Kingdom of Cambodia
Nation-Religion-King

Health Information System Strategic Plan 2008-2015

Better Health

Better Decision

Better Information

Department of Planning and Health Information

August 2008

Health Information System Strategic Plan 2008-2015

'Better Information Better Decision Better Health'

Ministry of Health

Department of Planning and Health Information

Supported by the Health Metrics Network

August 2008

FOREWORD 1

Good health statistics are a critical resource for evidence-based decision making, better planning, monitoring and evaluation resulting in improved health status of the population. Since the reform of the health system in 1995, the Ministry of Health has emphasized that the health information system is a powerful tool for national, provincial, and district managers to set priorities, and allocate resources (Ministry of Health, 1997). Therefore, increased and regular investment in the health information system is a critical need for a country like Cambodia, with a growing demand for quality health information. In recognition of this, global initiatives such as the Health Metrics Network (HMN) have been working towards strengthening the Health Information Systems (HIS) in all countries, especially the developing world.

We are presenting here the first HIS strategic plan ever produced in Cambodia which reflects the great efforts and solid cooperation among concerned health institutions (health departments, national programs, and provincial health departments), and health-related data producers, especially the National Institute of Statistics, Ministry of Planning, and the Department of General Administration, Ministry of Interior. This joint document provides an overview of the HIS vision, goals and strategies that respond to the findings and gaps of the six components of the HMN framework assessed in October 2006, and covers the expectations of the country for HIS improvements and reforms. It highlights the anticipated challenges, the broad policy recommendations and the resources to be mobilized, and sketches how the HIS can operate in the future. I believe that the HIS Strategic Plan will be used by national institutions involved in health and by external development partners as a guide for their activities and investments in the monitoring and evaluation of health sector performance.

I would like to acknowledge the Department of Planning and Health Information for taking the lead in the development of this strategy, as well as the great efforts and contributions of all members of the HIS stakeholder working group. I also would like to express my appreciation for the technical and financial support provided by the Health Metrics Network, and technical support from the WHO/WPRO.

8th August, 2008

Prof. ENG HUOT
Secretary of State for Health

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LIST OF ACRONYMS

ART: Anti-retroviral therapy
CDC: Communicable Disease Control
CDHS: Cambodia Demographic and Health Survey
CENAT: National Center for Tuberculosis and Leprosy Control
CIPS: Cambodia Inter-Censal Population Survey
CSES: Cambodia Socio-economic survey
CMDG: Cambodia Millennium Development Goals
CNM: National Center for Malaria
DPHI: Department of Planning and Health Information
DPT: Diphtheria Pertussis and Tetanus
EPI: Expanded Program on Immunization
GMS: Greater Mekong Sub-Region
IDU: Injection Drug Use
IMCI-CS: Integrated management of childhood illness-Child Survival
MCH: Maternal and Child Health
NCHADS: National Center for HIV/AIDS, Dermatology and Sexually Transmitted Diseases
NHIS: National Health Information System
HMIS: Health Management Information System
LLIN: Long lasting insecticide treated-net
NPRS: National Poverty Reduction Strategy
NSDP: National Strategic Development Plan 2006-2010
OPD: Out-patient department
OD: Operational district
PES: Post Enumeration Survey
PLHA: People living with HIV/AIDS
PMTCT: Prevention of Mother to Child Transmission
RACHA: Reproductive and Child Health Alliance
TB: Tuberculosis
TT: Tetanus Toxoid
URC: University Research Co., LLC

EXECUTIVE SUMMARY 3

The Health Information System Strategic Plan (HISSP), 2008-2015 is the first strategic plan for the health information system ever produced in Cambodia. It is based on a comprehensive assessment of the current health information system and the needs of a variety of users. The plan is a joint product of the HIS Stakeholders Working Group which comprises of relevant health institutions, the National Institute of Statistics of the Ministry of Planning, and the Department of General Administration of the Ministry of Interior, as well as health development partners representatives. The discussions on the strategy began in the latter half of 2006 and culminated in December, 2007. Funding and technical assistance for the formulation of the HISSP, including sector assessments, were provided through the Health Metrics Network and the WHO.

The vision of the HISSP is "availability of relevant, timely and high quality health and health-related information for evidence-based policy formulation, decision making, program implementation, and monitoring and evaluation so as to contribute toward the improved health status of the Cambodian people." There are 5 goals that seek to contribute to the realization of this vision of the HIS in Cambodia. These include to ensure high performance of the national HIS complying with international standards, and receiving recognition and support among policy makers and the public; to ensure evidence-based decision-making through monitoring and evaluation of health sector performance, and improved data generation and information dissemination with appropriate communication and technology; to enable availability of quality socio-demographic, economic, morbidity, mortality, and risk factor information and improved coordination of survey planning and implementation; to enhance the quality of patient medical records for improved case management and the quality, completeness and timeliness of surveillance data for efficient outbreak response and disease control; and to ensure effective and efficient health care and public health performance through comprehensive HIS coverage and improved database management on infrastructure, human resources and logistics.

The HISSP, 2008-2015 covers five main HIS components drawn from the HMN framework. These include: i) HIS policy and resources, ii) data management and use, iii) health and disease records including surveillance, iv) census, civil registration, and population based surveys, and v) health service administration and support systems. Under each of these components, the plan has listed specific objectives for a total of 12 in all. These range from increasing the availability of accurate and complete health data from public and private sources, improving the quality of health information, enhancing HIS commitment, coordination and resources, increasing data sharing, management, analysis, dissemination and use, increasing the availability and use of population and socio-demographic data down to local administrative levels, improving coverage and use of CR including causes of death, increasing availability of survey data, improving the public facility patient medical record system, improving the national disease surveillance system, strengthening case reporting, monitoring and response to non communicable

diseases, expanding the participation in the national HIS by the private sector, to expanding and improving data and databases on infrastructure, human resources, and logistics in the health sector. The plan also contains a detailed implementation plan that specifies the activities, immediate products, time frame, responsibilities, and the essential additional resources that will be required to implement each of the strategies.

There is clear recognition within the HISSP 2008-2015 that its successful implementation impinges on a series of assumptions and potential risks. First and foremost is the necessity for it to be fully endorsed by the central government with supporting policies, mandates and legislation. Second, it needs to be adequately funded and supported by government and the principal health development partners. Third, it is imperative that the wide array of organisations and stakeholders involved in the implementation of the plan maintain a sound network and adopt the necessary coordination mechanisms. Fourth, the plan needs to be widely communicated to, and understood by stakeholders, professional associations, media and citizens. Fifth, it must act as a catalyst to support more effective policy and action at national and local levels. Sixth, it has to provide a platform to ensure a more consistent and standardised approach to managing public health data and information. Finally, it should be fully implemented so that it can deliver the information required for informed decision making.

INTRODUCTION 4

This document contains the Ministry of Health's first Health Information System Strategic Plan (HISSP), 2008-2015. The HISSP is the product of an intensive series of Health Information System (HIS) assessments and consultations with a wide variety of stakeholders that began in the latter half of 2006 and culminated in December, 2007. Funding and technical assistance for the formulation of the HISSP, including sector assessments, were provided through the Health Metrics Network and the WHO. Since the MOH has just begun the process of formulation and development of the second Health Strategic Plan (HSP), 2008-2015 with launching scheduled March, 2008, it could be expected that the HISSP would follow after the finalization of the HSP. However, two key factors acted against the realization of this expectation. First, Cambodia was selected as a first wave country for the implementation of the HMN framework worldwide, and the requirements for implementation of this new project necessitated the MoH's development of the HISSP to accord with the project's international schedules. Second, the MoH accepted that the HISSP when developed would remain in draft form to be reviewed after the finalization of the HSP, so as to ensure synchronicity between the two sector plans. This process will occur after the official launch of the HSP 2008-2015.

The HISSP is intended as a compass to guide all activities pertaining to the further development of the Health Information System in the country over the next eight year period from 2008-15. It was deliberately crafted with a view to providing objectives, strategies, targets, and interventions that specifically address the weaknesses and shortcomings revealed through the multi-sectoral joint assessment of the HIS. As such, its scope is very wide, encompassing such objectives as the broadening and deepening of the still developing civil registration system, and the eventual adoption of the International Classification of Diseases (ICD-10) across the health sector. A key aspect of the development of the HISSP has been the involvement of a wide variety of stakeholders including representatives of the Ministries of Interior and Planning, representatives of the MoH's departments, national programs, and provincial health departments, and those of key health partners including national and international NGOs, and donors. The HISSP thus, represents a wide consensus across the health sector and beyond about the critical needs of the HIS, as well as additional sources of data such as the census, household surveys, civil registration system, and departmental statistics that could play a key role toward strengthening evidence-based planning, implementation, monitoring and evaluation of health care delivery in Cambodia. Its purpose is to define how health information management from all sources can help achieve the health sector goals and objectives over the medium term period. A modern health system needs accurate and instantly accessible information. It is vital for improving care for patients, improving the performance of the health system, and contributing toward the improved health status of all Cambodian citizens.

The HISSP is organized around the following sections. The next section 5 presents a brief history of the HIS in Cambodia, the policy context of the National HIS, and the

results of the collaborative assessment of the current HIS, including its strengths and weaknesses The further Section 6 addresses the rationale for the present strategic plan data management, information products, and their dissemination and use across and beyond the sector. Section 7 presents the Vision, Goals and Objectives. Section 8 the key components of the strategy linked to the achievement of the objectives. It also focuses on the implementation and activities with reference to time schedule, responsibility and estimated budget required. Section 9 lays out the monitoring and evaluation mechanisms for assessing the plan progress and results. Section 10 lists some prerequisites for success, referring to coordination among institutions, human capacity and policy commitment, while Section 11 contains the Annexes and References.

BACKGROUND 5

1. Brief history of National HIS

The recent history of the national Health Information System in Cambodia begins in July 1992 when the Ministry of Health formed the HIS sub-committee with the express responsibility of establishing a national HIS for the country. The need for a national HIS grew out of the escalating demand for health status and utilization information from a wide variety of users such as central departments, national programs, and provincial and local health authorities. This new HIS was then formally launched in 1993 through a phased introduction across a few provinces at a time, and complete coverage across the country was achieved by February, 1995.

The focus of the HIS is on collecting data on routine health service activities and health problems reported from all levels of public health facilities (referral hospitals and health centers) in the national health care system. However, it does not cover data on logistics/administration, finance or vital statistics. Data are disaggregated by age group and geographic location, and sex information is available only for total outpatient consultations, in-patient discharges, and laboratory results for malaria.

Since its inception, the NHIS has undergone several revisions in 1996, 1999, and 2003. The 1996 revision was required to make adjustments to the NHIS on the basis of the newly introduced Health Coverage Plan, which defined the services to be delivered by each health facility on a geographic and population basis. In 1999, minor changes were made to the system so as to improve the reporting of key indicators. The latest 2003 revision was conducted to identify additional indicators required for monitoring and evaluation by health facilities and national programs, and also eliminated unused indicators, A hallmark of all three revisions was the consultative and participatory approaches to revising the system, involving all key stakeholders.

a) Policy context of the National HIS

Several other initiatives of the Royal Government and the Ministry of Health need to be kept in mind when considering the development of the HISSP, 2008-2015. These include the National Strategic Development Plan, 2006-2010, the Health Strategic Plan, 2008-2015, and the National Institute of Statistics Strategic Plan, 2002-2007.

