more patients in the long run.

Compared to 2006, which was upheld as the reference year at the time of the ex-ante evaluation, the number of outpatients and number of consultations increased by some 50 – 60% and the number of treated patients and number of treatments approximately doubled in 2015. Compared to the planned figures, the number of treatments in 2015 remained 98% of the planned figure, however, the numbers of outpatients, consultations and treated patients were greater than planned.

The inpatient ward is used by patients in the Spinal Cord Injury Rehabilitation Department, and although the number of beds increased from 32 to 38 following the relocation, the number of inpatients has stayed the same and the occupancy rate is around 80%. The main reason for this is that no additional nurses have been assigned to the ward. INR plans to increase the number of nurses, to start cochlear implantation in the facilities constructed by the Peruvian side, and utilize these together with the 85 beds included in the facilities constructed by the Peruvian side.

In this way, because the INR facilities that need to be constructed by the Peruvian side are not yet completed, some procedures cannot be commenced, and the shortage of nurses and so on, which means that the hospitalization facilities cannot be fully utilized and impose other constraints. However, the overall medical care provision has been increased more than planned thanks to the Project, because almost all the main treatment facilities have been constructed and relocated and the new location offers better conditions.

3.3.2 Qualitative Effects

(1) Change of the Service Area

As a medical institution of the highest level in Peru, INR has the nationwide role of accepting patients in need of advanced medical care in the field of rehabilitation. According to the relocation plan for INR prepared by the Ministry of Health (the pre-feasibility study by Peruvian side), the service area of INR was the Lima Metropolitan Area that has one-third of Peru's population (Lima City and the Constitutional Province of Callao). In addition, it was assumed that 17% of patients of INR after its relocation would be referred to INR from other regions of Peru.

In reality, according to INR and based on the results of the beneficiary survey, the geographical expansion of INR's service area has been limited because of traffic congestion in the Lima Metropolitan Area and cost of transportation to and from INR. Prior to the relocation, some half of its patients came from the Constitutional Province of Callao and the service area was mainly the central and southern parts of the Constitutional Province of Callao. In contrast, after its relocation, 81% of patients visiting INR in 2014 came from Southern part of Lima (Chorrillos District in which INR is located and its surrounding area), 2% of patients came from the Constitutional Province of Callao and

5% was referred from other regions of Peru. Less than 2% of the patients in 2014 were former patients of INR before its relocation and most of them lives in Lima. The new site for INR enjoys relatively good public safety and its location along a trunk road offers better transport access.¹⁶ According to doctors and therapists, more patients travel to INR from the distance compared to pre-relocation, suggesting that its service area has somewhat increased as a result of its relocation.

(2) Strengthening of the Referral System¹⁷

Since INR is a high-level medical institution, roughly half of its newly received patients are referred from other medical institutions. As patients are received upon prioritizing them according to the treatment level, patient admission criteria have been established so that in the admission office, patients are accepted upon checking symptoms, past treatment history and existence of referral or not from another institution, or they are referred to a different institution¹⁸. Before the relocation, this decision was made by general physicians, however, due partly to the acute treatment needs, the criterion was loosely applied and some patients who didn't even require high-level treatment were accepted. However, following the relocation, specialist rehabilitation physicians have been assigned and the criteria have come to be applied more strictly, meaning that such patients are now rarely admitted¹⁹.

Moreover, according to INR, many of the patients who are referred from other medical institutions are inappropriate referrals who have not been properly evaluated by specialists. Concerning this, commencement of application of the Comprehensive Health Insurance System with stringent referrals in June 2015 has led to strengthening of the INR referral system.

In this way, following the relocation, INR has been able to focus on those patients who require high-level rehabilitation treatment. This has been underpinned by the relocation and strengthening of the treatment capacity and may be regarded as an indirect effect of the Project.

(3) Improvement of the Medical Care Service

According to doctors, therapists, nurses and patients, the medical care service provided by INR has made the following improvements which are direct outcomes of the improved facilities by the Project.

¹⁶ The beneficiary survey found that 64% and 21% of patients arrive at INR by bus and taxi respectively. Patients with impaired motor function use taxis more frequently (32%). The travelling time to INR for 30% of patients is more than one hour.

¹⁷ A referral system is designed to ensure the smooth reference and transportation of patients to appropriate medical institutions based on the type and severity of illness and medical care capability of individual institutions through close communication involving health centers, clinics, leading local hospitals, general hospitals and specialist hospitals. The reference and transportation of patients from lower medical institutions to higher medical institutions is called referral while the reverse movement of patients is called counter-referral. Proper functioning of the referral system can ensure adequate matching of the medical requirements of patients and the level of medical care offered by individual medical institutions. As a result, higher medical institutions can fulfil their potential to the fullest extent.

