

# **IHERP – Iraq Health Enterprise Planning: Information Technology for the MOH for the Year 2005 and Beyond...**

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## **Introduction**

A review of the Vision Statements of the Health Information Systems and Information Technology Working Group, and the defined Areas of Responsibilities and Tenets, supports the conclusion that individually, and in terms of the collective sense of the Vision Statements, a broader and more inclusive HIS framework is required to create an Information Technology (IT) environment for the MOH in the year 2005 and beyond. A vision for a holistic approach to the development of the management, financial and system framework required to transition the MOH IT platform from its present state to a fully functional level compatible with International Standards, was presented to the Working Group in a March 17, 2004 meeting at the MOH. The collective sense of the Group was that the concept was substantive and merited further study and consideration. In response to this finding, a subsequent meeting of the Working Group was scheduled for April 11, 2004, at which time the Consultant's Report would be reviewed. Dr. Khudar Abbas, Minister of Health, was briefed on March 21, 2004, and again when the Plan was presented to the MOH Directors General on March 22, 2004. A proposal for establishing an MOH Project to implement the Plan was prepared, and approved on 3/23/04. Project implementation has been initiated, with the Consultant's Report integral to the process.

## **An MOH Information Technology Infrastructure for the Year 2005 and Beyond**

The recent transition of MOH management and operation supports the requirement that current decisions affecting the structure, functionality and future viability of the MOH Information Technology platform, be predicated on setting the MOH on a systemic path towards achieving compatibility with International Standards, rather than following a piecemeal, "band-aid" approach. Specifically, the current donor approach of focusing on the development of one or another discrete system to support a component of the health system, should be augmented by an across-the-boards effort to develop an MOH capacity to manage, direct and execute IT projects on a sustainable basis.

## **The MOH IT Environment – Post-Transition**

The norm for emerging economies is a prevalence of Donor projects furthering the development and sustainability of key sectors. In this context, the assumption may be

made that the post-transition MOH will host a range of Donor IT projects, in addition to Ministry initiated efforts. The successful management, coordination and accounting for these projects is critical to achieving a successful outcome and sustainability. A management structure must be developed to address such issues as:

- Prioritization of projects
- Management of MOH projects
- Counterpart interface with Donor projects
- Contract management functionality
  - Preparation/issue of RFP's
  - Proposal review/selection/contract award
- Project funding and accounting

Conversely, without an institutionalized management and accounting structure, MOH IT system development will proceed on an ad hoc basis, the result of which will be redundancy, duplication and overlap, resulting in a significant loss of efficiency and development cost-effectiveness.

## **The Requirement**

Sustainable capacity building of the MOH IT infrastructure should initiate with development of an IT Infrastructure Development Plan including, but not limited to:

- An institutionalized IT management structure
- Position management and staffing
- Funding and accounting
- System requirements

Ongoing projects would continue, and be rolled up into the plan as infrastructure components.

This document presents administrative, legal, financial, and IT requirements as interleaved elements in a context that specifies the necessary actions and sequence to be followed in developing the Strategic Plan.

The Iraq Health Enterprise Resource Planning (IHERP) component of the Strategic Plan contains the macro-architecture for an IT infrastructure framework supporting the operation and integration of the Iraq public health system. Specifically, IHERP is a plan for implementing, from the IT perspective, the Vision developed by the Working Group, defining the universe of requirements for translating the Vision into an operational IT platform supporting a reformed and optimized Iraq health care system.

## **Iraq Health Enterprise Resource Planning (IHERP)**

The Iraq Health Enterprise Resource Planning system is a national health information technology derivative of the industry-based Enterprise Resource Planning (ERP)

standard for system integration. IHERP is a holistic approach to the development of an integrated information and program support system infrastructure to include:

- Planning, programming and budgeting for health care funding
- Health care expenditure accounting
- Pharmaceutical and medical supply:
  - Purchasing
  - Inventory control
  - Warehousing
  - Distribution
  - Accounting
- Hospital Information Systems:
  - Administrative
  - Admissions and Dispositions
  - Patient Record
  - Medication Distribution
  - Radiology Scheduling
  - Dietetics
- Health Information System
  - Morbidity
  - Mortality
  - Immunizations
- Surveillance System
  - Infectious Diseases
  - Communicable Diseases
- Monitoring, Reporting and Evaluation
  - Maternal and Child Health
  - Well Baby Care
  - Nutrition Programs
- Health Care Delivery
  - Databases
    - Licensing/Accreditation
    - Facilities (Secondary, Referral, PHC's)
    - Drug Code Compendium
    - Adverse Drug Reactions
    - Pharmacies
    - Special Programs
      - TB
      - HIV
      - STD

## **Benefits**

IHERP development and implementation, although on an order of complexity greater than that required for a discrete, fragmented system structure, offers significant benefits in terms of:

- Greater operational efficiency

- Elimination of redundancy and overlap
- More accurate and timely financial control
- Increase planning capability
- Improved management control

## **Implementation**

A phased, incremental approach to design, development and implementation of IHERP, with iterative feedback throughout the SDLC (System Development Life Cycle) is envisioned. HIS and Surveillance systems will be predicated on the Patient Record. Standards will be established to ensure compatibility at all system levels, including:

- Hardware
- Software
- Communications
- Functional Interface

## **Initial Prototype**

### **IHERP Development Methodology**

Introduction: Design, development and implementation of IHERP is predicated on the following assumptions.