National Strategic Development Plan, 2006-2010

The first National Strategic Development Plan, 2006-2010 is the overarching document containing the Royal Government of Cambodia (RGC)'s priority goals and strategies to reduce poverty rapidly, and to achieve the CMDGs and socio-economic development goals for the benefit of all Cambodians. The plan intends to align sector strategies and

planning cycles to an overall long term vision, as well as guide external development partners to align and harmonize their efforts towards better aid-effectiveness and higher 'net resources' transfer (Ministry of Planning, 2006).

The Royal Government's priorities for health sector reforms and health services improvement under the plan are as follows:

- Expand availability of health care facilities by construction and/or rehabilitation of facilities, such as hospitals, health centers, etc., in rural areas.
- Expand and strengthen sustainable methods for provision of help to the poor to access public health care system.
- Encourage and involve private sector in provision of health care, both in urban and rural areas.
- Pay special attention to curtail spread of HIV/AIDS, especially to families, by information and education efforts.

Health Strategic Plan, 2008-2015

The HISSP is developed based on the vision, mission, values and working principles of the new Health Strategic Plan 2008-2015, of the Ministry of Health's as follows.

Vision

> "To enhance sustainable development of the health sector for better health and well-being of all Cambodian, especially of the poor, women and children, thereby contributing to poverty alleviation and socio-economic development."

Mission Statement

> "To provide stewardship for the entire health sector and to ensure supportive environment for increased demand and equitable access to quality health services in order that all the peoples of Cambodia are able to achieve the highest level of health and well-being".
>
> The Statement underlies the Ministry of Health, Royal Government of Cambodia commitment. The statement emphasizes exercising "stewardship" for the provision of services in all areas across the health sector. It highlights also the population's "highest level of health and well-being" of which a health system strives to promote – the system that places "increased demand, improved quality and promoted access" at the heart of health care delivery.

Values

> - Equity and
> - Right to health for all Cambodians

Working Principles

Increased efficiency, accountability, quality and equity throughout the health system will be achieved only through application of morality, strong beliefs and commitment to common goals by all who are working in health care. Therefore the day-to-day activities of health managers and staff in all areas throughout the organizations at all levels should be guided by five principles.

1. Social health protection, especially for the poor and vulnerable groups	To promote pro-poor approaches, focusing on targeting resources to the poor and groups with special needs and to areas in greatest need, especially rural and remote areas, and urban poor.
2. Client focused approach to health service delivery	To offer services with emphasis on affordability and acceptability of services, client rights, community participation and partnership with the private sector.
3. Integrated approach to high quality health service delivery and public health interventions	To provide comprehensive health care services including preventive, curative and promotion in accordance with nationally accepted principles, standards and clinical guidelines, such as MPA and CPA, and in partnership with the private sector.
4. Human resources management as the cornerstone for the health system.	To be operational and productive driven by competency, ethical behavior, team work, motivation, good working environment and learning process.
5. Good governance and accountability	To provide stewardship for both the public and private sectors, focusing on a sector wide approach, effective planning, monitoring of performance, and coordination.

The policy statement of the Health Strategic Plan 2008-2015 clearly states "strengthen and invest in health information system and health research for evidence-based policy-making, planning, monitoring performance and evaluation", and adopts Health Information System as one of the five cross-cutting strategies that need to be applied across the three health program areas as shown in the strategic plan operational framework below.

HSP Operational Framework

National Institute of Statistics' Strategic Plan (NIS-SP), 2002-2007

The first NIS Strategic Plan in Cambodia covers the period 2002-2007. It arose from the Government's needs to strengthen the national statistics system to facilitate monitoring and evaluation of the RGC's Rectangular Strategy, and the NSDP. The plan's main objectives are to develop (National Institute of Statistics, 2002):

- a coordinated and improved national statistical system for the country
- an NIS statistical service that is timely, relevant, responsive, and respected for its integrity and quality
- informed and increased use of official statistics
- active participation in international statistical activities that are important to the country and the southeast Asian region
- an institutional climate that encourages learning, innovation, and high performance in all its statistical activities and
- trust and cooperation among NIS data providers, and
- strong recognition and support for the NIS among decision makers and the wider community.

The NIS plan offers an excellent opportunity for the MOH to develop common mechanisms of coordination, data sharing, and unified information products. The numerous activities described in the current HISSP that refer to Census population data, mortality and cross-utilization of information define the possible channels of coordinated action and concrete products that can anchor the two plans, and establish a long lasting agreed frame work and program for improved coordination between the MOH and the NIS/MoP.

b) National HIS Assessment

As part of the development of this Health Information System Strategic Plan, 2008-2015, the DPHI/MoH conducted a comprehensive assessment of the national HIS to identify areas of weaknesses and strengths, and to form the basis for the formulation of the Plan. The impetus for the assessment was provided by the technical and financial support generously provided by the Health Metrics Network (HMN), a global partnership of ministries of health, the World Health Organization, other UN agencies, multilateral aid donors and private foundations, launched in November, 2004, and endorsed in May 2005 at the World Health Assembly. The principal aim of the HMN is to act as a catalyst to increase the availability of quality health data and information for evidence-based decision making at country and global levels.

Financial and technical assistance to the MoH in Cambodia from the HMN began in August 2006, and focused on four specific activity areas:

(i) an HIS assessment using assessment tools developed by HMN and further adapted for use in the country context

(ii) formulation of the HIS Strategic Plan, 2008-15

iii) strengthening of the Vital Registration system in the country, and

iv) local capacity building for an improved national HIS.

For these purposes, the MoH established an HIS stakeholder working group (HIS-SWG) coordinated by the Department of Planning and Health Information, and consisting of a representative each from the national programs covering HIV/AIDS, malaria, and maternal and child health, the Communicable Diseases Control department, the National Institute of Public Health, the Department of General Administration of the Ministry of the Interior (DoGA/MoI), the Census and Survey department and the National Institute of Statistics of the Ministry of Planning (NIS/MoP), WHO, UNICEF, UNFPA, GTZ, MEDICAM including local and international NGOs, RACHA and URC. The terms of reference of the HIS-SWG are to:

(i) coordinate and support management of the national HIS

(ii) regularly review the status of the HIS and make recommendations to the Ministry of Health to improve the development of appropriate information tools

(iii) promote the use of health information for evidence based decision making, planning, and management, and

(iv) provide technical inputs and recommendation on key national health and socio-demographic statistics (for details, please see annex 1).

In October 2006, a three-day workshop was organized by the DPHI/MoH which brought together health statistics producers and users from various institutions (central MoH departments, national programs/institute, 24 provincial and municipal departments, health development partners, NIS/MoP, and DoGA/MoI) to assess the national health information system. It was the first workshop ever conducted using the HMN assessment tool and framework based on standards for the development of the national health information system, with technical support provided by the HMN.

Six components of the HIS were assessed: resources, indicators, data sources, data management, information products, and dissemination and use. The following Table provides the results from the assessment:

Summary Table of Assessment Results

Main categories	Percentage	Comments
OVERALL		**HIS COMPONENTS**
RESOURCES	40%	The second lowest & most critical area
INDICATORS	55%	Present but not adequate
DATA SOURCES	49%	Critical area in same data sources
DATA MANAGEMENT	38%	The lowest score and most critical area
INFORMATION PRODUCTS	67%	Adequate, relatively well provided
DISSEMINATION & USE	58%	Adequate, but with some problems
I. SECTION		**RESOURCES**
Policy and Planning	35%	Several important actions needed: legislative, national Statistics Strategic Plan and multi-sectoral HIS Committee
HIS institutions, human resources and financing	38%	Critical human resource shortage
HIS Infrastructure	50%	Present but not adequate
II. SECTION		**ESSENTIAL INDICATORS**
Indicators	62 [before 55%]	Present but not adequate
III. SECTION		**DATA SOURCES**
A. Census	44%	Capacity improvement for next Census
B. Vital statistics	42%	Intervention on ICD-10 coding in hospitals, digitalization at MoI
C. Population-based surveys	64%	The strongest source, it needs better coordination
D. Health & diseases records (surveillance)	43%	
E. Health service records	41%	Public HC low coverage, private not included
F. Administrative records	63%	
IV. SECTION		**DATA MANAGEMENT**
Data Management	23% [before 36%]	Investment on HIS qualified human resources, training of clinical and managerial staff on HIS, building up a central health repository of existing databases
V. SECTION		**INFORMATION PRODUCTS**
Categories		
Data collection method	62%	
Timeliness	66%	
Periodicity	60%	
Consistency/ completeness	58%	
Representativeness/ appropriateness	59%	
Disaggregation	64%	
Estimation method/transparency	100%	
Type		
Health status Mortality	66%	
Health Status Morbidity	65%	
Health system	61%	
Risk factors	66%	
Overall health indicators quality	67%	
VI. SECTION		**DISSEMINATION AND USE**

Analysis and use of information	63%	Need for improvement
Policy and advocacy	60%	Need for improvement
Planning and priority setting	59%	Enhance the already existent use of data evidence for monitoring and planning
Resource allocation	41%	Need for regular and sustained investment
Implementation/action	68%	

From a total of 223 questions that were assessed during the workshop, the HIS Core Team (a small subset of the HIS-SWG) identified 77 critical issues for attention. These issues were then prioritized according to their importance and feasibility (see Annex 1), during a three day HIS-SWG workshop in May, 2007. As a result of the workshop, 5 goals and 37 objectives were developed by the HIS-SWG which were then refined to only 12 objectives.

Additional activities included a one day HIS-SWG workshop in March 2007 with technical assistance from Dr. Yok Ching Chong, regional advisor in health information, WPRO, Manila, to provide guidance on the process and formulation of the HIS strategic plan, including proposed HISSP outline, approach, and review of the current HIS. Other issues discussed were duplication of data collection at various levels, integration of health information (especially establishment of a central health database repository), data quality, and HIS policy/legislation.

RATIONALE 6

Health information is crucial for monitoring health sector performance and for improved health care management decision making at all levels of health system. Since the development of the national Health Information System of the MOH in 1993, the demand for new information has grown rapidly. This is due mainly to the expansion of health services and disease prevention and control programs across the country, the emergence of new public health concerns, such as severe acute respiratory syndrome (SARS) and Avian Influenza, and multiple donor needs for information for monitoring their own projects. As a consequence, a high burden has been placed on health information officers at all levels of health system for the production of timely, high quality, and relevant information.