¹⁸ Referrals to low-level medical institutions are classed as counter referrals.

¹⁹ Following the relocation, a third of the newly arriving patients are judged not to require high-level treatment and are referred to other hospitals. However, patients who were coming to INR from before the strengthening of the referral system continue to be admitted following the relocation. At the time of the ex-post evaluation, INR was in the process of reviewing admission criteria.

- INR in the pre-relocation period was generally congested because of its limited floor size. The congestion has been eased since the relocation and it has become easier to maintain order.
- The secured seismic performance of the buildings has reduced the risk at the time of an emergency. The relocation to an area with better public order has reduced the risk to patients and staff members when travelling to INR.²⁰
- Before the relocation, the consultation rooms were located far away from the treatment rooms in many departments, making it necessary to move equipment between them. With the new floor layout, such movement has become unnecessary, improving the efficiency of medical care.
- Before the relocation, the consultation rooms were often divided into two or three small units, making the maintenance of privacy difficult. The need for those patients having a consultation in the rear units to go through the front units to exit the consultation area created an awkward situation for both patients and doctors. This has now become a thing of the past at the new INR. The wider available space of the new consultation rooms makes it easier for trainee doctors to attend consultations with additional space, while movement of people was constrained before the relocation.
- The provision of a treatment pool in the hydrotherapy area has expanded the treatment menu. Because of group therapy in the pool, the development of a sense of friendship between patients is of great benefit for the essential mental care of people with disabilities.
- The exercise therapy room is now larger and brighter and patients are treated in a much better environment.
- The bathing of inpatients with disabilities used to involve a long waiting time as it is a lengthy process. The increase of the number of bathing units for hospitalized patients has much reduced the waiting time.

According to the beneficiary survey, half of the interviewed doctors and therapists replied that the service and results of medical care at INR have improved.²¹

The waiting time for a consultation appointment used to be as long as two months but this has been shortened in many departments since the relocation. While this is partly because of the improved

²⁰ Prior to its relocation, INR was assessed to be a high risk in terms of “facility safety” and “safety of the surrounding area (including the social risk) in the risk management plan for 2011.

²¹ This means that half of the interviewed doctors and therapists believe that no specific improvements have been made regarding the contents and results of treatment. This judgement appears to reflect such negative development of a recent lack of extra space because of an increased number of patients. None of the interviewed doctors and therapists replied that the contents and results of treatment had worsened in comparison to the pre-relocation period.

appointment system of INR²², the enhanced medical care capability and capacity due to the Project are also considered to be contributory factors.

Meanwhile, as described in 3.2.1 Project Outputs, some of the facilities constructed under the Project are not fully compatible with their intended use by users. In addition, there are certain restrictions in the use of the treatment pool and the CT Scanner, as described in the section of “Sustainability”. The delayed completion of the facilities to be constructed by the Peruvian side means a shortage of treatment rooms in the department dealing with impaired mental function, making it necessary to conduct some treatments outdoors. In addition, surgical center as well as additional beds for hospitalization are not yet realized. Also, the housing of some functions of the administration department and research and education department in small rented offices which are not on the new INR premises is inconvenient for these departments and their interaction with other departments.

(4) Degree of Patient Satisfaction

The beneficiary survey found a high level of general satisfaction with INR among patients and their family members (Figure 4). 49% of patients replied that they are “very satisfied” overall. Together with 45% of patients who are “satisfied”, in total 94% of patients are satisfied with INR. The level of satisfaction is high with the admission procedure, patient handling by doctors and therapists, medical consultation by doctors, treatment by therapists, treatment equipment and facilities in general. In contrast, the ratio of patients satisfied with the waiting time and medical care fee is relatively low.



Exercise therapy room



Treatment room for patients with learning disabilities

²² Before the relocation, only five weekdays of the last week of each month were available to arrange new appointments. This meant that many patients had to travel to INR simply to arrange an appointment. Since the relocation, however, new appointments can be arranged any day.

