

**TERMS of REFERENCE**  
**International consultant to improve medical equipment maintenance system**  
**item 2.3.2 from AF-SSHP PP**

**Background**

The Republic of Serbia has received a loan from the International Bank for Reconstruction and Development (IBRD) in the amount of EUR 29.1 million equivalent toward the cost of the *Second Serbia Health Project (SSHP)*, Loan No. 8338-YF and EUR 25 million equivalent toward the cost of the *Additional Financing for the Second Serbia Health Project (AF-SSHP)*, Loan No. 8830-YF.

The Project Development Objective (PDO) is to contribute to improving the efficiency and quality of the public health system through the strengthening of: (i) health financing, purchasing, and maintenance systems; (ii) quality improvement systems and management of selected priority non-communicable diseases.

The project includes four components with sub-components:

- 1: Improvement of Health Financing
  - 1.1 Support Hospital Financing Reforms
  - 1.2 Strengthen Primary Health Care Financing
- 2: Improve Access to Quality Health Care
  - 2.1. Improve Access to Medicines
  - 2.2. Strengthen Health Technology Assessment Capacity
  - 2.3. Improve Medical Equipment Maintenance Systems
- 3: Strengthening Quality of Service Delivery
  - 3.1. Strengthen Quality Improvement Systems
  - 3.2. Improve Cancer Management
- 4: Monitoring, Evaluation, and Project Management - this component will support project management, monitoring and evaluation, as well as audits of the project's financial statements. It will also finance the project's operating costs, including translation, interpretation, equipment, supervision costs and PCU staffing costs.

Within the component 2, subcomponent 2.3. Improve Medical Equipment Maintenance Systems, one of the main Project goals is a strategic approach to maintenance of medical equipment, aimed at developing a cost-effective system, which represents one of the priorities for the delivery of good quality health services in Serbia. The total replacement value of the equipment installed in Serbian health facilities is estimated at about US\$800–900 million. An internationally accepted figure for the annual cost of a good maintenance program is 6–8 percent of the equipment capital value, which would correspond to an expenditure of US\$56–63 million per year – much higher than the budget currently allocated for maintenance. This explains in part the large number of unrepaired devices in hospitals. Hospitals also encounter difficulties procuring spare parts for high-tech equipment, contributing to equipment “downtimes” of several months. Despite fiscal constraints, the problem cannot be ignored, as it reduces patient access to lifesaving technology and contributes to a progressive depletion of the medical technology assets in the national health system.

Recognizing the importance of maintaining medical equipment, and in line with the World Bank's recommendations, the Ministry of Health (MoH) has planned two positions of Advisor for Monitoring the Equipping of Health Institutions and Capital Investments in Health Institutions within its unit called *Human Resources Development, Equipping and Capital Investment in Health Institutions Group* in the Sector for the Organization of the Health Service.

### **Main tasks and responsibilities**

- To analyze and evaluate the existing processes within *Human Resources Development, Equipping and Capital Investment in Health Institutions Group* of the MoH.
- To establish a comprehensive medical/clinical equipment management and maintenance system within the national health system, as well as to develop the maintenance strategy, systematize the installed medical devices documentation (database), provide description of equipment maintenance personnel qualifications and carry out analysis and evaluation of the existing service and maintenance contracts.

The International Consultant will be responsible *inter alia* for the following activities, in cooperation and team work with National Consultant:

- Review the existing MoH's medical equipment inventory, including equipment spatial arrangements within the health facilities;
- Propose a methodology for medical equipment coding and for inventory management based on international experiences in this field;
- Cooperate with the *Human Resources Development, Equipping and Capital Investment in Health Institutions Group* of the MoH, and provide support and advice regarding the medical equipment maintenance:
  - Assessment of the existing equipment (corrective and preventive maintenance of medical equipment)
  - Establishment of Equipment Registry;
- Propose set of standard maintenance procedures in consultation with the *Human Resources Development, Equipping and Capital Investment in Health Institutions Group* of the MoH:
  - Quality Assurance,
  - Quality Control,
  - Quality Management System (ISO, EFQM, JCI, etc.);
- Develop recommendations for improvements of medical equipment maintenance management system:
  - Preventive Maintenance (periodic adjustment, inspection and replacement of worn-out parts of mechanical or other types of equipment to ensure their operability),
  - Corrective Maintenance (unexpected breakdowns of assets or equipment),
  - Spare Parts Management and Procurement,
  - Calibration of medical equipment,
  - Safety Control Program;
- Assist in setting up of in-house medical equipment maintenance services:
  - User, Operations and Maintenance Manuals;

- Provide technical assistance for the implementation (in pilot health facilities to be identified in consultation with the MoH) of an integrated maintenance system which includes both engagement of in-house technicians and outsourcing of maintenance services and consists of the following activities:
  - complete inventory of medical devices;
  - preliminary assessment of equipment status, level of use, maintenance costs;
  - identification of ToRs for in-house technicians (first-tier maintenance);
  - development of bidding documents for the selection of a multi-vendor maintenance services supplier;
  - identification of performance indicators for the monitoring of results.
- Propose *Performance Monitoring System* to ensure that corrective and preventive measures undertaken are effective and sustainable.

It is essential that all steps during the whole process are discussed and agreed with MoH and PCU staff.

### **Requirements**

- University degree in biomedical engineering or similar field;
- At least 10 years of professional experience in medical equipment management, including commissioning large-scale maintenance network of medical equipment;
- Comprehensive experience of Medical Equipment Maintenance cost estimation;
- Computer literate;
- Good command of English, including oral and written reporting abilities;
- Knowledge of Serbian language would be an asset.

### **Reporting requirements**

The Consultant is obliged to report to the PCU Coordinator and MoH officials as required.

Minimum reports to be prepared:

- Inception report with a schedule of activities related to the tasks described in the Scope of Work, including (i) time-frame for it, and (ii) clear outputs/outcomes/results of said activities, all agreed with the MoH/PCU;
- Monthly Reports – the Consultant shall prepare the monthly reports describing tasks performed. This report will form a basis for payment and should be submitted at the end of each month;
- Ad hoc reports as requested by the Component 2 Coordinator, PCU Coordinator and/or MoH.

All reports should be submitted in English and/or Serbian language, as needed.

### **Duration of the assignment**

The Consultant shall be engaged for up to 60 days in the period of one year from the beginning of the assignment. Duration of the assignment may be subject to extension depending on project needs.