Multiple sectors and stakeholders. The concept of health information system is not limited only to the health sector since health statistics are generated and used by a variety of different organizations and institutions. These include the vertical health programs, other sectoral ministries, the private sector and many development agencies. However, data collection efforts are fragmented with limited coordination both within and outside the health sector. This has resulted in several health and health related surveys having been conducted in the recent past without proper and coordinated planning, so as to avoid overlap of data collected and appropriate time intervals between such surveys. A national health information strategic plan (HISSP) which would form the basis for such coordinated and harmonized planning was never developed, and the technical and financial support provided by the HMN is an opportunity to bring together all stakeholders and begin the process of plan formulation.

Data quality. The PARIS 21 initiative (Partnership in statistics for development for the 21st century) and the NIS-SP 2002-2007 both suggest that in Cambodia a wider effort for assessing and improving the quality of statistical data has begun. This provides a further opportunity for strengthening of the national HIS in the context of these wider efforts through the formulation of an HISSP that will lead to higher quality data that can form the basis for improved decision making.

Health Metrics Network (HMN). The First Global Health Partnership focuses on health information and statistical system strengthening rather than on a specific disease or disease-focused program. Health information producers and users were brought together by the Health Metrics Network in support of a country led-effort to strengthen their health information system (Health Metrics Network/WHO, 2006).

Priority Health Problems, essential services and key health indicators identified during the May 2007 HIS-SWG are listed here because they represent a necessary reference for the elaboration of HISSP strategy (see Annex 2).

This plan is about the mix and balance of products and services, and the generation and allocation of resources for all Departments of the MOH. Most importantly, it provides the higher-level frame within which the HISSP eight-year work program is reviewed each year, and it is in this context that the MOH seeks additional donor and government funding, as well as ensures resources are deployed effectively and efficiently.

In addition, the plan facilitates subsidiary levels of planning at the departmental level. In the HISSP case we undertake program strategic management, which is about specific products, or groups of them (such as the mortality data and the causes of deaths management and improvement), and services provided by or within the MOH (such as surveillance of communicable diseases and response information). These subsidiary plans are to be revised annually in the context of the eight-year work program and are strongly influenced by the strategic plan and, in turn, impact strongly on the annual operational and three-year rolling plans.

VISION, GOALS, OBJECTIVES AND STRATEGIES 7

Vision:

'Availability of relevant, timely and high quality health and health-related information for evidence-based policy formulation, decision making, program implementation, and monitoring and evaluation so as to contribute toward the improved health status of the Cambodian people'.

Goals:

1. To ensure high performance of the national HIS complying with international standards and receiving recognition and support among policy makers and the public.

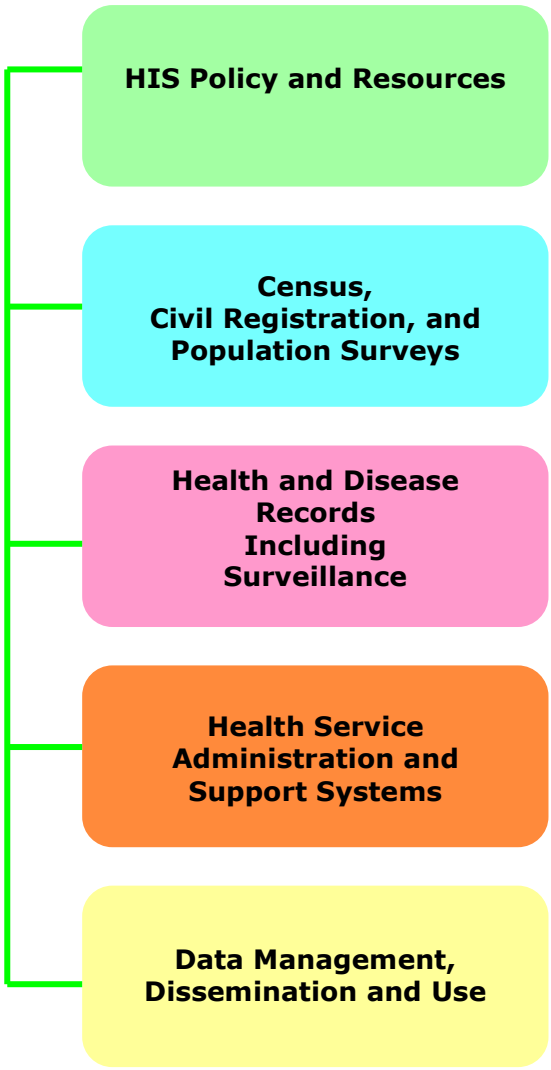
2. To ensure evidence-based decision-making through monitoring and evaluation of health sector performance and improved data generation and information dissemination with appropriate communication and technology.

3. To enable availability of quality socio-demographic, economic, morbidity, mortality, and risk factor information and improved coordination of survey planning and implementation.

4. To enhance the quality of patient medical records for improved case management and the quality, completeness and timeliness of surveillance data for efficient outbreak response and disease control.

5. Ensure effective and efficient health care and public health performance through comprehensive HIS coverage and improved database management on infrastructure, human resources and logistics.

Cambodia Health Information System Components for Development



Cambodia National HIS Strategic Plan
Objectives and Strategies

Objective	Strategy
Component 1	***Policy and Resources***
1. Increase the availability of accurate and complete health data from public and private sources	1.1 Review and strengthen existing **legislation, regulations** and administrative procedures related to health data recording, reporting, storage, retrieval, dissemination governing both public and private sector
	1.2 Strengthen and develop **coordinated mechanisms for enforcement** of legislation, regulations and administrative procedures, related to health data.
2. To improve the quality of health information	2.1 Strengthen HIS **supervision and feedback** focused on data quality and performance standards adherence
	2.2 Conduct **special assessments** of HIS facilities (tools, materials, furniture, ICT means, location, and staffing) at all levels
	2.3 Provide **incentives and benefits** linked to MBPI for staff involved in the HIS at all level
3. To enhance HIS commitment, coordination and resources	3.1 Strengthen and maintain the continuing authority and responsibility of the HIS Stakeholders Working Group (SWG) as a technical **instrument of inter-sectoral coordination** for health related data and link to TWGH and the Statistical Advisory Council (SAC)
	3.2 **Integrate the HIS strategy and implementation plan** into the future health strategic plan (HSP) 2008-2015 and health sector AOPs
	3.3 Periodically update the **core set of health-related indicators** and the multiple sources of data (including CoD from the CR) for monitoring them.
	3.4 Insure that Budget Management Centers include **provision for routine HIS costs**
Component 2	***Data Management, Dissemination and Use***
4. To increase data sharing, management, analysis, dissemination and use	4.1 The **development, use, and maintenance of ICT systems** for health data management and communications (metadata dictionary and data warehouse, inter and intranet communications).
	4.2 Strengthen the capacity of staff involved in the HIS through **in-service training and degree programs on** epidemiology/biostatistics/MPH, and software development, ICT use and maintenance.
	4.3 Strengthen the **joint monitoring process** (Joint Annual Review: JAPR) for tracking the implementation and impact of the health sector strategic plan 2008-2015.
	4.4 Integration of selected **indicators** from various national programs into the routine HIS at critical levels (OD, PHD)
	4.5 Develop and apply a process of **service performance assessment and improvement** for teams of managers and staff at provincial, district and facility level which engages them in the use of routine service, surveillance and

Objective	Strategy
	administrative data
Component 3	***Census, Civil Registration, Population-based Surveys***
5. Increase the availability and use of population and socio-demographic data down to local administrative levels	5.1 Develop and implement **procedures** for generating and providing census data and population projections to the smallest administrative levels
	5.2 **Provide training:** for service managers on the use of census data for planning and monitoring; and for core census staff on all phases of census management.
	5.3 Add adult mortality questions to the **census questionnaire**, and conduct a **post-census survey** on cause of death
6. Improve coverage and use of CR including causes of death at health facilities and community level	6.1 Plan and implement the expansion of **Civil Registration system** at health facilities and within communities, including training, and publishing
	6.2 Introduce and train in **ICD-10** coding and **verbal autopsy**.
7. Increase availability of survey data, including non-communicable diseases (NCDs) and risk factors	7.1 **Long-term coordinated planning and design of population based surveys** including priority non-communicable diseases and risk factors.
	7.2 Conduct **training on household survey** design, processing and analysis
Component 4	***Health and Disease Records including the Surveillance System***
8. Improve the patient medical record, storage, and retrieval system at public and private health facilities	8.1 Revise and strengthen **patient record management** (medical records, storage and retrieval facilities) in all public health facilities, including ICD coding.
	8.2. Provide a **TOT training course** for clinicians in patient record management
9. Improve the national disease surveillance system, diagnosis, case notification and timely outbreak response	9.1 **Strengthen the disease surveillance system and procedures**, including updating the list of notifiable diseases, their case definitions, notification, lab confirmation and response procedures, mapping of at-risk populations and data sharing and publication.
	9.2 **Training** – clinical and lab diagnosis, data analysis, response procedures
10. Strengthen the case reporting, monitoring and response to NCDs	10.1 Develop the **reporting of non-communicable diseases** in the overall surveillance and case reporting and response system, including accidents and injuries
Component 5	***Health Service and Administrative records***
11. Expand the participation in the national HIS by the private sector	11.1 **Broaden the participation of private providers** in the national HIS, including the surveillance system, through inventorying them, and sensitizing and informing them about legislation, and providing them with the necessary standard forms, and adjusting HMIS software.

Objective	Strategy
12. To expand and improve data and database on health infrastructure, human resources and logistics	12.1 Strengthen the system for **tracking budgets and expenditure** from all sources of finance and link with the development of National Health Accounts (NHA)
	12.2 Strengthen human resources, facilities and drug **management support systems** through assessment, procedures development (including data base development) and training

STRATEGIC IMPLEMENTATION PLAN 8

At this point in the strategy design process it became possible to consider the activities that will be needed to implement each of the 28 strategies across the 12 objectives. The SWG formed sub-groups and generated ideas for important implementation activities. Each activity resulted in one or more defined immediate products. Products were generally documents (legislation and regulations, reports of assessments, guidelines and training materials), or the number of various types of staff to be trained.

While most of the activities are *developmental* in nature and will be complete during the plan period, some are routine and will continue through the plan period and beyond. Such *routine activities* are printed in italics. The resources they require will need to appear in routine operational budgets.

Each activity has start and completion dates which indicate the time frame during which the implementation of the activity is ongoing. The generation of the defined immediate products signals the successful completion of the activity, and can be used as a progress indicator for monitoring purposes.

In addition, each activity has an office defined as responsible for the implementation of the activity. Obviously, there will be other offices, departments, programs and institutions collaborating with the activity, in addition to the responsible office.

Finally, each activity may require additional resources for its successful implementation. An attempt is made at this point only to identify the type of resources required for each activity, not the amounts. However, the product description should provide the *coefficients* needed to calculate the resource requirements, such as the number of facilities to be involved, the number of courses and participants to be trained, and other indications of the size of the product "coverage". The plan also includes estimated cost of activities grouped under each objective.