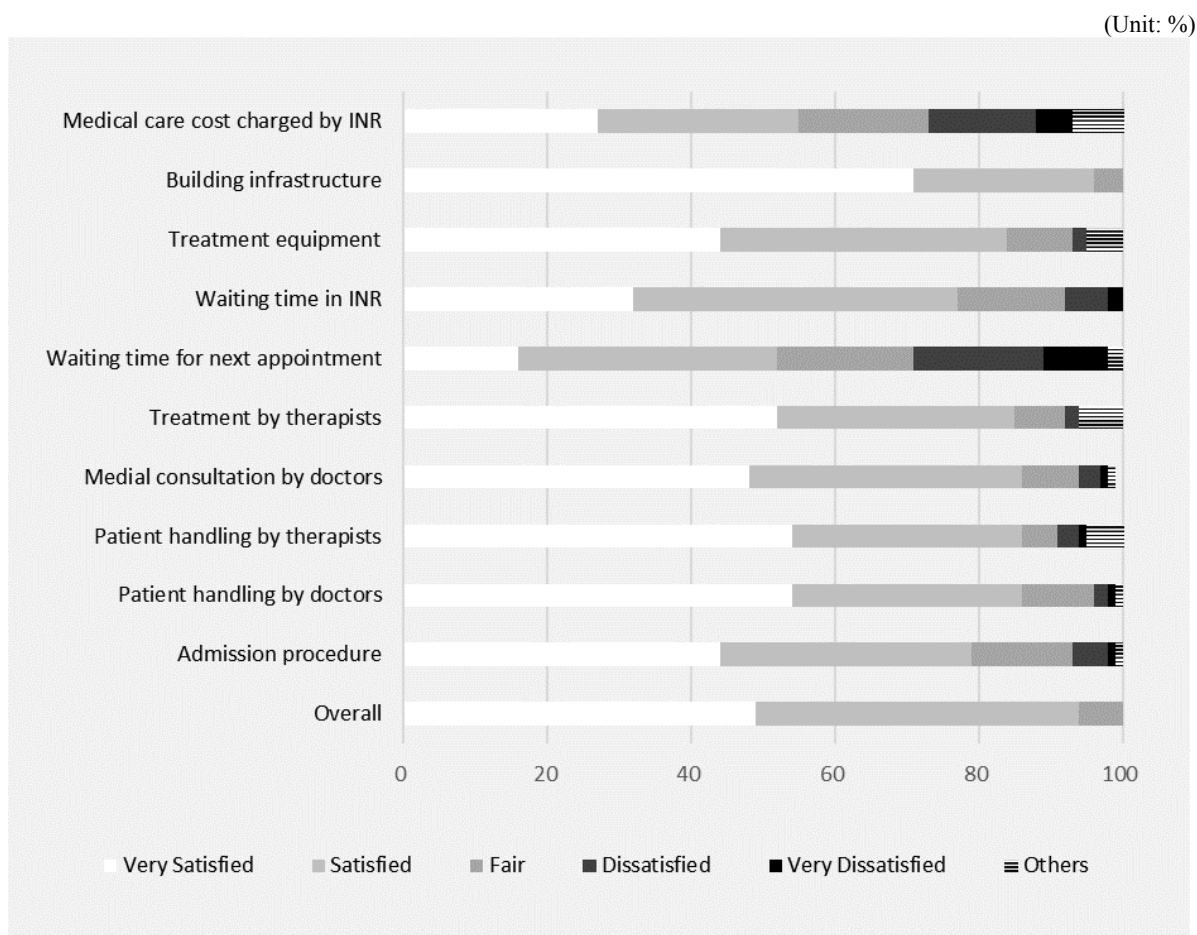


Figure 4 Patient Satisfaction with INR

Source: Questionnaire survey with patients and their families conducted as part of the beneficiary survey.

Note: 5-grade evaluation (“very satisfied”, “satisfied”, “fair”, “dissatisfied” and “very dissatisfied”) was conducted to study the level of their satisfaction with 108 patients and their families.

When INR patients who are receiving continual treatment at INR from the pre-relocation period were questioned about the overall changes before and after the relocation, 70% and 18% of them replied that the overall conditions of INR had “much improved” and “improved” respectively (Figure 5). A particularly favorable response was recorded for the improvement of facilities. In contrast, the improvement in terms of the handling of patients, quality of treatment and medical care cost was considered to be modest. The reasons for this are the growing congestion due to an increased number of patients and longer distance to travel for some of these patients. Many patients mentioned the better public safety around the new premises as reasons for their positive evaluation of the change of location.

