

Country Name	<b>The Project for Improvement of Equipment in the National Hospital for Obstetrics and Gynecology</b>
Socialist Republic of Viet Nam	

**I. Project Outline**

Background	The National Hospital for Obstetrics and Gynecology (NHOG) is positioned as the top referral hospital in obstetrics and gynecology in Viet Nam, and strives to live up with its role by providing prenatal diagnosis, fertility treatment, and other advanced medicine. NHOG performed approximately 6,000 gynecological surgeries and more than 15,000 high risk deliveries including Caesarean sections, and had at least 2,000 premature births every year as well as dealt with approximately 4,000 low-risk deliveries annually. Patients' demand was on the constant rise having reached 193,356 tests and 164,287 treatments in 2008, and bed-sharing among 2-3 patients were observed in many inpatient wards. The size of NHOG's facilities such as delivery rooms, operation theatres and beds had almost come to saturation. Furthermore, many equipment pieces including delivery tables and delivery monitors were introduced in the 1990s and the superannuated facilities and equipment hampered appropriate medical services. In the meantime, NHOG assumes a significant role in improving the technical level of gynecological examinations in Viet Nam through provision of education and training to provincial hospitals that are positioned at lower levels in the referral system. However, it had not been successful in bringing sufficient effects as it possessed only one delivery simulator as training equipment.				
Objectives of the Project	To upgrade examination functions as well as education and training functions of NHOG as the top referral hospital for obstetrics and gynecology in Viet Nam by procurement of advanced types of medical equipment for obstetrics and gynecology as well as education and training equipment, thereby contributing to capacity development of lower-level hospitals in Hanoi City and its suburbs as well as enhancement of the referral system of obstetrics and gynecology.				
Outputs of the Project	<ol style="list-style-type: none"> <li>1. Project site: National Hospital for Obstetrics and Gynecology, Hanoi city</li> <li>2. Japanese side: Procurement of advanced types of medical equipment for obstetrics and gynecology (staining machine, hematology analyzer, ELISA system, cryotome, ventilator, anesthesia machine, X-ray unit, ambulance, etc.) as well as education and training equipment (midwifery simulator, etc) (109 items in total)</li> <li>3. Vietnamese side: Construction of new B/C buildings, Three-phase power supply works in the existing facilities (radiological equipment, mortuary refrigerators, sterilizers), Removal of existing fixed equipment, Removal of existing walls and construction of new walls.</li> </ol>				
Ex-Ante Evaluation	2009	E/N Date	5 February 2010	Completion Date	22 July 2011
Project Cost	E/N Grant Limit: 461 million yen, Actual Grant Amount: 459 million yen				
Implementing Agency	National Hospital for Obstetrics and Gynecology (NHOG), Ministry of Health				
Contracted Agencies	Consultant: International Total Engineering Corporation, Contractor: Mitsubishi Corporation				

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with development policy of Viet Nam at the time of Ex-ante Evaluation and Ex-post Evaluation&gt;</p> <p>The project has been consistent with the 5-year health sector development plan (2006-2010) (2011-2015) both at the time of ex-ante evaluation and ex-post evaluation, which serves as a basic guidance for development of the health sector and places "decrease in the mortality ratio of mother and infant" as one of the priority tasks.</p> <p>&lt;Consistency with development needs of Viet Nam at the time of Ex-ante Evaluation and Ex-post Evaluation&gt;</p> <p>The project has been also consistent with NHOG's development needs for providing sufficient medical services with its advanced facilities and equipment as the hospital positioned at the top of the referral system and allocating sufficient time to hands-on training in education and training sessions for lower-level hospitals.</p> <p>&lt;Consistency with Japan's ODA policy at the time of Ex-ante Evaluation&gt;</p> <p>The project was consistent with the Country Assistance Policy for Viet Nam (2009) which placed the "social and living-standard improvements and rectifying disparities" as one of the priority areas and the "improvements of basic social services" as one of the development issues.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of this project is high.</p>
2 Effectiveness/Impact
<p>&lt;Effectiveness&gt;</p> <p>The project has largely achieved its objective. As indicators of quantitative effects, the number of deliveries, gynecological operations and mammography tests at NHOG per year at the target year of 2014 were considerably increased. While the number of normal deliveries was slightly decreased, which means that low risk cases such as normal deliveries has been referred from NHOG to lower-level hospitals. Days spent on obtaining test results at NHOG have been also decreased. While the number of training courses on emergency delivery care/service per year was not increased in both training conducted at NHOG and local hospitals, NHOG has conducted many other training courses with use of education and training equipment provided by the project. According to an interview with NHOG, during the early 2000s, the obstetric emergency including emergency delivery care/service was one of the most priority training by NHOG towards provincial hospitals so that a lot of training on obstetric emergency were provided to provinces, resulting in the improvement of maternal mortality ratio (69/100,000 live birth). However, in late years the essential neonatal care has been highlighted by the Ministry of Health as</p>

a top issue and NHOG is now concentrating on supporting the care for provinces. In 2014, 3 training courses on neonatal ICU, breast feeding and new born babies care with 243 trainees were carried out.

