

Country Name	The Project for Improvement of Medical Equipment for Main Hospitals
Montenegro	

## I. Project Outline

Project Cost	E/N Grant Limit:441 million yen:	Contract Amount: 329 million yen
E/N Date	December, 2006	
Completion Date	December, 2007	
Implementing Agency	Clinical Center of Montenegro in Podgorica ( the “Clinical Center”), General Hospital Niksic and General Hospital Kotor	
Related Studies	Basic Design Study: March, 2006 – September, 2006	
Contracted Agencies	Consultant	ICONS, Inc.
	Contractor	-
	Supplier	Mitsubishi Corporation
Related Projects	-	
Background	<p>In 2005, the Montenegro Ministry of Health in its master plan for national health policy “Development of the Health Care System in Montenegro for the period 2005-2010” listed the main aims including: i) to provide equal access to health care, ii) to increase the efficiency and quality of health care and iii) to improve organizational structure and management of the health care system. In order to fulfill these policies there was a concrete action plan of strengthening the referral system and improving the functioning of hospitals.</p> <p>However, with the dissolution of former Yugoslavia, the imposition of international sanctions, and the resulting deterioration in the economy and finances of the former state of Serbia and Montenegro, the budget for medical health services had been curtailed. This meant that since the 1990’s the facilities and equipment in each tier of medical establishments had in large part not been renewed, and so both the quality and volume of medical health services had markedly decreased. In addition, the poor function of the referral system had become a major problem.</p>	
	<p>Outcome</p> <p>To improve the quality of medical health service in the Clinical Center of Montenegro in Podgorica (the “Clinical Center”, the sole tertiary healthcare facility in the country), General Hospital Niksic and General Hospital Kotor (the secondary healthcare facilities) by procuring medical equipment such as CT scanner, X-ray unit, color doppler and others.</p>	
Project Objectives	<p>Outputs</p> <p>Japanese Side</p> <ul style="list-style-type: none"> <li>• Procuring 40 items of equipment (91 pieces) such as spiral CT scanner, general X-ray unit, color doppler, mammograph unit and others for the Clinical Center.</li> <li>• Procuring 40 items of equipment (96 pieces) such as mobile C-arm X-ray unit, color doppler and others for General Hospital Niksic.</li> <li>• Procuring 36 items of equipment (60 pieces) such as general X-ray unit, color doppler, Electro Cardio Graph (ECG), electrosurgical unit and others for General Hospital Kotor.</li> </ul> <p>Montenegrin side</p> <ul style="list-style-type: none"> <li>• Removing existing equipment such as units for diagnosis and operation in all target hospitals</li> </ul>	

## II. Result of the Evaluation

Summary of the Evaluation
<p>With the dissolution of former Yugoslavia, the imposition of international sanctions and the resulting deterioration in the economy and finances, the budget for medical health services in Montenegro had been curtailed and as a result, the quality of medical services had decreased. Especially, with the budget constraint the facilities and equipment in each tier of medical establishments had in large part not been renewed, and so both the quality and volume of medical health services had markedly deteriorated. In addition, the poor function of the referral system had become a major problem. Thus, renewing the medical equipment and strengthening the referral system were urgently needed to protect the health of the citizens.</p> <p>This project has largely achieved its objectives of improving quality of medical health services at the Clinical Center (a sole tertiary medical facility), General Hospital Niksic and General Hospital Kotor (secondary medical facilities) by the procurement of medical equipment. After the project completion, they are able to offer a wider range of medical services. In terms of the anticipated effects, the number of outpatients, operations and diagnoses has increased. In addition, the number of outpatients sent outside the country has decreased as expected. As to impact, according to General Hospital Niksic and General Hospital Kotor as well as the Ministry of Health, the referral system has improved as the occurrence frequency to refer patients to the Clinical Center, a tertiary medical facility, has decreased, although detailed information was not obtained with respect to strengthening of the referral system.</p> <p>As for sustainability, some problems have been observed in terms of financial aspect and the current status of operation and maintenance. Financially, no sufficient maintenance budget is secured. Most of the equipment operates well, however, some of the equipment does not operate because consumables have not been supplied.</p> <p>For relevance, the project has been highly relevant with Montenegro’s development policy, development needs as well as Japan’s ODA policy at the time of both ex-ante and ex-post evaluation. For efficiency, both the project cost and the</p>

project period were within the plan.

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

### 1 Relevance

This project has been highly relevant with Montenegro's development policy "Improving efficiency and quality of medical health service as set in Montenegro Healthcare System 2005-2010 and 2010-2013", development needs "Providing adequate secondary and tertiary medical services and improvement of referral system by renovating aged facilities and procuring equipment", as well as Japan's ODA policy "Improvement of medical and educational services as set in JICA Country Assistance Program" at the time of both ex-ante and ex-post evaluation.

Therefore, relevance of this project is high.

### 2 Effectiveness/Impact

This project has largely achieved its objectives of improving quality of medical health services at the target hospitals by the procurement of medical equipment. After the project completion, they are able to offer a wider range of medical services. In terms of the anticipated effect, the number of outpatients, operations, diagnoses by CT scanners/X-ray units and ultrasound diagnoses has increased compared with situation before the project implementation, though the actual numbers vary year by year. In addition, the number of outpatients sent outside the country has decreased as expected.