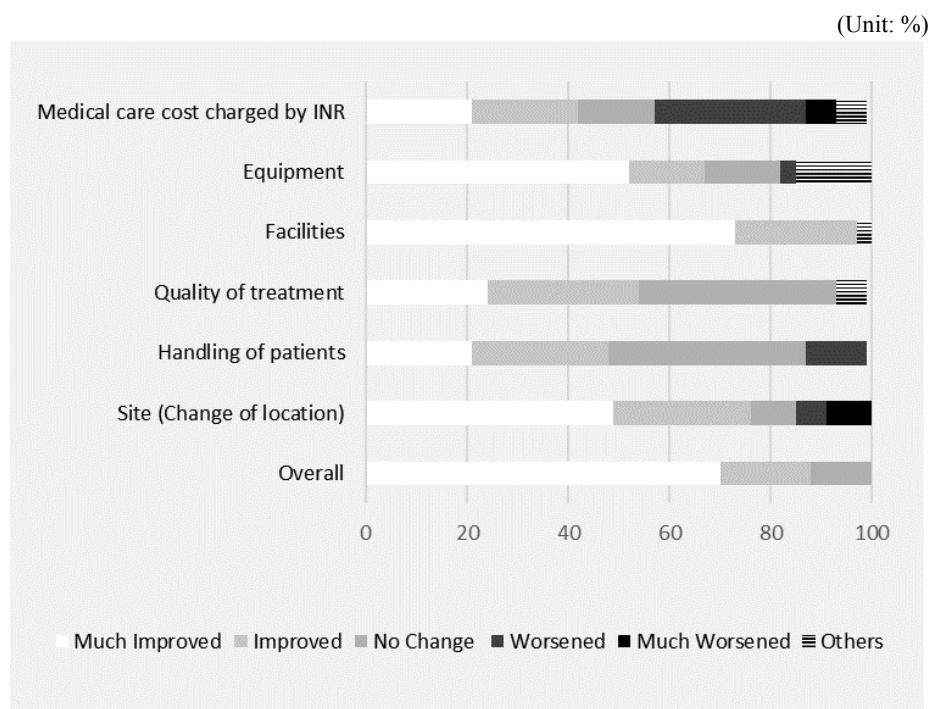


Figure 5 Changes Before and After the Relocation of INR

Source: Questionnaire survey with patients and their families conducted as part of the beneficiary survey.
 Note: 5-grade evaluation (“much improved”, “improved”, “no change”, “worsened” and “much worsened”) was conducted to study the level of their satisfaction with 33 patients continuing to use INR before and after the relocation.

(5) Contribution by Senior Volunteers

After the relocation, several senior volunteers were dispatched by JICA since 2012 and cooperated to improve the medical services of INR in such area as; development of computerized medical record system, sports for disabled person and gait analysis, etc. Dispatch of senior volunteers continues at the time of ex-post evaluation making contributions to an improvement of medical care services of INR.

3.4 Impacts

3.4.1 Intended Impacts

The Project was expected to contribute to improve INR’s capacity for research in rehabilitation area as well as human resource development of specialized medical personnel. The activities of INR in the post-relocation years are examined below in reference to these expectations in order to determine the extent of the positive contribution of the Project.

(1) Research

Doctors and therapists at INR are expected to spend some time on research activities when they are not engaged in consultations, treatment, etc. With the improved facilities and equipment after the relocation, INR was certified as “a research center” in September, 2015 by the National Institute of Health of Peru. As a result, INR is now permitted to conduct clinical trials. The scope of its research

activities has expanded since its relocation. The number of research works has increased from two or less a year before the relocation to eight in 2015. INR has a research agreement with the department of medicine of various universities for the purpose of joint research and has concluded a new agreement with 6 universities since its relocation in addition to the one university with which INR had an agreement before the relocation. INR conducted a training session on research methodology for INR staff members from December, 2015 to which academics from universities, etc. were invited as lecturers to energize INR's research activities. INR also held a workshop targeting rehabilitation specialists working at universities and hospitals throughout the country to determine the extent of actual need for research work in the field of rehabilitation.

The facilities for which construction work is currently taking place by the Peruvian side include an office for the Research Department and Education, 300 seat lecture hall, library and three lecture rooms equipped with an AV system. In regard to the library, in order to improve the research environment, work is in progress to establish a network with other specialist libraries and to develop a database and regular subscription to specialist magazines.

On the other hand, the beneficiary survey with the doctors and therapists found such opinions that there is not much time to allocate to research because of the pressure to meet the consultation and treatment demand for an increased number of patients, that the overall research budget is insufficient and that training opportunities to learn advanced medical care practices are limited (Figure 6). As a result, only 21% of the interviewed doctors and therapists agreed with the statement that the research environment has improved ("much improved" or "improved").

In short, it is fair to say that INR is gaining the capability worthy of a national research institution in a specialist field and that the Project has contributed to this in terms of facilities and equipment. However, some pending issues, such as the incomplete construction work by the Peruvian side, still need to secure an adequate budget and time for research and provision of advanced training opportunities.