According to the survey conducted by the Nursing Department of NHOG, patients are satisfied with the hospital services. NHOG is recognized as a top leading hospital specialized in obstetrics and gynecology by patients and got trust from people. However, there are still some claims on long waiting time and insufficient infrastructure due to overloaded situations (bed occupancy ratio is 170%).

#### <Impact>

According to the interview with NHOG, the referral system of NHOG and lower-level hospitals has functioned properly and NHOG has received referred patients from all lower-level hospitals in Hanoi City and Northern Region in terms of obstetrics and gynecology. The technical level of medical staff of the lower-level hospitals has improved since NHOG often provides technical training to them through the Ministry's program, satellite projects and World Bank funded project on improvement for health professional. Although any statistical data which indicate the improvement of lower-level hospitals were not obtained at the ex-post evaluation, according to NHOG it is estimated that referred cases from the lower-level hospitals have been decreased by about 30% as a result of the training and technical transfer to them. In addition, as another example of impact, there are increasing needs on endoscopic surgery and IVF not only from provinces but also from neighboring countries such as Cambodia, Malaysia, Indonesia and Philippines in past few years and NHOG provided 5 courses with 34 trainees in 2013 and 4 courses with 17 trainees in 2014 to these countries. On the other hand, no negative impact on natural environment has been observed and no land acquisition occurred under this project.

#### <Evaluation Result>

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

#### <Quantitative Effects>

Indicators		2008 (Before the project) Actual value	2014 Target value	2011 Actual value	2012 Actual value	2013 Actual value	2014 Actual value
Indicator 1: Number of deliveries at NHOG per year	Normal deliveries	4,385	-	4,625	6,019	4,451	4,380
	Deliveries by vacuum extraction and forceps	6,150	-	16,447	18,850	16,561	16,638
	Total	10,535	Increase	21,072	24,869	21,012	21,018
Indicator 2: Number of gynecological operations at NHOG per year		6,277	Increase	8,497	8,315	10,667	9,442
Indicator 3: Number of mammography tests at NHOG per year		0	Increase	-	-	1,672	3,270
Indicator 4: Days spent on obtaining test results (PCR, ELISA) <sup>Note</sup> at NHOG		10 days	Decrease	2-4 days	2-4 days	2-4 days	2-4 days
Indicator 5: Number of training courses on emergency delivery care/service per year	Training conducted at NHOG	4	Increase	0	2	0	1
	Training conducted at local hospitals by NHOG	12	Increase	8	8	11	8

Source: JICA internal documents, questionnaires/interviews with NHOG

Note: Popular methods of blood test in obstetrics. PCR detects virus and bacterial infection, and ELISA detects antibodies and antigens.

#### 3 Efficiency

While the project cost was within the plan (ratio against the plan: 100%), the project period exceeded the plan (ratio against the plan: 118%) since it took longer time than expected in the preparation of tender documents and manufacturing equipment. The project output, most of provided equipment, is in frequent use than planned. It was planned that part of equipment should have been installed in the new B/C buildings to be constructed by the Vietnamese side, which is behind the original schedule due to a lack of budget and the equipment concerned was installed in the existing buildings. The B/C buildings are expected to be completed by June 2016 and the equipment will be installed accordingly. Therefore, efficiency of this project is fair.

#### 4 Sustainability

##### <Institutional Aspect>

The organizational structure of NHOG has sustained what was considered desirable at the time of ex-ante evaluation with appropriate number of staff being allocated. For example, the Facility-Medical Equipment Department in charge of regular maintenance and small and simple repairs of equipment consists of 13 staff including 4 engineers and 2 technicians, and which is enough. The Training-DOHA (Direction Office of Healthcare Activities) Center in charge of education and training has 42 staff as well as 90 visiting lecturers coming from different clinical departments and the current staffing resource is capable of managing and conducting training to lower-level hospitals. The current total number of permanent staff of NHOG is 786 including 106 doctors, 192 nurses, 211 midwives, 75 technicians and 202 others and with existing personnel, there is no problem in institutional aspect of NHOG.