The medical equipment procured for the three target hospitals is utilized well. The increase of ultrasound diagnosis at General Hospital Niksic and General Hospital Kotor as a result of the procurement of new equipment is remarkable and therefore, the medical services there have been strengthened. The equipment procured by the project also plays a major role at the Clinical Center, although the minor equipment also have been procured by themselves and by other donors. However, General Hospital Niksic has some equipment which is not operational because they are not able to purchase consumable goods. Therefore, sometimes General Hospital Niksic cannot respond to the patients with critical conditions and sometimes they respond to the patients with the equipment which are not fully functional (Color dopplers).

As to impact, national health indicators have improved after the project such as infant mortality rate (40% decrease), perinatal mortality rate (35% decrease). This project contributed to this improvement, since this project has improved the medical services by procuring major new equipment at three medical facilities (including the Clinical Center, a sole tertiary medical facility in the country) which cover the 66% of the total population. According to the interview with the implementing agencies, the referral system has improved since they are able to carry out their original functions, although no data was obtained. General Hospital Niksic and General Hospital Kotor as well as the Ministry of Health said that they are now able to provide a wider range of services thanks to the additional equipment provided by the project, and therefore the number of patients referred to the Clinical Center, a tertiary medical facility, has decreased.

Therefore, effectiveness/impact of this project is high.

### Quantitative Effect

	2005 Actual (BD )	2010 Planned	2010 Actual	2011 Actual
Indicator 1 : The number of outpatients (per year) ①The Clinical Center ②General Hospital Niksic ③General Hospital Kotor	①352,540 ②42,631 ③19,625	Increase	①386,860 ②66,712 ③31,814	①419,513 ②66,833 ③3 ,578
Indicator 2 : The number of surgical operations (per year) ①The Clinical Center ②General Hospital Niksic ③General Hospital Kotor	①9,820 ②1,300 ③1,325	Increase	①10,311 ②1,743 ③1,410	①10,764 ②1,678 ③1,309
Indicator 3 : The number of diagnoses by CT scanners at Clinical Center (per year)	18,767	Increase	22,098	24,765
Indicator 4 : The number of diagnoses by using X-ray units (per year) ①The Clinical Center ②General Hospital Niksic ③General Hospital Kotor	①46,404 ②12,757 ③2,502	Increase	①59,391 ②13,676 ③4,149	①50,851 ②12,329 ③4,123
Indicator 5 : The number of ultrasound diagnoses (per year) ①The Clinical Center ②General Hospital Niksic ③General Hospital Kotor	①34,721 ②477 ③4,146	Increase	①24,914 ②7,930 ③5,739	①27,119 ②8,052 ③6,364
Indicator 6 : The number of patients sent outside the country (per year)	7,155	Decrease	6,455	NA

(Source) Clinical Center, General Hospital Niksic and General Hospital Kotor

### 3 Efficiency

The outputs of the project were produced as planned, and both the project cost and the project period were within the plan (ratio against the plan: 75%, 99%).

Therefore, efficiency of this project is high.

#### 4 Sustainability

The equipment provided by the project is maintained by the implementing agencies: the Clinical Center, General Hospital and General Kotor. This project has no problem in the institutional aspect as the number of staff in the implementing agencies have been increasing and the implementation structure is sustained what it was considered desirable at the time of ex-ante evaluation. General Hospital Niksic has institutional support from the Clinical Center: If General Hospital Niksic is not able to respond to the breakdown of the equipment, the Clinical Center sends technical staff to the General Hospital Niksic. However, it would be desirable to establish the regular inspection structure at the General Niksic since there are some cases that the broken equipment would have been fixed during the guaranteed period if the regular inspection had been carried out at the General Hospital Niksic. There is no problem on the technical aspect of the implementing agencies as the most of the staff who are trained for the operation and daily maintenance of equipment procured by the project have not resigned. Although staff at the implementing agencies have no technical expertise other than Clinical Center which has technical staff for equipment maintenance, those staff can operate and maintain the equipment well. On the financial aspect, the target hospitals have main financial source of medical treatment fee from Health Insurance Fund (“HIF”), but all of them often run a net loss. The loss is covered by HIF, but the balance of HIF is not stable either. Besides, expenditure for maintenance is not secured since the personnel expenses and expenses for the drug purchase are prioritized. In case of General Hospital Niksic, some of the equipment is covered by medical equipment insurance.

The equipment at the target hospitals operates well since daily operation and maintenance is carried out properly and the equipment are repaired by the agents of manufactures when a large repair is necessary. In spite of the hospitals' own efforts, there are still rooms for improvement. Some equipment does not operate because of the shortage of consumables (anesthesia units and anesthesia units with monitors<sup>1</sup> at the Clinical Center, syringe infusion pumps and blood gas analyzers at General Hospital Niksic) and others are left unfixed because they require high repair expense (color dopplers at the General Hospital Niksic).

As there are problems in financial aspects and current status of operation and maintenance, sustainability of this project is fair.

### III. Recommendations & Lessons Learned

#### Recommendations for implementing agency

1. The hospitals where there is no technical staff for equipment maintenance need not only the support for the repair but also support for regular inspections. The Ministry of Health should coordinate such regular inspection by the Clinical Center or other institutions.
2. The implementing agencies should secure the maintenance expenses. At the same time, they could hold the medical equipment insurance policy like General Hospital Niksic.
3. The implementing agencies should have all the equipment operate by purchasing consumables and replacing the connecting plug.



An infant warmer at the Clinical Center



A mammography unit at General Hospital Niksic

<sup>1</sup> The Clinical Center tried to connect the anesthesia units with monitors to medical gas piping, instead of anesthesia cylinder, after the delivery by the project, but failed due to lack of the expense. Anesthesia cylinder also has not been purchased. As a result, the anesthesia units have remained inactive.