- An institutionalized MOH Office of Systems Planning
- A staffing pattern including qualified systems and program specialists to serve as counterparts
- Budgeting and funding on a level to support development of a viable and sustainable System

The MOH IT development framework, as specified above, would provide the interface with a Project Team to implement IHERP.

## **Design/Development**

The IHERP Development/Implementation Plan is comprised of three phases:

- Phase I: Macro architecture for integrated IHERP system.
  - Interface/linkage specification.
- Phase II: Development of modules in accordance with CMM standards
- Phase III: Implementation

## **Phase I – Macro Architecture, IHERP**

The Project will initiate with a general definition and overview analysis of the health sector IT, management, organizational, and personnel requirement to provide the base for preparation of a Project Plan, Schedule and Resource Requirement for development of the required Infrastructure, and the individual System Modules. The Deliverable should include:

- Macro analysis of health sector requirement
  - Review of existing equipment, software, program system capacity.
  - Review of IT personnel capabilities, additional capacity and training required.
  - Review of organizational requirements
  - Review of program system requirement
    - Pharmaceuticals/Supplies
    - Health Information System
    - Hospital Information System
    - Surveillance System
    - Specialized Databases
  - Review of administrative system requirement
    - Financial information system
    - Human Resources
- New MOH IT Organizational Structure
  - Organization Charts
  - Mission and Functions Statements
  - Procedures and Forms
- IT Personnel Staffing Requirements
  - Position Management
    - IT Positions
    - Contract Management Positions
- IT Funds Management and Accounting
  - Capital (Project) Expenditure
    - Counterpart and Donor Funds Accounting
  - Recurring Expenditures
    - Payroll

## **Phase II – IHERP Module Requirements Definition/System Architecture**

Based on a prioritized schedule, the Project Team would design IHERP systems on a modular basis:

- Pharmaceuticals/Supplies
- Health Information
- Surveillance Information
- HIS
- Financial

- Human Resources
- Specialized Databases

### **Phase III - Development/Implementation (DI)**

Initiation of Phase III is contingent on MOH management review and approval of the content of the Requirements Analyses/System Architecture prepared in Phase II. The essentially “clean slate” Iraq health sector IT environment supports review and selection of off-the-shelf software packages, e.g., GE’s Centricity EMR (Electronic Medical Record). Conversely, the findings of the Requirements Analyses, coupled with a review of available packages, may support the requirement for a custom (bespoke) system design. Such determinations are critical to the success of the Project, and can only be made after careful review and analysis.

It is *critical* that development and implementation of IHERP modules be based on the system and information parameters and criteria specified in the Requirements Analyses. The success of off-the-shelf package implementation is contingent on the *adaptation* of the package to the host system requirements.

Hardware/software/environment (web-based/server) and network strategy will be based on the findings and conclusions of the Analyses conducted. Specifically, hardware/software/network selected will be designed to support the system and information architecture defined.

### **IHERP Development is scalable:**

- **Option 1:** MOH Requirements Analysis
  - Staffing: One to three professionals on a long term basis
  - Deliverable: IT Infrastructure Development Plan for Iraq Health Sector
- **Option 2:** MOH Requirements Analysis/Information and System Architecture
  - Staffing: Five professionals on a long term basis.
  - Deliverable: IHERP Requirements Study, Information/System Architecture
- **Option 3:** IHERP Requirements Analysis, Information/System Architecture, System Development/Implementation
  - Staffing: Ten professionals on a long term basis.
  - Deliverable: Operational IHERP Pilot

Detailed schedule and resource requirements will be based on initial problem definition and benchmark development, and will follow the SDLC (System Development Life Cycle) standard.

## **Current Status/Staffing/Capability Requirements**

Currently the Project Director is conducting a Study to assess requirements and determine staffing needs and development priorities. The Consultant is working closely with him in this area, and has proposed a range of options which are under consideration. Upon completion of the Review, staffing requirements and development priorities will be identified. Utilization of MOH personnel for key positions is a priority, and several individuals have been interviewed by the Consultant, and recommendations made to the Project Director.