

REPUBLIC OF MACEDONIA

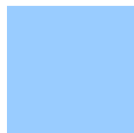
**Ministry of Health
Health Insurance Fund of
Macedonia**

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**HEALTH SECTOR REFORM PROJECT
Health Information System Component**

Final Report
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Table of contents

1	INTRODUCTION	4
2	PROJECT OBJECTIVES	4
3	PROJECT LINKS	6
4	PROJECT IMPLEMENTATION.....	7
4.1	THE PROJECT INFRASTRUCTURE AND THE TEAM	7
4.2	THE PROJECT TIMETABLE	7
4.3	THE PROJECT METHODOLOGY AND WORKING PROCEDURES	8
4.4	THE STATUS OF IMPLEMENTATION	9
5	LIST OF ANNEXES.....	11

1 INTRODUCTION

This final report has been prepared as part of the preparatory work for the Health Sector Reform Project (HSRP) in Macedonia, which is being supported by the World Bank.

Three key areas to be addressed in the context of Health Information Systems were identified in the Terms of Reference (ToR) for this Project:

1. **A quick audit of existing information system of the Health Insurance Fund and a “Reality Check” Needs Assessment Study of Planned HIF System Development**
2. **A Quick Audit of the current Hospital Information System and design of the Minimal Information System package addressed to the support of the current legislation for contracting and financing the Hospitals**
3. **A Quick Audit of the current system of registries in the health sector and Feasibility study for improvement of the present and establishment of new registries in accordance to the current and changing legislation in the health care system**

The implementation of the Project started on the spot on February 9th, 2004 with deadline on March 31st, 2004 and consisted of two joint missions of international experts. The Project has been monitored and reported intensively during its implementation. First mission was followed by the Inception and mid-term report and second mission was followed by this final report and its annexes. All outputs were discussed with stakeholders in their draft form and were presented in a consolidated form at the workshop held on March 24th, 2004 in Skopje. Comments and amendments raised during the workshop have been incorporated into the final documents of the Project. Preliminary cost estimations were provided to the Project Preparation Unit at beginning of the second mission to provide support for decision processes about loan provision by the World Bank.

. This final report is intended to be only a formalized description of implementation of the project and its status. The detailed technical description of our findings and recommendations accompanied by appropriate argumentation and justification can be found in our Summary Technical Report (see annex 3) that contains an Executive Summary as well.

2 PROJECT OBJECTIVES

The ToR sets quite clear and consistent objectives for all three components of the project.

The narrow objectives for the first component of project are according the ToR the following:

- **to gain an in-depth, realistic understanding of the current information technology / information system situation of the Health Insurance Fund**
- **to assess/measure the absorption and sustaining capacity of HIF concerning further development of its information system.**

The ToR describes required outputs and its contents can be briefly summarized as follows:

Information system audit that reviews organization of the ICT within the HIF, human resources of the ICT, ICT services that contracted by the HIF, existing hardware, software and telecommunications resources, legal status of software, ICT specific budgets and ongoing development projects and its resources

Assessment modelling study should describe the functional areas that should be covered by complete information system of the HIF and based on that assessment of the yearly operational budget, the amount of possible ICT investment, the possible procurement structure and financial analysis should be delivered.

The ToR states the objectives of the assignment for the second component of the project as follows:

- **to gain an in-depth, realistic understanding of the current information technology / information system situation of hospitals in Macedonia**
- **to suggest a minimal information system development package supporting the hospital management in Macedonia to fit the requirements of the current legislation for Hospital contracting and financing**

Further the ToR provides as detailed description of the output and the expected deliverables summarized as follows:

Hospital information system audit: including inventory tables of all ICT tools (hw, sw, networks), all ICT related staff, all ICT related contracts in the investigated hospitals.

Functional analysis and based on it **an enterprise level information system plan**, including: formal models of horizontal (mostly patient related) and vertical (mostly operations related) information flow and the determined indicator set and the enterprise level information system development plan packages.

Although, the scope of the assignment is broader the consultant understand that the pivotal focus should be to define a minimum information system packaged that would facilitate hospitals' contract negotiation, monitoring and implementation beside of providing a system that would provide for the introduction of efficient business processes and support evidence based decision making and planning.

Relating to the third component the TOR sets the following narrow objectives:

- **to elaborate a survey to assess the status of the existing traditional and electronic basic registries**
- **to elaborate a study that will analyze and suggest a comprehensive set of needed basic registries, including existing and missing ones, the need for such basic registries, check the existing ones and define the missing registries, using relevant international standards for formalizing the results**
- **to elaborate a feasibility study of a common shared electronic registry using the outputs of the previous two tasks, describing the possible models of how to set-up a system that will maintain the needed electronic registries,**

The expected outputs for the third component are according the TOR as follows:

Basic registry survey contains for all legally bound registries data on identification, responsibility to maintain, informational contents, used hardware and software platforms, validity of data, frequency of updating, legal framework, authorization to update and amount of data.

Planning comprehensive set of registers should identify beside the existing ones basic registers that will be needed for planned health reform.

Feasibility study elaborates development plan for proposed comprehensive set of registers, describe alternative models of organisation to operate the set of registers, asses needed human, technical and organizational sources, yearly operational budget and amount of necessary investment, checks the reality/feasibility of current development plan and provides financial analysis of implementation process.