This *Strategic Implementation Plan* will be used during subsequent discussions with stakeholders within the health system and with donors in order to confirm interest, responsibilities for implementation, and technical and financial support.

The Plan also provides a basis for the monitoring of implementation and product development, and will be reflected in the HIS Strategy M & E Plan.

HIS Strategic Implementation Plan

(*Italics* indicate routine activities, all others are developmental)

Activities	Output	Time Frame 2008-2015 Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
1-Policy and Resources											
Objective1. Increase the availability of accurate and complete health data from public and private sources											**67,766$**
Strategy 1.1: Review and strengthen existing legislation, regulations and administrative procedures related to health data recording, reporting, storage, retrieval, dissemination governing both public and private sector											
1.1.1 Review existing legislation related to HIS covering diseases, accidents, injuries notification, screening, from both public and private sector	Inventory of existing legislation and Gaps									DPHI PMD CDC	
1.1.2 Revise and enact legislation related to HIS covering diseases, accidents, injuries included works related accidents (occupational health) notification from both public and private sector	Newly enacted Legislation									Legislation office	
1.1.3 Develop legislation regarding data and reporting of health insurance from both public and private sector.	Legislation on health insurance									DPHI & concerned institutuion	
Strategy 1.2: Strengthen and develop coordinated mechanisms for enforcement of legislation, regulations and administrative procedures, related to health data.											
1.2.1 Develop procedures, responsibilities and standard report for monitoring adherence to the various HIS and civil registration laws and regulations, and for taking corrective action (eg. failure to report infectious disease, suspend license for non-reporting)	Procedure, responsibility and regular reports of the monitoring group									Legislation office	
Objective2. To improve the quality of health information											**2,738,427$**
Strategy 2.1: Strengthen HIS supervision and feedback focused on data quality and performance standards adherence											
2.1.1 Review and revise HIS data quality control guidelines, supervision and feedback system (develop checklist, guideline, resources) for both public and licensed private facilities	Revised guideline, checklist, supervision and feedback system									DPHI,	

Activities	Output	Time Frame 2008-2015 Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
2.1.2 Conduct regular quarterly supervision and feedback on health data to verify completeness, consistency and accuracy by: *-Central HIS staff to PHD and by* *-HIS staff at PHD to OD levels*	- 4 super visits per year PHD levels. - 4 super visits per year to OD levels.									DPHI PHD	Financial Financial
2.1.3 Use findings from HIS supervision for feedback to PHD and OD monthly meeting, Pro-TWGH, and PHTAT meeting.	*HIS topics were raised*									DPHI, PHD & OD	
2.1.4 Prepare procedure and evaluation tool for conducting evaluation to validate quality of indicator data from both public and licensed private health facilities	Procedure and evaluation tool									DPHI	
2.154 Conduct annual evaluation of the indicator data quality from both public and licensed private health facilities	Evaluation report									DPHI	Recruit two evaluators
Strategy 2.2: Conduct special assessments of HIS facilities (tools, materials, furniture, ICT means, location, and staffing) at all levels											
2.2.1 Prepare procedure/checklist and assessment tool for special assessment of HIS facilities	Assessment tool/checklist Assessment report format									DPHI	
2.2.2 Conduct special assessment of HIS facilities every other year, hold findings dissemination workshop (and support budget provision as necessary)	Assessment findings Awareness of the status of the HIS facilities									DPHI	Assessment staff Travel costs
Strategy 2.3: Provide incentives and benefits for staff involved in the HIS at all level											
2.3.1 Define HIS performance standards and the incentives and benefits to be provided	Procedures for awarding incentives										
2.3.2 Provide incentive to HIS staff at all level	*Incentive provided*									DPHI	*Funds and training*
Objective 3. To enhance HIS commitment, coordination and resources											**2,876,221$**
Strategy 3.1: Strengthen and maintain the continuing authority and responsibility of the HIS Stakeholders Working Group (SWG) as a technical instrument of inter-sectoral coordination for health related data and link to TWGH and the Statistical Advisory Council (SAC)											
3.1.1 Conduct regular and ad hoc meeting of the HIS-SWG	6 meetings/ year, reports									DPHI	Venue and lunch

Activities	Output	Time Frame 2008-2015 Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
Strategy 3.2: Integrate the HIS strategy and implementation plan into the future health strategic plan (HSP) 2008-2015 and health sector AOPs											
3.2.1 Integrate HIS strategy into health strategic plan (HSP) 2008-2015	HISSP integrated in HSP 2008-15									DPHI	
3.2.2 Include HIS activities into AOP as one sub-program	HIS activities have separate budget line									DPHI	
Strategy 3.3: Periodically update the core set of health-related indicators and the multiple sources of data (including CoD from the CR) for monitoring them.											
3.3.1 Workshops to review and revise the list of essential health and service indicators in order to appropriately monitor HSP progress	2 Workshops, 30-40 part. Publication									DPHI	Venue, lunch and per diem
Strategy 3.4: Insure that Budget Management Centers include provision for routine HIS costs											
3.4.1 Conduct HIS operations costing study at various levels of health system and types of public health facilities (routine costs such as HI staff, equipment, maintenance, communication, stationary, document production)	Report of HIS costing elements and averages									DPHI	TA & Nat. consultant
3.4.2 Formulate, produce and issue guideline for estimating HIS costs and making provision in the Budget management center	HIS budget guideline									DPHI	
2-Data Management, Dissemination and Use											
Objective 4. To increase data sharing, management, analysis, dissemination and use											**2,207,958$**
Strategy 4.1: Development, use, and maintenance of ICT systems for health data management and communications (metadata dictionary and data warehouse, inter and intranet communications).											
4.1.1 Revise HIS forms (recording and reporting) and revise software accordingly in order to cover all core indicators	Revised HMIS formats									DPHI	
4.1.2 Post IT staff for maintaining data at central and PHDs level according to CPA guideline	At least on IT staff posted per level according to CPA									DPHI	No.IT staff
4.1.3 Develop metadata dictionary in collaboration with national institute of statistic for covering the major statistical	Metadata dictionary									DPHI	TA

data items, their definition, their classification and location in major data bases											
4.1.4 Establish health/population data warehouse at central MOH which integrate relevant data from various sources and allows easy retrieval by various users	Data warehouse at MOH									DPHI	TA
Strategy 4.2: Strengthen the capacity of staff involved in the HIS through in-service training and degree programs on epidemiology- biostatistics /MPH, and software development, ICT use and maintenance.											
4.2.1 Develop HIS training curriculum for PHD, OD and RH managers, HIS Officer, including HIS recording and reporting, data quality control	Training curriculum									DPHI, NIPH	
4.2.2 Conduct HIS training on HIS recording and reporting, data quality control	*50 staff trained per year*									DPHI	*Training costs*
4.2.3 Review and revise existing curriculum for short course training	Training curriculum									DPHI	Revision costs
4.2.*4 Conduct short course training of National Hosp, PHD, OD, RH and HC managers on data analysis and use for decision making*	*50 HIS officers,* Epi, Stat at *Nat Hosp, PHD, OD, RH*									DPHI NIPH	*Per diem operational cost*
4.2.5 Send health staff for formal training [6month-2 years] in epidemiology and bio-statistics/MPH, and health informatics and HIS related courses. a-In country training:	2 degree program fellows									NIPH	Tuition, stipend and travel costs
b-Oversea training:	1 degree program fellows										
4.2.6 Short courses, in country training on basic ICT skills	15 fellows per year									Private Agen.	Contract private firm
4.2.7 Conduct one week special ToT training course on health information compilation and its application for clinicians [doctors/nurse/midwife]	5 courses of 20 staff (100 staff from all RHs) and Nat. hosp. over 5 yrs									DPHI	TA and Financial

Activities	Output	Time Frame 2008-2015 Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
Strategy 4.3: Strengthen the joint monitoring process (eg. Joint Annual Performance Review: JAPR) for tracking the implementation and impact of the health sector strategic plan 2008-2015.											
4.3.1 Review and update the JAPR process to include the revised set of national core indicators and promulgate to PHD & OD level.	Adjusted JAPR document									DPHI	
Strategy 4.4: Integration of selected indicators from various national service programs into the routine HIS at critical levels (OD, PHD)											
4.4.1 Add critical special program indicators to the routine HIS reports at OD and PHD levels (through review and revision of the HIS reporting forms) - Conduct WS on revision of HIS indicator	Adjusted HIS reports									DPHI	
4.4.2 Include presentation and discussion of health indicators into the agenda of monthly PHD/OD management meeting	*Monthly Synthesis of program indicator status*									*DPHI, PHD & OD*	
Strategy 4.5: Develop and apply a process of service performance assessment and improvement for teams of managers and staff at provincial, district and facility level which engages them in the use of routine service, surveillance and administrative data											
4.5.1 Develop and test an OD *health service team performance assessment and improvement process* (PAI) focused on equitable delivery of essential PHC services, and strengthening capacity in problem analysis intervention design, planning and monitoring coverage of risk groups and those with least access using available data	A tested PAI process and supporting guidelines and formats									TA, NIPH	TA, Design team expenses
4.5.2 Implement a continuing program of district team performance assessment and improvement processes in some ODs	*15 ODs initiate the PAI process over 5 years*									NIPH	*TA facilitation Travel costs*

Activities	Output	Time Frame 2008-2015: Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
3-Census, Civil Registration, Population-based Surveys											
Objective 5. Increase the availability and use of population and socio demographic data											**1,979,290$**
Strategy 5.1: Develop and implement procedures for generating and providing census data and population projections to the smallest administrative levels											
5.1.1 Prepare census data tabulation to commune level and produce census projections to district levels for supporting monitoring and health planning.	Available census data to the commune levels									NIS/MoP Census Staffs	TA, Finance
Strategy 5.2: Provide training: for service managers on the use of census data for planning and monitoring; and for core census staff on all phases of census management.											
5.2. Develop training curriculum on census data analysis and use at district level	Curriculum									TA	
5.2.2 Conduct workshops on census data dissemination and use at the district levels.	*10 workshops (2/yr) with 30 OD and facility mgrs*									*Training costs*	*Part per diem*
5.2.3 Conduct training on census data processing, analysis and management for core census staff.	25 core census staff trained									NIS/MoP	TA. and training costs
Strategy 5.3: Add adult mortality questions to the census questionnaire, and conduct a post-census survey on cause of death											
5.3.1 Update census questionnaires to include adult mortality.	Questions on adult mortality	*Already done*								NIS/MoP	
5.3.2. Conduct post census survey on cause of death	Post census survey results									NIS/MoP	TA, survey costs
Objective 6. Improve coverage and use of CR including causes of death at health facilities and community level											**1,899,417$**
Strategy 6.1: Plan and implement the expansion of Civil Registration system at health facilities and within communities, including training, and publishing											
6.1.1 Develop standard form for death report (adopt international certificate of death and translate into Khmer) for health facilities public and private.	Standard form for death report									DPHI DoGA	