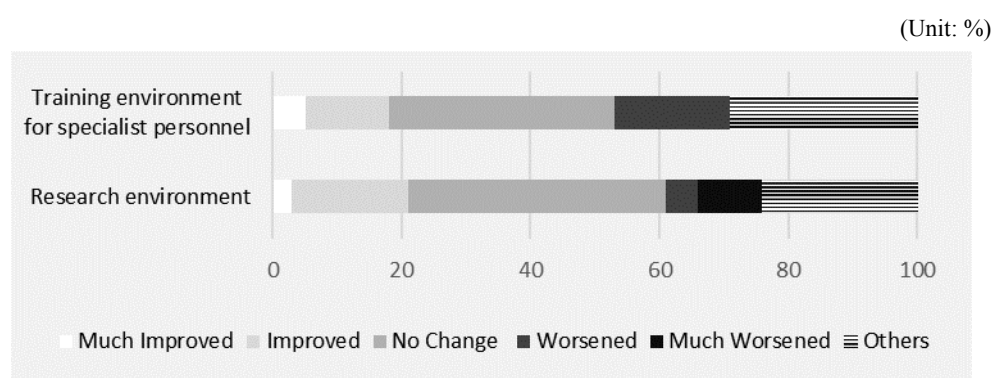


Figure 6 Change of the Training Environment for Research and Specialist Personnel

Source: Questionnaire survey with doctors and therapists conducted as part of the beneficiary survey.

Note: 5-grade evaluation ("much improved", "improved", "no change", "worsened" and "much worsened") was conducted with 16 doctors and 24 therapists working at INR both before and after the relocation to study their perception of changes about research and training environments at INR.

(2) Training of Specialist Personnel

INR accepts trainee doctors (medical intern) in the field of rehabilitation from partner universities. It also accepts trainee doctors on a short-term basis from other hospitals.²³ The number of trainee doctors in Peru who can be accepted by individual medical institutions is determined by the National Committee for Medical Intern based on the physical conditions of the facilities at the accepting institutions, availability of a financial source to pay the salaries of trainee doctors and other relevant matters. As a result of the substantial improvement of the facilities after the relocation, the number of trainee doctors accepted by INR has greatly increased (Figure 7).²⁴ According to some staff members of universities in Lima and trainee doctors working at INR, INR was the most popular medical institution for training in the field of rehabilitation even before its relocation because of its high level of specialty and it has gained further popularity since its relocation because of the improved physical environment associated with an area of good public safety.²⁵ However, reflecting the comments that this increase of the number of trainee doctors has led to congestion at the outpatient consultation rooms and also comments on the non-completion of the library, lecture rooms, etc., due to the non-completion of the infrastructure by Peruvian side, only 18% of the interviewed doctors and therapists agree that the training environment for specialist personnel has improved (Figure 6). It should be noted that INR also receives trainee therapists and their number has slowly increased to 42 therapists in 2016 (Figure 7).

In summary, the improved INR facilities as a result of the Project have contributed to a substantial increase of the number of trainee doctors accepted from other medical institutions. However, there are still some pending issues, partly because of the incomplete construction work by the Peruvian side.

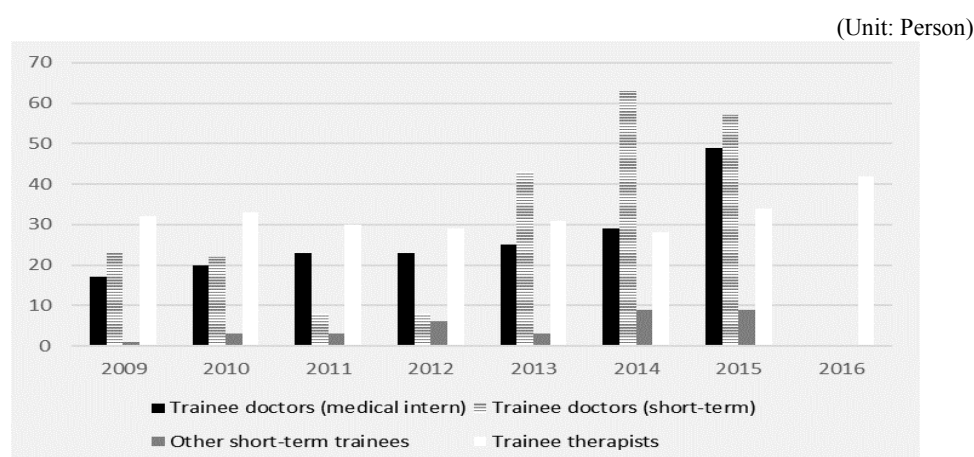


Figure 7 Change of Training Results of Specialists

Source: INR

Note: Number of trainee doctors (medical intern and short-term), other short-term trainees in 2016 is unknown.

²³ The acceptance period for trainee doctors (medical intern) is three years.

²⁴ The background for this increase of trainee doctors is that the number of admissions to the medical departments of Peruvian universities began to substantially increase in recent years according to the enrollment capacity of relevant universities in order to solve the critical shortage of specialist doctors in Peru.

²⁵ The destination for each trainee doctor for training is determined by the National Committee for Medical Intern based on his/her academic performance at university. There is a high degree of competition for popular institutions.