3 PROJECT LINKS

The Health Information System component has links with other components of the HSRP, as well as with other parallel projects operating in the health and public sectors, e.g. the Social Protection Implementation Loan (SPIL), the Public Sector Management Adjustment Loan (PSMAL) and DfID's Public Administration Reform Program. These links were taken into account in preparing proposals and outputs for Health Information System component, so that future actions could be coordinated and where appropriate, integrated and by adequate information system supported.

Most effort was spent in relation to the components of the HSRP. More detailed description of these components and their impact on the Project can be found in annex 3.

4 PROJECT IMPLEMENTATION

4.1 The project infrastructure and the team

The Macedonian counterpart established a steering committee composed of representatives of major stakeholders touched by the project (Ministry of Health, Health Insurance Fund and Republic Institute of Public Health).

International part of the project team has been formed by:

Jiří Němec – project leader and responsible for the first component (the information system in the HIF)

Poul Thim – responsible for the second component (the hospital information systems)

Olivera Stojanovic – responsible for the third component (the registries)

Local part of the project team has been formed by following local experts:

Mr. Slavco Angelovski was predominantly engaged in the assessment of the information system of the HIF and in evaluating of proposed development options for future.

Mr. Zlatko Nojkov focused especially his activity on the assessment of the existing hardware and system software in the health institution.

Mr. Miroslav Trajanovski was a legal expert focusing his activity on legal assessment of our proposals in the area of basic registers.

Mr. Slobodan Micajkov was engaged also in the area of basic registers focusing on survey and analysis of existing ones and elaboration of options for future development.

The local experts were approved by the Macedonian counterpart.

Although the local experts acted predominantly in above mentioned areas they served also as common resources for all the project components in order to use their unique experience at maximum.

The program office headed by Ms. Makedonka Mateska at THIM Research & Consulting supported the whole team.

4.2 The project timetable

The duration of the Project was shortened to only two month. The Project began on February 9, 2004 and its deadline was set up to March 31, 2004. Each of the international experts undertook two missions scheduled in such a way that their common

presence in Macedonia was maximised. Detailed time plan was attached as an annex to the Inception Report and wasn't changed by the end of the Project.

4.3 The project methodology and working procedures

We proceeded according to the following six steps methodology:

Step 1-preparatory stage:

- We established the project infrastructure, clarified expectations to the Project, identified stakeholders and agreed on methodology with them.
- We set up detailed time plan for the implementation of the Project and handed it over to our stakeholders.
- We reviewed the legal and regulatory framework (foremost the by-law on health financing and the contract but also other laws and regulations).
- We selected pilot hospitals to be explored within the second component of the Project
- First contacts were made with relevant institutions for the Project, contact persons were appointed and quick fact findings were summarized.

Step 2-assessment of current ICT:

- We elaborated draft audit materials identifying in each relevant institution:
 - organization unit responsible for the ICT
 - human resources for the ICT
 - external delivering companies
 - specific budget for the ICT
 - basic ICT processes
 - architecture and inventory at levels:
 - hardware
 - system software
 - applications

Step 3-analysis of requirements:

- We reviewed plans for operational enhancements in institutions.
- We review their strategic plans.
- We identified weak points and gaps in current ICT.

- We formulated preliminary proposals for future development.

The first three steps were actually accomplished during the first mission in February 2004 and results were presented in our Inception and mid-term report.

Step 4-conceptual design:

- We elaborated a concept of an ideal or minimal portfolio of functional components in each of the three areas.
- We identified financial, technical, organizational and human resources impacts and we estimated costs of resources (both project/development and operational resources)
- We discussed and qualified the proposals with the stakeholders.

Step 5-implementation plan and cost estimation:

- We defined stages of implementation
- We identified resources for implementation phases

Step 6-finalization:

- We prepared staged cost estimations
- We finalized proposal, cost estimations, recommendations and we handed it over

The last three steps were done predominantly during second mission in March 2004 and following finalization phase.

4.4 The status of implementation

A review of all tasks that had to be accomplished according to the ToR of the Project is displayed in the following tables including date of delivery and reference to corresponding outputs.

Common tasks	Date	Status of implementation	Reference
Preparation and handover of the inception and midterm report	13.2.2004	Completed	Report handed over to the PPU
Preparation of workshop materials	21.3.2004	Completed	Materials were handed over to

			participants to the workshop in advance
Organization of the workshop and presentation of results	24.3.2004	Completed	Presentations in hard copy version were handed over to participants to the workshop on spot
Preparation and handover of the final report	1.4.2004	Completed	This document and its annexes including Summary Technical Report

Component: Health Insurance Fund Information Systems	Date	Status of implementation	Reference
Information system audit of the HIF	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)
Assessment modeling study	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)

Component: Hospital information systems	Date	Status of implementation	Reference
Hospital information system audit	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)
Functional analysis and enterprise level information system plan	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)

Component: Registries in the Health sector	Date	Status of implementation	Reference
Basic registries survey	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)

Planning comprehensive set of registers	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)
Feasibility study	1.4.2004	Completed	Part of Summary Technical Report (see annex 3)

5 LIST OF ANNEXES

- Annex 1 List of contacted persons (including list of workshop participants)
- Annex 2 List of used documents
- Annex 3 Summary Technical Report
- Annex 4 Detailed descriptions of links to other World Bank projects