6.1.2 Orientation and dissemination of the standardized death report form to all public and private health care providers, VHSG, and local authority.	No. providers know how to fill the Standard Death report									DPHI DoGA	Document ation, communica ions
6.1.3 Develop a tool for assessing completeness of vital registration at national and sub-national levels.	-Assessment tool									DoGA/MoI	TA and Finance
6.1.4 HIS managers at PHD & OD monitor and provide feedback on filling up the death report form received	*Data on death report accuracy fed to practitioners*									DPHI	
6.1.5- Conduct training on vital data processing and analysis for DoGA/MoI staff at central provincial, and district levels.	-10 central, 48 provincial and 185 district DoGA/MoI staff trained									DoGA/MoI	TA and Finance
6.1.6 Publish annual vital registration statistics, disaggregated to provincial level [including causes of death] and distribute to all concerned institutions at central, provincial and district levels.	*VR statistics available at all concerned institutions.*									DoGA/MoI	TA and Finance
Strategy 6.2: Introduce and provide training in ICD-10 coding and verbal autopsy.											
6.2.1 Conduct ICD10 training for health information officers/doctors/nurses [20 pers] at all national hospitals in Phnom Penh and RHs at provincial level. Phase I: Pilot in 2 national hospitals in Phnom Penh Phase II: The remaining RHs	ICD10 is used for disease coding in designated facilities:									DPHI	TA and costs
6.2.2 Install ICD10 software in designated facilities	ICD 10 software available										
6.2.3 Introduce the use of verbal autopsy for determining the cause of deaths outside health facilities, (thereby enabling proper death recording and reporting), in coordination with Vital Registration.	Guidelines on the use of verbal autopsy and death reporting									DPHI	TA
6.2.4 Train at least 2 doctors/ hospital to conduct verbal autopsy	154 doctors trained										
6.2.5 The two trained doctors will work with the death audit committee to conduct verbal autopsy for all cases of death outside health facility.	*Causes of death from outside health facility reported*									*Hosp Dept,*	
6.2.6 Conduct ICD10 training for VR to central DoGA/MoI staff and at provincial/district levels.	-10 central, 48 provincial,185 district DoGA/MoI staff.									DoGA/MoI	TA and Finance

Objective 7. Increase availability of survey data, including non-communicable diseases (NCDs) and risk factors											***tbe***
Strategy 7.1: Long-term coordinated planning and design of population based surveys including priority non-communicable diseases and risk factors.											
7.1.1. Design population survey on selected priority non-communicable diseases and risk factors [breast or cervix cancers, diabetes, cardiovascular diseases…]	Prevalence data on non-communicable diseases and risk factors.									NIPH/NIS	TA and Finance
7.1.2. Update long-term plan for nationally representative pop. based surveys including design, and implementation, jointly with concerned institutions [NIS/MoP, NIPH/MoH] and development partners, with approval from the Statistical Advisory Committee [SAC].	-Long-term planning updated and approved.									NIS	
Strategy 7.2: Conduct training on household survey design, processing and analysis											
7.2.1 Conduct training on household survey [HH] design, processing and analysis for core NIPH/NIS and DPHI staff.	- 5 core NIPH,10 NIS and 2 DPHI staff trained					.					TA, Training costs
7.2.2 Provide international training on HH survey design, processing and analysis for core NIPH/NIS and DPHI staff.	3 foreign fellowships										Tuition, stipends and travel cost

Tbe: to be estimated

Activities	Output	Time Frame 2008-2015 Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
4-Health and Disease Records including the Surveillance System											
Objective 8. Improve the patient medical record, storage, and retrieval system at public and private health facilities											124,088$
Strategy 8.1: Revise and strengthen patient record management (medical records, storage and retrieval facilities) in all public health facilities, including ICD coding.											
8.1.1 Design an improved patient information recording system, storage and retrieval at all hospitals.	Improved patient recording system									DPHI Hosp Dep	TA and Financial
8.1.2 Develop medical record regulation on organization, maintenance, storage, access and confidentiality.	Medical record regulation in place									DPHI Hosp Dep	TA and Financial
Strategy 8.2: Provide a TOT training course and implementation plan for clinicians in patient record management											
8.2.1 Design TOT training curriculum and materials for a course in patient record management	TOT curriculum and materials									DPHI	National consultants
8.2.2 Prepare a training and implementation plan for improving patient record management	Training and implementation plan									DPHI	
8.2.3 Implement the patient record management training and facility level implementation	*No. of facilities implement improved pt. record mgt*									DPHI	Training costs
Objective 9. Improve the national disease surveillance system, diagnosis, case notification and timely outbreak response											189,655$
Strategy 9.1: Strengthen the disease surveillance system and procedures, including updating the list of notifiable diseases, their case definitions, notification, lab confirmation and response procedures, mapping of at-risk populations and data sharing and publication.											
9.1.1 Conduct meetings to update the list of notifiable diseases	Revised list of notifi'l dis									CDC DPHI	Meeting costs
9.1.2 Conduct meetings to review and update case definitions for notifiable diseases based on existing clinical and laboratory capacity for diagnosis	-Revised Case definitions									CDC DPHI	TA and meeting costs
9.1.3 Update integrated disease surveillance and response procedures and notification forms	Procedures guidelines and notification forms									CDC DPHI	TA and Financial
9.1.4- CDC with collaboration of DPHI collaborate with	- Public health risk pop.									CDC	TA and

relevant institutions to identify and map populations at risk of priority infectious and non-communicable diseases	identified and mapped.									DPHI	Financial
Strategy 9.2: Training – clinical and lab diagnosis, data analysis and response procedures.											
9.2.1 Conduct training on analysis of surveillance data and outbreak response for rapid response team [RRT] at: Provincial (3-4 staff), District (2), RH (2), and health center (2)	- RRT in 15 PHD, all ODs, all remaining RHs and HCs trained									CDC	TA and Financial
9.2.2 Conduct training on lab confirmation capacity for outbreak investigation for NIPH and PHD lab technicians.	- 5 NIPH and 24 PHD lab technicians trained.									NIPH CDC	TA and training costs
Objective 10. Strengthen the case reporting, monitoring and response to NCDs,											**145,227$**
Strategy 10.1: Develop the reporting of non-communicable diseases in the overall surveillance and case reporting and response system, including accidents and injuries											
10.1.1 Conduct meetings on the list of NCDs to be reported and monitored, the case definitions to be applied, the appropriate report forms.	List/Guideline on reporting NCDs									PM	TA, Meeting costs
10.1.2 Conduct training of trainers in the implementation of the NCD reporting procedures, guideline and reporting	*No.of facility managers and clinicians trained through short courses*									PM	TA Training costs
5-Health Service Administration and Support Systems											
Objective 11. Expand the participation in the national HIS by the private sector											**72,599$**
Strategy 11.1: Broaden the participation of private providers in the national HIS, including the surveillance system, through inventorying them, and sensitizing and informing them about legislation, and providing them with the necessary standard forms, and adjusting HMIS software.											
11.1.1 Update inventory of private health facilities at all levels	Inventory of private health facilities.									Hosp Dep	Meetings and travel costs
11.1.2 Provide training to the private health facilities [hospital, polyclinics] at central and provincial levels on health data reporting through health information forms	*70% of private health care facilities are trained in HIS Enforcement mechanism established*									DPHI Hosp Dep	*Training and communicati on costs*
11.1.3 Update HMIS software to include data from private facilities at central and provincial levels.	- HMIS software updated.									Hosp Dep and DPHI	National consultants

Activities	Output	Time Frame 2008-2015: Y1-Y8								ImplemenT institutions	Budget required (estimated)
		8	9	10	11	12	13	14	15		
Objective 12. To expand and improve data and database on health infrastructure, human resources and logistics											142,128$
Strategy 12.1: Strengthen the system for tracking budgets and expenditure from all sources of finance and link with the development of National Health Accounts (NHA)											
12.1.1 Conduct analysis of the various budget and expenditure systems used across the health sector; design the necessary data flow for expenditure tracking linked with PET	Expenditure data flow analysis and design									DBF	TA cost Working group meetings
12.1.2 Design and develop the data communications and storage system required for expenditure tracking against the budgets, including the required tracking reports	Communications and data storage software developed and tested									DBF	TA software & comm'ns consultants
12.1.3 Implement the tracking system in an incremental manner	Gradual inclusion of all health sector expend. flows									DBF	Nat. software consultants
Strategy 12.2: Strengthen human resources, facilities and drug management support systems through assessment, procedures development (including data base development) and training											
12.2.1 Establish support system assessment teams (at central level) and carry out assessments of the current functioning of: Human Resources administration, Facility operations and maintenance, and the drug management (DM) and logistics systems	Full descriptions and assessments (team and tool) of these three support systems									HRD DDF DPHI	Nat and interN consultants
12.2.2 Based on the assessment results, revise administrative procedures and data flow for improving the performance of these support systems	Description of the revised systems									HRD DDF DPHI	Nat and interN consultants
12.2.3 Undertake software revision and development to support the revised systems and procedures	Revised software for supporting new procedures									HRD DDF DPHI	Software Consultant
12.2.5 Conduct staff training in the operation of the three support systems, including data entry, data transmission, data	Training materials Staff trained (Number).									DPHI HRD	Training costs

base maintenance and report generation										DDF	
12.2.6 Conduct training on GIS [database maintenance and mapping] for central and provincial/district HIS staff.	GPS coordinates updated. - 10 central DPHI trained - 48 PHD staff trained - 154 OD staff trained									DPHI	Training costs

MONITORING AND EVALUATION 9

The Monitoring and Evaluation Framework shown overleaf presents the list of process and output indicators to be used for monitoring the implementation and outputs of the HISSP, 2008-15. The indicators, data sources, frequency, and responsibility are grouped by each objective in the plan, and its associated strategies. Every effort has been made to restrict the number of indicators to a manageable number to ensure the efficiency and effectiveness of monitoring the plan. It should be remembered that the plan extends over an eight year period and that not all of the activities included in the plan will be implemented at the same time. Also, once certain activities have been successfully completed, their monitoring will no longer be necessary, and these indicators will be excluded from regular monitoring activities. As such, the actual number of monitoring indicators in use at any given moment are likely to be far fewer than the complete set of 38 indicators included in the matrix overleaf.

Responsibilities for the monitoring of each indicator have been clearly delineated in the matrix. These typically devolve to the relevant department or institution at collaborating ministries. These departments and institutions will arrange to form monitoring teams and assign specific responsibilities to them for the conduct of monitoring activities including schedules, and the calculation and reporting of the indicators. The reporting of these indicators will be carried out at the frequency recorded in the matrix to the HIS Stakeholder Working Group, the apex body responsible for the overall implementation of the plan. DPHI as the chair of the HIS-SWG will then arrange to produce an annual report of the indicators, showing trends over time, and the status of implementation of each of the activities.