3.4.2 Other Impacts

(1) Utilization of Former INR Facilities

The use rights for the former INR facilities (buildings) located in the Constitutional Province of Callao were obtained by the Government of the Constitutional Province of Callao through an agreement with the Ministry of Health. These buildings were then rehabilitated at a cost of 8 million soles (approximately 300 million yen) and were reopened with new equipment in February, 2014 as a second tier hospital specializing in medical rehabilitation. Although the human resources of this hospital is rather small with only 10 doctors and some 40 therapists, it still manages to maintain a level of medical care equivalent to 50 – 60% of the level achieved by the pre-relocation INR.²⁶ Most of the patients are local residents of the Constitutional Province of Callao. While the percentage of patients who were former patients of INR is unknown, it is considered to be small on the grounds that the hospital does not offer a high level of medical care. The operation of this hospital is somewhat restricted due to the fact that parts of the old buildings have not been rehabilitated²⁷ and that the hospital closes at 17:30 pm because of the area's poor public safety. Nevertheless, the level of satisfaction on the part of its patients is high and the hospital is certainly performing an important function of meeting the local demand for medical rehabilitation in the Constitutional Province of Callao.

(2) Conditions around the New INR Site

The former INR was accompanied by a number of stores selling orthoses and other medical welfare items to meet the demand of patients. By the time of the ex-post evaluation, several orthoses stores had opened near the relocated INR.

There is space for vehicles to stop in front of the main gate of INR and several taxis always wait there for customers. There is also a bus stop serving patients and family members. However, it is necessary to cross a road for buses heading south. The pedestrian crossing in front of the main gate does not have traffic lights and it is necessary to be very careful when crossing the road. In fact, it is not easy for people with physical disabilities to cross this road.

(3) Other Social and Environmental Impacts

The project site is located in an environmental conservation area designated by a municipal ordinance of Lima. Because it is owned by the national government, the only applicable regulations are related to the building height and site layout, including the distance of the buildings from the boundary. Another requirement is to satisfy the standards set forth by the Fire Service Act so that a building permit can be obtained from the Chorrillos District Authority. This is work to be conducted by the

²⁶ Actual data for the period from November, 2014 to October, 2015 is compared with INR data for 2011. Because this hospital does not offer high level medical care, the time spent with each patient is shorter than that at INR. As a result, the production level of medical care services may be relatively high as a smaller number of doctors and therapists handle a larger number of patients.

²⁷ As such, some facilities have not yet been handed over from INR.

Peruvian side. No formal building permit has been granted even though a temporary permit has been secured.²⁸

The new site is owned by the national government and its use rights were acquired by the Ministry of Health. As such, the new acquisition of land or resettlement of inhabitants did not occur.

To summarize the effectiveness and impacts of the Project, the production of medical care services at INR has steadily increased since the relocation because of its relocation to an area with better public safety and better transport access and also because of a higher medical care capability due to improved facilities and equipment. As a result, the planned levels of production have been mostly surpassed. INR is playing the role of specialized medical institution of the highest level with strengthening of its referral function. INR's medical care service has been improved in many aspects and the level of satisfaction on the part of patients is high. Even though some of the planned facilities to be constructed by the Peruvian side have not yet been completed, the objective of the Project to relocate INR and to strengthen its medical care function has been fully achieved because of the improvement in its location and construction of most of the principal installations. Taking the opportunity of the relocation, research activities have been vitalized and the scale of the development of specialist personnel has been growing. Even though there are still some pending issues, achievement of the higher goal is in sight. One positive impact is the utilization of the former INR facilities for a new hospital specialized in rehabilitation.

Based on the above, it is fair to say that the Project has largely achieved its objective. Therefore, the effectiveness and impact of the Project are high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

The organizational structure of INR before the relocation has not changed since the relocation. As of 2015, the number of regular staff members and contract staff members is 366 and 205, totaling 571 of which 72 are doctors and 275 are therapists or nurses. The personnel strength has increased by 114 from 457 in 2007. In addition, there are some 100 workers employed by companies entrusted with providing security, cleaning and other services.

As far as medical care at INR is concerned, afternoon consultations and treatment were added in 2014 in response to the increased number of patients. The rapid increase of patients due to the admission of the insured of the Comprehensive Health Insurance System halfway through 2015 has created a necessity to increase therapists. Because of the relevant regulations set forth by the Ministry of Labor, no further increase of therapists in 2015 is allowed. According to the Human Resources

²⁸ According to INR, there was a contractual dispute with the private company assigned for the planning and design of the facilities to be constructed by the Peruvian side. Because this company is uncooperative, the procedure to acquire an official permit has been stalled. In Peru, it is a common practice to construct and use buildings with a temporary permit while awaiting an official permit.