##### <Technical Aspect>

The Facility-Medical Equipment Department of NHOG is responsible for regular maintenance and simple repairs only and for advanced equipment, NHOG signed a maintenance contract with manufacture's agents. The Operation Manual and Maintenance Manual provided by the project have been still used by relevant staff of NHOG and there has been no technical problem in operating and maintaining the equipment provided. The medical staff including doctors, nurses, and laboratory technicians of NHOG also have proper skills and knowledge to operate the equipment since it is regulated that all newly recruited doctors, nurses and midwives have to attend a training on equipment usage prior to their start of working at the hospital.

##### <Financial Aspect>

The total revenue of NHOG has been increasing every year, with 287.0 billion VND (Approximately 1,435 million JPY) in 2010 to

780.4 billion VND (Approximately 3,902 million JPY) in 2014 and 827.9 billion VND (Approximately 4,140 million JPY) in 2015. With this sufficient revenue, the expenditure for both routine repairs and large repairs have been secured by NHOG and there is no financial problem in maintaining the equipment provided.

<Current Status of O&M>

The Facility-Medical Equipment Department keeps maintenance manuals of each type of equipment and the department staff performs simple repair, inspection and parts replacement of test devices, radiological equipment and surgical apparatus based on these documents. In case where repairing requires more technical knowledge, they request repair service of the reference manufacturer or distributor based on the maintenance contracts. NHOG has the annual procurement plan and procures the necessary materials and consumables based on the approved schedule by the Board of Directors. In addition, in case of emergency, the hospital follows the government regulation on procurement. While most of procured equipment has been still in good condition and fully utilized for examination and treatment activities as well as hospital training, a few items out of the 109 have not been used, although which is not so serious issue for NHOG: 1) automatic staining machine is time consuming before the result is confirmed and the staff makes it manually (by hand); 2) ELISA system runs out of consumable chemicals; and 3) ventilator for newborn is not suitable since the specification targets babies with heavier weight than average immature babies in NHOG. In order to utilize these machines effectively, they transferred 3 sets of the ventilator to the Obstetrics and Pediatrics Hospital of Bac Ninh Province and 2 sets to the General Hospital of Ha Tinh Province with an approval of the Ministry of Health.

<Evaluation Result>

In light of the above, there is a minor problem in the current status of operation and maintenance so that the sustainability of the project is fair.

5 Summary of the Evaluation

The project has largely achieved its objective, “to upgrade examination functions as well as education and training functions of NHOG as the top referral hospital for obstetrics and gynecology in Viet Nam by procurement of advanced types of medical equipment for obstetrics and gynecology as well as education and training equipment.” Most of provided equipment has been fully utilized for examination, treatment and training, which has produced some effects such as significantly increased number of deliveries at NHOG. It has also contributed to capacity development of lower-level hospitals in Hanoi City and its suburbs as well as enhancement of the referral system of obstetrics and gynecology. In terms of sustainability, NHOG has no problem in the institutional, technical and financial aspect expect for a minor problem in the current status of operation and maintenance. In terms of efficiency, while the project cost was within the plan, the project period exceeded the plan since it took longer time than expected in the preparation of tender documents and manufacturing equipment.

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

### III. Recommendations & Lessons Learned

<Recommendations to Implementing Agency>

1. In general, provision of equipment to NHOG was appropriate and helpful to enhance the clinical operation of the hospital as well as training capacity to lower-level hospitals in the Northern Region. Most of provided equipment is in good condition and in frequent use. However, the hospital does not have a good system of collecting statistic data on its activities as well as referral data, causing difficulty in concluding a judgment especially on the project impact. A system of obtaining statistic data (e.g. records of equipment operation and referral patients from provinces) by utilizing IT is highly recommended because analysis from collected data will help NHOG in improving the operation of referral system and training for provincial staff.
2. While NHOG is receiving a huge number of patients as the top referral hospital in obstetrics and gynecology in the Northern Region, the capacities of its existing facilities and infrastructure are limited, so the completion of B/C buildings still being constructed should be accelerated without any delay.

<Lessons learned for JICA>

Some equipment items provided by the project seem not to be suitable for the hospital needs (e.g. ambulance was a bit small, the speed of staining machine was slower than required by hospital's workload, newborn ventilator targeted babies with heavier weight than average immature babies in NHOG). Considering the speed of technological innovation of medical technique, sufficient discussion among consultant, JICA and NHOG on specification of proposed equipment at the stages of preparatory survey as well as detailed design study should be carried out in a timely manner.



Mammography



Infant incubator in neonatal ICU