It should be noted that the objectives and strategies included in the HISSP, 2008-15 have been integrated into the second Health Strategic Plan (HSP2), 2008-15 which is the MOH's plan for the future development of the health sector, and the improvement of the health status of the Cambodian people. The final evaluation of the HISSP, therefore, will form part of the overall evaluation of the HSP2 per the evaluation design recorded therein. HSP2 also calls for a mid term review in 2011, at which time the HISSP will be reviewed as well. Following the review, midcourse adjustments and corrections to the plan as required will be instituted.

HEALTH INFORMATION SYSTEM STRATEGIC PLAN, 2008-15
MONITORING & EVALUATION FRAMEWORK

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
Objective 1: Increase the availability of accurate and complete health data from public and private sources				
Strategy 1.1: Review and strengthen existing legislation, regulations and administrative procedures related to health data recording, reporting, storage, retrieval and dissemination governing both public and private sectors				
1.1.1 Review existing legislation related to HIS covering diseases, accidents, and injuries notification from both public and private sectors	• Inventory report of existing legislation and identified gaps available	MOH	Annual	DPHI
1.1.2 Revise and enact legislation related to HIS covering diseases, accidents, injuries included works related accidents (occupational health) notification from both public and private sector	• Availability of legislation mandating health information reporting from both public and private sectors	MOH	Annual	DPHI
1.1.3 Develop legislation regarding data and reporting of health insurance from both public and private sector.				
Strategy 1.2: Strengthen and develop coordinated mechanisms for enforcement of legislation, regulations and administrative procedures, related to health data.				
1.2.1 Develop procedures, responsibilities and standard report for monitoring adherence to the various HIS and civil registration laws and regulations, and for taking corrective action (e.g., if failure to report infectious disease then license suspension for non-reporting)	• Availability of HIS reporting enforcement manual with procedures, responsibilities, standard reports, and penalties	MOH	Annual	DPHI
Objective2. Improve the quality of health information				
Strategy 2.1: Strengthen HIS supervision and feedback focused on data quality and performance standards adherence				
2.1.1 Review and revise HIS data quality control guidelines, supervision and feedback system (develop checklist, guideline, resources) for both public and licensed private facilities	• Percent of reporting units receiving regular feedback: PHDs, ODS, Pro-TWGHs and PHTATs	PHD OD Pro-TWGH PHTAT	Quarterly	DPHI

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
2.1.2 Conduct regular quarterly supervision and feedback on health data to verify completeness, consistency and accuracy by: -Central HIS staff to PHD and by -HIS staff at PHD to OD levels 2.1.3 Use findings from HIS supervision for feedback to PHD and OD monthly meeting, Pro-TWGH, and PHTAT meeting. 2.1.4 Prepare procedure and evaluation tool for conducting evaluation to validate quality of indicator data from both public and licensed private health facilities 2.15 Conduct evaluation every two years of the indicator data quality from both public and licensed private health facilities	• Evaluation of data quality conducted	Evaluation report	Every 2 years	DPHI
Strategy 2.2: Conduct special assessments of HIS facilities (tools, materials, furniture, ICT means, location, and staffing) at all levels				
2.2.1 Prepare procedure/checklist and assessment tool for special assessment of HIS facilities 2.2.2 Conduct special assessment of HIS facilities every other year, hold findings dissemination workshop (and support budget provision as necessary)	• Special assessment of HIS facilities conducted and results disseminated	Special assessment report	Every 3 years	DPHI
Strategy 2.3: Provide incentives and benefits linked to MBPI for staff involved in the HIS at all level				
2.3.1 Define HIS performance standards and the incentives and benefits to be provided 2.3.2 Provide incentive link to Merit – based performance incentive (MBPI) to HIS staff at all level	• Percent of HIS staff covered by performance incentive schemes	PHD	Annual	DPHI
Objective 3. To enhance HIS commitment, coordination and resources				
Strategy 3.1: Strengthen and maintain the continuing authority and responsibility of the HIS Stakeholders Working Group (SWG) as a technical instrument of inter-sectoral coordination for health related data and link to TWGH and the Statistical Advisory Council (SAC)				
	• Number of HIS-SWG	HIS-SWG	Annual	DPHI

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
3.1.1 Conduct regular and ad hoc meeting of the HIS-SWG	meetings conducted annually	meeting minutes		
Strategy 3.2: Integrate the HIS strategy and implementation plan into the future health strategic plan (HSP) 2008-2015 and health sector AOPs				
3.2.1 Integrate HIS strategy into health strategic plan (HSP) 2008-2015				
3.2.2 Include HIS activities into AOP as one sub-program				
Strategy 3.3: Periodically update the core set of health-related indicators and the multiple sources of data (including CoD from the CR) for monitoring them.				
3.3.1 Workshops to review and revise the list of essential health and service indicators in order to appropriately monitor HSP progress	• Updated list of HSP2 core indicators available	HSP2 M&E section	Annual	DPHI
Strategy 3.5: Insure that Budget Management Centers include provision for routine HIS costs				
3.5.1 Conduct HIS operations costing study at various levels of health system and types of public health facilities (routine costs such as HIS staff, equipment, maintenance, communication, stationery, and document production)	• Percent of PHD AOPs with budget lines for HIS activities	PHD AOPs	Annual	DBF
3.5.2 Formulate, produce and issue guidelines for estimating HIS costs and making provision in the budget management center's AOP				
Objective 4. To increase data sharing, management, analysis, dissemination and use				
Strategy 4.1: Development, use, and maintenance of ICT systems for health data management and communications (metadata dictionary and data warehouse, inter and intranet communications).				
4.1.1 Revise HIS forms (recording and reporting) and revise software accordingly in order to cover all core indicators	• Percent of PHDs with IT staff posted • Availability of functional data warehouse at central MOH	PD PHD DPHI records	Annual Annual	PD DPHI DPHI
4.1.2 Post IT staff for maintaining data at central and PHDs level according to CPA guidelines				
4.1.3 Develop metadata dictionary in collaboration with national institute				

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
of statistic for covering the major statistical data items, their definition, their classification and location in major data bases				
4.1.4 Establish health/population data warehouse at central MOH which integrate relevant data from various sources and allows easy retrieval by various users				
Strategy 4.2: Strengthen the capacity of staff involved in the HIS through in-service training and degree programs on epidemiology/biostatistics/MPH, and software development, ICT use and maintenance.				
4.2.1 Develop HIS training curriculum for PHD, OD and RH managers, HIS Officer, including HMIS recording and reporting, data quality control 4.2.2 Conduct HMIS training on HIS recording and reporting, and data quality control.	• Percent of HIS staff successfully completing HIS training	Training report: pretest-posttest results	Annual	DPHI PHD
4.2.3 Review and revise existing curriculum for short course training				
4.2.4 Conduct short course training of National Hosp, PHD, OD, RH and HC managers on data analysis and use for decision making				
4.2.4 Send health staff for formal training [6month-2 years] in epidemiology and bio-statistics/MPH, and health informatics and HIS related courses. a-In country training: b- oversea 4.2.6 Short course in country training on basic ICT skills 4.2.7 Conduct one week special ToT training course on health information compilation and its application for clinicians [doctors/nurse/midwife]	• Number of staff attending - (i) short course and - (ii) long course training overseas	HRD records	Annual	HRD
Strategy 4.3: Strengthen the joint monitoring process (eg. Joint Annual Performance Review: JAPR) for tracking the implementation and impact of the health sector strategic plan 2008-2015.				
4.3.1 Review and update the JAPR process to include the revised set of national core indicators and promulgate to PHD & OD level.	• National core indicators incorporated into JAPR	JAPR report	Annual	DPHI
Strategy 4.4: Integration of selected indicators from various national service programs into the routine HIS at critical levels (OD, PHD)				

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
4.4.1 Add critical special program indicators to the routine HIS reports at OD and PHD levels (through review and revision of the HIS reporting forms)	• HIS forms revised to include reporting on special program indicators	HIS forms (PRO4 and DO3)	Annual	DPHI
4.4.2 Include presentation and discussion of health indicators into the agenda of monthly PHD/OD management meeting				
Strategy 4.5: Develop and apply a process of service performance assessment and improvement for teams of managers and staff at provincial, district and facility level which engages them in the use of routine service, surveillance and administrative data				
4.5.1 Develop and test an OD health service team performance assessment and improvement process focused on equitable delivery of essential PHC services, and strengthening capacity in problem analysis intervention design, planning and monitoring coverage of risk groups and those with least access using available data	• Percent of ODs with health service team performance assessment conducted	Performance assessment reports	Annual	DPHI PHD
4.5.2 Implement a continuing program of district team performance assessment and improvement processes across the ODs				
Objective 5. Increase the availability and use of population and socio-demographic data down to local administrative levels				
Strategy 5.1: Develop and implement procedures for generating and providing census data and population projections to the smallest administrative levels				
5.1.1 Prepare census data tabulation to commune level and produce census projections to district levels for supporting monitoring and health planning	• Availability of commune population data • Availability of OD population projections	Population data tables	Annual	NIS DPHI
Strategy 5.2: Provide training: for service managers on the use of census data for planning and monitoring; and for core census staff on all phases of census management.				
5.2. Develop training curriculum on census data analysis and use at district level	• Percent of ODs with staff trained in census data use and analysis	PHD records HRD	Annual	NIS DPHI
5.2.2 Conduct workshops on census data dissemination and use at the district levels	• Number of core census staff trained in census data processing, analysis and	NIS records	Annual	NIS

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
	management			
5.2.3 Conduct training on census data processing, analysis and management for core census staff				
Strategy 5.3: Add adult mortality questions to the census questionnaire, and conduct a post-census survey on cause of death				
5.3.1 Update census questionnaires to include adult mortality	• Post census survey on causes of death conducted	Survey report		NIS
5.3.2. Conduct post census survey on cause of death				
Objective 6. Improve coverage and use of civil registration (CR) including causes of death at health facilities and community level				
Strategy 6.1: Plan and implement the expansion of Civil Registration system at health facilities and within communities, including training, and publishing				
6.1.1 Develop standard form for death report (adopt international certificate of death and translate into Khmer) for health facilities public and private	• Percent of communes with functioning civil registration system including cause of death	DoGA/MoI	Annual	DoGA/MoI
	• Compendium of annual vital registration statistics published and disseminated to all concerned	Compendium	Annual	DoGA/MoI
6.1.2 Orientation and dissemination of the standardized death report form to all public and private health care providers, VHSG, and local authority				
6.1.3 Develop a tool for assessing completeness of vital registration at national and sub-national levels				
6.1.4 HIS managers at PHD & OD monitor and provide feedback on filling up the death report form received				
6.1.5- Conduct training on vital data processing and analysis for DoLA/MoI staff at central provincial, and district levels				
6.1.6 Publish annual vital registration				