Department of INR, the recruitment of some 170 additional staff members is required to properly handle the situation of patient increase and the Department is hoping to recruit at least 20 to 30 staff members once the necessary budget has been secured. Further recruitment will be necessary when the facilities currently being constructed by the Peruvian side are completed.²⁹ However, the current priority is to complete these facilities and no concrete plan for further recruitment has been prepared. Once the facilities are completed, Ministry of Health and INR are going to increase the personnel of INR during 2016 with approval of the Ministry of Economy and Finance.

Maintenance of the facilities and equipment is the responsibility of the General Service Section of the General Administration Department. This section has 13 regular staff members 9 contracted staff members, and conducts maintenance work, including preventive maintenance work, while outsourcing cleaning, security, waste collection, canteen operation, etc. Although INR has its own preventive maintenance plan, the actual practice of preventive maintenance is insufficient to cover the entire range of equipment because of insufficient budgetary support. Only simple repairs are conducted in-house and it is necessary for any repair to be outsourced to have the relevant funding newly approved and allocated each time by the financial department of INR.

In conclusion, the situation described above suggests that it will be necessary to check whether or not the necessary personnel are properly recruited by INR after the completion of the facilities currently under construction by the Peruvian side.

3.5.2 Technical Aspects of Operation and Maintenance

Most of the specialist staff members of INR before the relocation have moved to the new site. As these specialist staff members have access to a scholarship for short-term training in other countries and also training opportunities at partner universities, the standard of skills concerning medical care and treatment as well as research and education work is believed to be high.

The General Service Section in charge of the maintenance of the facilities and equipment has sufficient skills to conduct the preventive maintenance and simple repair of the facilities and equipment. No particular difficulty in technical aspect is seen as major repair and repair requiring specialist knowledge are outsourced, including studies which are deemed to be necessary for proper repair work.

3.5.3 Financial Aspects of Operation and Maintenance

While INR earns some operational income, mainly from medical consultation and treatment, a grant by the Ministry of Health accounts for a very large portion of its income. The annual operational income has been around 6.5 million soles and the amount of the grant has substantially increased since 2011 (Table 4), because it includes investment in equipment, etc. for the construction work by the Peruvian side of the Project. The amount of expenditure, excluding equipment investment, has steadily

²⁹ The Basic Design Study envisaged the recruitment of 350 staff members after the relocation.

increased at an annual rate of around 10% from 17 million Nuevo Soles in 2008 to 33 million soles in 2014. The overall balance of payments of INR has been in the black³⁰.

Since the relocation in 2013, the amount of the maintenance and repair expenditure has sharply dropped because the facilities are still new and within guarantee period. The amount of expenditure for equipment maintenance and repair has also declined for the same reasons. According to the Finance Department of INR, budget applications to the Ministry of Health to cover the maintenance and repair cost of equipment have hardly been met in full, resulting in a major shortage of this type of funding³¹.

According to the General Service Section in charge of the maintenance of facilities and equipment, the shortage of funding for repair work is the most serious problem concerning equipment maintenance. Even though there is available budget to conduct the minimum preventive maintenance, funding for any repair must be secured each time such work is necessary through an approval by the financial department of INR, making swift repair difficult. For example, a request made in March, 2015 for repair of the CT scanner which was newly introduced under the Project took more than eight months to reach the stage of outsourcing of the repair work with funding approval.

As such, while the overall financial balance of INR has been in the black, insufficient budget allocation for the maintenance and repair of equipment, resulting in the inability of INR to swiftly provide the required funding, poses a problem which appears to be exacerbated by the lengthy procurement process.

Table 4 Historical Data on Income and Expenditure of INR

(Unit: thousand Nuevo Soles)

	2008	2009	2010	2011	2012	2013	2014
Income	25,916	32,803	27,583	42,281	42,961	56,194	49,314
Ministry of Health grant	19,519	25,335	18,822	35,378	36,969	51,217	43,651
Operational income	6,397	7,468	8,761	6,903	5,992	4,977	5,663
Expenditures	19,234	25,126	22,675	26,482	40,655	46,309	44,580
Personnel cost	10,166	10,563	10,634	11,997	14,263	14,582	18,768
Social security cost	1,119	1,154	1,135	1,403	1,759	1,456	2,791
Costs of lighting, heating, outsourcing etc.	5,524	6,811	9,148	9,126	9,808	10,346	11,047
Miscellaneous expenses	2	0	18	81	234	972	180
Investment on facilities and equipment	2,423	6,598	1,740	3,875	14,591	18,953	11,794
Balance	6,682	7,677	4,908	15,799	2,306	9,885	4,734
Maintenance & Repair Expenditure (as a part of Expenditures)	663	843	794	668	408	85	172
Buildings	322	616	589	428	247	1	35
Equipment	341	227	205	240	161	84	137

Source: INR

³⁰ 1 Nuevo Sol = 33 Yen (average during 2008 - 2014)

³¹ The Ministry of Health decides the amount of the grant to be allocated for the maintenance and repair of equipment based on their calculation regardless of the financial balance of a medical institution. Therefore, it can occur such a situation where the budget for maintenance and repair is not sufficient even though INR has a positive balance.