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
statistics, disaggregated to provincial level [including causes of death] and distribute to all concerned institutions at central, provincial and district levels				
Strategy 6.2: Introduce and provide training in ICD-10 coding and verbal autopsy				
6.2.1 Conduct ICD10 training with health information officers/doctors/ nurses [20 pers**ons**] at all national hospitals in Phnom Penh and RHs at provincial level. Phase I: Pilot in 2 national hospitals in Phnom Penh and one RH in Siem Reap Phase II: The remaining RHs	• No. of HI officers/nurse doctors trained in ICD10	NH	Annual	DPHI
6.2.2 Install ICD10 software in designated facilities	• Percent of national hospitals using ICD-10 Percent of referral hospitals using ICD-10	NH PHD	Annual Annual	DPHI DPHI
6.2.3 Introduce the use of verbal autopsy for determining the cause of deaths outside health facilities, (thereby enabling proper death recording and reporting), in coordination with Vital Registration				
6.2.4 Train at least 2 doctors/ hospital to conduct verbal autopsy				
6.2.5 The two trained doctors will work with the death audit committee to conduct verbal autopsy for all cases of death outside health facility				
6.2.6 Conduct ICD10 training for VR to central DoGA/MoI staff and at provincial/district levels	No. of DoGA/MoI staff and at provincial/ district levels trained in ICD10	DoGA/MoI	Annual	DoGA/MoI DPHI
Objective 7. Increase availability of survey data, including non-communicable diseases (NCDs) and risk factors				
Strategy 7.1: Long-term coordinated planning and design of population based surveys including priority non-communicable diseases and risk factors				
7.1.1. Design population survey on selected priority non-communicable diseases and risk factors [breast or cervix cancers, diabetes, cardiovascular diseases, etc.]	• Availability of prevalence estimates for selected priority NCDs	Survey report	Quinquennial	DPM NIPH NIS
7.1.2. Update long-term plan for nationally representative population				

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
based surveys including design, and implementation, jointly with concerned institutions [NIS/MoP, NIPH/MoH] and development partners, with approval from the Statistical Advisory Committee [SAC]				
Strategy 7.2: Conduct training on household survey design, processing and analysis				
7.2.1 Conduct training on household survey [HH] design, processing and analysis for core NIPH/NIS and DPHI staff	• Number of NIPH, NIS and DPHI staff trained in household survey design and analysis	Training reports	Annual	NIPH NIS DPHI
7.2.2 Provide international training on HH survey design, processing and analysis for core NIPH/NIS and DPHI staff				
Objective 8. Improve the patient medical record, storage, and retrieval system at public and private health facilities				
Strategy 8.1: Revise and strengthen patient record management (medical records, storage and retrieval facilities) in all public health facilities, including ICD coding				
8.1.1 Design an improved patient information recording system, storage and retrieval at all hospitals	Percent of NHs and RHs implementing improved patient information recording system	NH RH	Annual	HSD DPHI
8.1.2 Develop medical record regulation on organization, maintenance, storage, access and confidentiality				
Strategy 8.2: Provide a TOT training course and implementation plan for clinicians in patient record management				
8.2.1 Design TOT training curriculum and materials for a course in patient record management				
8.2.2 Prepare a training and implementation plan for improving patient record management				
8.2.3 Implement the patient record management training and facility level implementation				
Objective 9. Improve the national disease surveillance system, diagnosis, case notification and timely outbreak response				

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
Strategy 9.1: Strengthen the disease surveillance system and procedures, including updating the list of notifiable diseases, their case definitions, notification, lab confirmation and response procedures, mapping of at-risk populations and data sharing and publication				
9.1.1 Conduct meetings to update the list of notifiable diseases	• Availability of updated list of notifiable diseases • Availability of updated surveillance and response procedures and notification forms	Notifiable diseases list Updated procedures and forms	Annual Annual	CDCD CDCD
9.1.2 Conduct meetings to review and update case definitions for notifiable diseases based on existing clinical and laboratory capacity for diagnosis				
9.1.3 Update integrated disease surveillance and response procedures and notification forms				
9.1.4- CDCD and DPHI collaborate with relevant institutions to identify and map populations at risk of priority infectious and non-communicable diseases				
Strategy 9.2: Training – clinical and lab diagnosis, data analysis, and response procedures.				
9.2.1 Conduct training on analysis of surveillance data and outbreak response for rapid response team [RRT] at: Provincial (3-4 staff), District (2), RH (2), and health center (2)	• Percent of PHDs, ODs, RHs, and HCs with RRTs trained in surveillance and outbreak response	PHD	Annual	CDCD
9.2.2 Conduct training on lab confirmation capacity for outbreak investigation for NIPH and PHD lab technicians				
Objective 10. Strengthen the case reporting, monitoring and response to NCDs				
Strategy 10.1: Develop the reporting of non-communicable diseases in the overall surveillance and case reporting and response system, including accidents and injuries				
10.1.1 Conduct meetings on the list of NCDs to be reported and monitored, the case definitions to be applied, the appropriate report forms	• Number of institutional trainers trained in implementation of NCD reporting procedures	Training reports	Annual	DPM

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
10.1.2 Conduct training of institutional trainers in the implementation of the NCD reporting procedures, guideline and reporting				
Objective 11. Expand the participation in the national HIS by the private sector				
Strategy 11.1: Broaden the participation of private providers in the national HIS, including the surveillance system, through inventorying them, and sensitizing and informing them about legislation, and providing them with the necessary standard forms, and adjusting HMIS software				
11.1.1 Update inventory of private health facilities at all levels	• Availability of private sector utilization and service statistics in national health statistics report	National health statistics report	Annual	HSD DPHI
11.1.2 Provide training to the private health facilities [hospital, polyclinics] at central and provincial levels on health data reporting through health information forms				
11.1.3 Update HMIS software to include data from private facilities at central and provincial levels				
Objective 12. To expand and improve data and database on health infrastructure, human resources and logistics				
Strategy 12.1: Strengthen the system for tracking budgets and expenditure from all sources of finance and link with the development of National Health Accounts (NHA)				
12.1.2 Conduct analysis of the various budget and expenditure systems used across the health sector; design the necessary data flow for expenditure tracking linked with PETS	• Availability of national and local budget and expenditure tracking information	DBF records	Annual	DBF
12.1.3 Design and develop the data communications and storage system required for expenditure tracking against the budgets, including the required tracking reports				
12.1.4 Implement the tracking system in an incremental manner				
Strategy 12.2: Strengthen human resources, facilities and drug management support systems through assessment, procedures development (including data base development) and training				

ACTIVITIES	INDICATORS	DATA SOURCE	FREQUENCY	RESPONSIBILITY
12.2.1 Establish support system assessment teams (at central level) and carry out assessments of the current functioning of: Human Resources administration, Facility operations and maintenance, and the drug management (DM) and logistics systems	• Availability of computerized HR, facilities O&M, and DM and logistics system	HRD, Admin & DDF records	Annual	HRD AD DDF
	• Percent of PHDs and ODs using GIS for planning, implementation and monitoring of service delivery	PHD records OD records	Annual	DPHI
12.2.2 Based on the assessment results, revise administrative procedures and data flow for improving the performance of these support systems				
12.2.3 Undertake software revision and development to support the revised systems and procedures				
12.2.4 Prepare procedural documentation for the revised administrative procedures including the operation and maintenance of the supporting data flow and data bases				
12.2.5 Conduct training on GIS [database maintenance and mapping] for central and provincial/district HIS staff				

PREREQUISITES FOR SUCCESS 10

The success of this HISSP will be judged by whether it is:

- Fully endorsed by central government with supporting policies, mandates and legislation.
- Adequately funded and supported by the Government and the key external development partners.
- The wide array of organisations and stakeholders involved should keep a sound network and adopt the necessary coordination mechanisms.
- Widely communicated and understood by the stakeholders, professional associations, media and citizens.
- Act as a catalyst and a support more effective policy and action.
- Provides the platform to ensure a more consistent and standardised approach is adopted when managing public health data and information.
- Is fully implemented so that it can deliver the information required for informed decision making.

ANNEXES 11

Annex 1:

Priority Issues: Group 2

ID	No	Title or Subject of Issue	Avg	Import	Feasible
	I. Resource				
1	I.A.1	*Updated legislation and enforcement needed* on disease notification, private sector data, health insurance.	1.3	+ + +	+
2	I.A.6	*There is no regular system for monitoring* the performance of the HIS and its various sub-systems based on existing mechanism (within health system)	1.2	+ +	+
3	I.A.7	*There has been some discussion but no policy on promoting the culture of information use* throughout the health system.	1.0	+	+
4	I.B.1	*Limited national capacity in core health information sciences* to meet health information needs (epidemiology, demography, statistics, health planning)	1.0	+ +	+
5	I.B.3	Less than 50% of health offices at sub-national level have a full-time HI position. Inadequate ***incentive mechanisms*** to retain competent existing HIS staff.	1.0	+ + +	+
6	I.B.4	Limited capacity building of HIS staff on statistics, software and database maintenance, and epidemiology.	1.0	+ + +	+
7	I.B.6	Limited assistance and support to HIS staff on IT and database. Need for more IT staff and capacities, and more desire by them to remain in the health sector	1.0	+ + +	+
8	I.B.9	1. *Inadequate budget for HIS* development and management 2. Inadequate donor *financial support* for HIS development	0.6	++	+
9	I.C.4	Majority of managers at national and provincial level have access to computers. Inadequate *number of computers* for managers at other levels	1.4	+	+
10	I.C.5	Inadequate *basic communications technology at central, provincial and district levels.*	0.7	+	-
11	I.C.6	There is not always IT *equipment maintenance support. This prevents HIS providing data required*	1.0	+ +	+
	II. Indicators				
12	II.A.3	Insufficient participation among key	1.4	+ +	+

ID	No	Title or Subject of Issue	Avg	Import	Feasible
		stakeholders in *defining core indicators*.			
13	II.A.5	Irregular *reporting of minimum set of core indicators at all levels*.	1.6	+ +	+
	IV. Data management				
14	IV. A.1	*Procedures on data management* exist for some reporting systems, but are not fully implemented	1.0	+	+
15	IV. A.2	There is some *data base maintenance at national level*, but not true data warehousing and it needs improved accessibility and information enrichment	0.7	+	-
16	IV. A.4	*No metadata dictionary* for selected priority data and indicators exists	0.2	+ +	+
17	IV. A.5	*Identifier codes* for public health facility and administrative geographic units exists but do not match between different data bases	1.5	+ +	+
	V. Information Products				
		A. Health Status Indicators			
18	1. Under five mortality (all cause)	V.A.1.1 Only from HH survey. (Need to *improve data collection method through VR)*	1.5	+ + +	+
19	2. Adult mortality (all cause)	V.A.2.1 Only from HH survey. (Sample VR not currently used.	1.9	+ + +	+
20	3. Maternal mortality	V.A.3.1 Only from HH survey, *sample VR not used.* Need to *Improve data collection method through VR*	1.3	+ + +	+
		B. Health System Indicators			
21	V.B.6.1 Outpatient attendance	Data collection method **-** *Clinic reports are not validated*. There is no evaluation of completeness, accuracy and timeliness at health facilities	1.2	+ +	+
22	V.B.6.2 Timeliness	*Inadequate timeliness of data publishing* [Last data collection of Outpatients only for public sector was 18 -29 months ago] (Not issue only 6-7month)	1.6	-	+
23	V.B.6.8 Disaggragation	*Disaggragation of data* for two of the following: by sex, age, socio economic status and locality - by province, district and age	1.1	+	-
24	V.B.8.1 Deliveries attended by skilled health professionals	There is little evaluation of the completeness or consistency, especially in the private sector	1.3	+	-
25	11. General government expenditure	V.B.11.1 Data imputed from secondary sources (No *national health accounts)*	1.5	+ +	+