3.5.4 Current Status of Operation and Maintenance

The site visit at the time of the ex-post evaluation found that all of the building infrastructure of INR after its relocation are thoroughly clean and that the state of these facilities is generally good. The equipment is used carefully and most of the equipment is in use without any problems.³² However, some maintenance issues are found with the following equipment and devices.

- CT scanner: Since its initial installation, the CT scanner has never been used for patients up to the time of the ex-post evaluation because the entire time has been spent for a series of remodeling of the CT scan room to conform to the standards set by the Ministry of Health, work to remove viruses from the computer software, replacement of the components and the time-consuming process of outsourcing the necessary work³³.
- Some of the orthosis-making machines: At the time of delivery for installation, both the outsole stitching machine and sole stitching machine had no problems but failed to properly operate soon afterwards. The indemnity period was subsequently passed despite repeated negotiations with the Japanese provider regarding repair and, finally, no repair of the sole stitching machine was conducted.
- Demineralizer: The demineralizer to lower the hardness of municipal water is not used due to the high operational cost to purchase sodium chloride for its operation³⁴.
- Water pipes: Corrosion has occurred in some water distribution pipes, leading to red-colored water. INR replaced some of the pipes, but it will be necessary to keep replacing them from now on too.

Based on the above, some minor problems have been observed in terms of the institutional and financial aspects. Therefore, the sustainability of the project effects is fair.

4. Conclusions, Lessons Learned and Recommendations

4.1 Conclusions

The Project was implemented in order to transfer and strengthen the medical care function of INR, by constructing a new hospital infrastructure in the Chorrillos District of Lima and providing medical equipment, thereby contributing to fulfilment of the needs required of INR to conduct advanced medical care, research and training of specialist personnel. At the time of both the ex-ante evaluation and ex-post evaluation, the Project was found to be highly consistent with the Government of Peru's development policies for promoting the social and economic participation of disabled persons,

³² According to INR, some 10 pieces of equipment are little used at the time of the ex-post evaluation out of some 200 provided pieces of equipment under the Project. Of these, seven are currently being repaired.

³³ As of March, 2016, the repair was already completed and trial operation was to be started soon.

³⁴ In the Project, a demineralizer targeting the entire building was introduced at the request of the INR side. In the ex-post evaluation, examination was conducted by the INR general services department on remodeling geared to supplying soft water only to the areas where it is especially needed, i.e. the boiler, kitchen, laundry room, in order to lower the operating costs.

and there was a strong need to strengthen the INR as a national specialist agency in the rehabilitation field. Moreover, since it was consistent with Japan's aid policies at the time of the ex-ante evaluation, the Project has high relevancy. The Project cost taking into account changes in output was within the planned amount, however, because the Project period substantially exceeded the planned period due to delay in the construction of facilities on the Peru side, Project efficiency is fair. Since the relocation helped improve the INR's location, and almost all of the main treatment facilities were constructed, the Project objectives of "relocating INR and strengthening treatment functions" were amply realized. Moreover, research and training for specialist staff have been boosted by the relocation. Accordingly, the Project effectiveness and impact have been high. It is necessary to monitor whether or not the necessary human resources will be secured for the facilities to be borne by the Peruvian side. In addition, since there are issues regarding allocation of budget for equipment operation and maintenance, the sustainability of the Project effects has been fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

- INR needs to promptly complete the facilities on the Peruvian side, finish transfer of INR and assign the necessary human resources. Moreover, the Ministry of Health needs to allocate without delay the necessary budget for conducting operation and maintenance in the Project including the facilities on the Peruvian side.
- INR needs to compile a preventive maintenance plan for the medical equipment, secure the necessary budget for preventive maintenance and repair, rationalize the procedures for promptly procuring services and goods for repair, and strive to organize information on the suppliers.
- INR needs to promptly resolve operation and maintenance issues concerning the CT scanner, demineralizers, etc. so that they can be appropriately operated and utilized.
- INR needs to promptly obtain building permission required for its operation at new buildings.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Formulation of plans that reflect the opinions of facilities users

In projects where it is necessary to design facilities, it is important to provide opportunities to hear the opinions of facilities users upon presenting a specific draft design of facilities, and to reflect them in the design. In the project, opinions were heard from some doctors who are INR officials in the basic

design and detailed design stages. However, because the therapists in charge of treatment didn't have a chance to express opinions on the draft design, some of the treatment facilities were not designed appropriately. Therefore, in the case of complex facilities such as a specialist hospital, it is necessary to secure enough design period to fully hear the opinions of users.