ID	No	Title or Subject of Issue	Avg	Import	Feasible
	on health GGHE) per capita				
26	V.B.12.1 Private expenditure on health /capita	Data collection & estimation using only one HH survey for out-of-pocket expenses and no data for health insurance and private sources	1.0	+	+
	C. Risk Factors Indicators				
28	14. Smoking prevalence (15 years & older)	V.C.14.1 Inadequate *data collection method* for most recent data point	1.5	+	+
29	15. Condom use with higher risk sex	V.C.15.1 Inadequate *data collection method* for most recent data point.	1.5	-	+
	3. Information on financing of health services				
27	III.F.1 Contents	1.7 Only national level ability for *tracking budgets and expenditures (NHA)* and disaggregated by provincial level	1.2	+ +	-
	VI. Dissemination and use				
	A- Analysis and use information				
30	VI.A.2	*Senior managers and policy makers* ask for data but do not have the skills to judge the quality, etc. Manager at all level not adequately use data for decision making	1.8	+ + +	+
31	VI.A.3	*Graphs* are used at sub national/district level but are not fully understood	2.0	+	+
32	VI.A.4	*Maps* are used to display at sub national level but are not kept up to date (How often?)	1.8	-	+
33	VI.A.5	Central HIS Unit regularly provides information to contribute to policy and planning, but it is of limited depth analysis.	1.8	+ + +	+
	B- Policy and Advocacy				
34	VI.B.4	*Policy and decision makers sometimes use health information* to evaluate performance and set policies on health, but are concerned about data validity.	1.6	+	+
	C- Planning and Priority Setting				
35	VI.C.2	*Limited capacity of district health staff in data analysis*.	1.8	+ + +	+
	D- Resource allocation				
36	VI.D.1	Limited use of HIS information for *setting resource allocation*, few proposals are backed up with information	1.0	+	-
37	VI.D.3	HIS information is used to advocate for equity	1.0	-	-

ID	No	Title or Subject of Issue	Avg	Import	Feasible
		on ad hoc basis			
	E- Implementation/Action				
38	VI.E.3	Only ad hoc *use of information on health risk factors* to advocate less-risk behavior in the general public as well as in targeted vulnerable groups.	1.4	-	-

Priority Issues: Group 2

ID	No	Title or Subject of Issue	Avg	Import	Feasib
	III. Data Sources				
	A-Census				
39	III.A.1 Contents	1.1 Last census had only questions on recent household death and child mortality, *no adult mortality.*	1.2	+	+
40	III.A.2 Capacity & practices	2.1 Limited **capacity** *in census data processing and analysis*	0.3	+	+
41	III.A.3 Dissemination	3.1 Only central level officials have immediate access to the last Census data. No early *provision of census data at the smallest (commune) administrative level*.	1.1	+	-
42		3.3 *Accurate projections by age and sex are* available only at provincial level, *not at district level.*	0.9	+	-
43	III.A.4 Integration and use	4.1 Use of population census data for coverage monitoring and health planning at central and provincial levels only.	1.0	+	+
	B-Vital statistics				
44	III.B.1 Contents	1.2 Low *coverage of deaths* with vital registration *(between 50-69%)*	1.7	+	+
45	III.B.2 Capacity & practices	2.1 Inadequate *capacity in data processing and analysis*	0.8	+	+
46		2.2 The assessment of *completeness VR has never been done*	0.0	+	-
47		2.3 Introduction of *classification of diseases* and related health **problems** *has not taken place (ICD)*	0.0	+	+
48	III.B.3 Dissemination	3.1 Publication of *VR statistics never published*	0.0	+	+
49	III.B.4 Integration and Use	4.1 Limited *use (mortality) of VR* at national and sub-national levels; ***Cause of death not used.***	1.9	+	+
	C. Population-based surveys				
50	III.C.1 Contents	1.3 No nationally representative measurement of *the prevalence of any priority non-communicable disease or risk factors*	1.0	+	+
51	III.C.2 Capacity &	2.1 capacity in *designing and conducting household surveys, but limited capacity in*	1.5	+	+

ID	No	Title or Subject of Issue	Avg	Import	Feasib
	practices	*processing and analyzing the data.*			
52	III.C.4 Integration and use	4.1 Limited *coordination and inadequate long-term planning for a nationally representative population-based health indicator surveys*	0.3	+	+
53		4.2 Inadequate coordination and conduct of *survey design, data analysis and use*	1.1	+	+
	D. Health and disease records (including disease surveillance systems)				
54	III.D.1 Contents	1.1 *There are three or more diseases for which case definitions are needed* [e.g, typhoid fever, food intoxication, chemical pollution from factories]	2.0	+	+
55		1.2 A *measurement strategy* is needed for several more health conditions	1.2	+	+
56		1.3 Few *public health risks, pop. at risk* have been mapped [environmental health: toxic waste dumping site, need to be mapped]	0.9	+	+
57	III.D.2 Capacity & Practices	2.1 *Capacity exists for the following two surveillance functions:* diagnosis, case reporting, limited capacity for analysis and outbreak response	1.7	+	+
58		2.5 Improve *outbreak investigation with lab confirmation* (75 to 89% currently confirmed by labs)	1.6	+	+
59		2.6 *Essential patient information* is often not recorded and records are unretrievable	1.5	+	+
60		2.7 *No ICD coding is used*	0.0	+	+
61	III.D.4 Integration &Use	4.1 There are a *number of disease reporting forms* and some efforts to integrate and coordinate.	2.1	+	-
62		4.2 Approximately 50% of epidemics are detected from districts	1.4	+	+
	E. Health service records				
63	III.E.1 Contents	1.1 Health information includes *few private facilities*	0.6	+	+
64		1.2 *Information on service quality* from only a small sample of facilities.	1.1	+	+
65	III.E.2 Capacity & practices	2.1 No HIS staff in districts have received ***training*** through specialized/short courses	0.0	+	+
66		2.2 It appears that the majority of *clinicians have not been trained in health information*	0.5	+	+
67		2.3 *Supervisions and feedback* mechanisms are inadequate	1.2	+	+
68		2.4 Inadequate means of verifying *completeness and consistency of data from facilities*	1.0	+	+
69		2.5 In less that 50% of districts used census *pop. projections to calculate coverage rates*	0.8	+	+

ID	No	Title or Subject of Issue	Avg	Import	Feasib
		(immunization)			
70	III.E.3 Dissemination	3.2 Inadequate preparation of ***monthly and annual reports*** in districts with disaggragation by health facilities	1.2	+	+
71	III.E.4 Integration & use	4.1 There is inadequate *linkage between vertical reporting systems and general health service reporting system*	1.6	+	+
72		4.2 There is inadequate ***assessment of the validity of clinic-based data*** through comparison with data from other sources (surveys and VR)	1.2	+	+
	F. Administrative records				
	1. Database/mapping of infrastructure and health services				
73	III.F.1 Contents	1.2 There is a *database of public health facilities,* but need to improve GPS coordinates	1.8	+	+
74	III.F.2 Capacity & practices	2.1 There is limited capacity and equipment for *database maintenance and mapping*	1.1	+	+
75	III.F.4 Integration and use	4.1 Inadequate capacity of managers at district level *for assessing physical access to services by referring to pop. distribution*	1.0	+	+
	2. Database of human resources				
76	III.F.2 Capacity and practices (continued)	2.3 Inadequate staff capacity and equipment for *maintaining national HR databases*	1.0	+	+
	4. Database on equipment, supplies and commodities				
77	III.F.2 Capacity and practices (continued)	2.9 Inadequate number of *skilled human resources for managing logistics, supplies and commodities*	1.2	+	+

Annex 2: Priority health problems and key health indicators

REPRODUCTIVE, MATERNAL, NEONATAL AND CHILD HEALTH (RMNCH) ' s Priorities and Essential Services

Health Priorities & Essential Services
• Family planning and birth spacing • Safe abortions • Maternal and child nutrition • Antenatal care • PMTCT • Skilled birth attendance • Emergency Neonatal Obstetric care (EmNOC) • Integrated postnatal care of mothers and newborns • Immunization, including measles & tetanus elimination, and introduction of new vaccines • IMCI • Essential pediatric care • Adolescent/Youth health • Key family practices

Indicator	Annual	Core JAPR	Source
			CDHS
Total fertility rate			
Maternal mortality ratio per 100,000			
Neonatal mortality rate per 1,000			
Infant mortality rate per 1,000			
Under-five mortality rate per 1,000			
Anaemia in women of reproductive age (%)			
Anaemia in pregnant women (%)			
% of reproductive age women with low body mass index (BMI)			
Proportion of infants put to the breast within one hour after birth (%)			
Proportion of infants 0-6 months old exclusively breastfed (%)			
% of children under 5 underweight [*according to New WHO Growth Standards*]			
% of children under 5 wasted			
% of children under 5 with chronic malnutrition: stunted [*according to New WHO Growth Standards*]			
Proportion of children under 1 fully immunized (%)			

% of children under 5 years with cough or difficult breathing who sought treatment by public health provider			
Proportion of children with diarrhea having received ORT (%)			
			HIS
% of HCs implemented IMCI [IMCI-CS]	✓		
Contraceptive prevalence using modern contraceptive method	✓	✓	
2 or more ANC health personnel consultation (%)	✓	✓	
% of pregnant women receiving iron/folate supplementation	✓		
% of pregnant women receiving at least two TT injections	✓		
% of HIV+ pregnant women receiving ART for PMTCT	✓	✓	
% births delivery by trained health personnel	✓	✓	
% births delivery by trained health personnel at health facilities.	✓		
% of deliveries by C-section	✓	✓	
% of postpartum women receiving iron/folate supplementation	✓		
% of children under one year immunized with DPT3-HepB	✓		
% of children under one year immunized against measles	✓	✓	
% of children 6-59 months receiving vitamin A 2 doses during the last 12 months	✓		
% of child 6-59 months receiving mebendazole every 6 months	✓		
Dengue hemorrhagic fever case fatality rate reported to public health facilities	✓	✓	

Communicable Diseases' Health Priorities and Essential Services

Health Priorities & Essential Services
• Reproductive track infections • HIV/AIDS/STI • TB, leprosy • Dengue Fever • Malaria • Helminthiasis • Schistomosiasis • Emerging and remerging diseases • International Health Regulation implementation

CDHS: Cambodia demographic and health survey

Indicator	Annual	Core JAPR	Sources
			CDHS
HIV prevalence rate among adult 15-49			
TB death rate per 100,000 population			
Malaria case fatality rate per 1,000 population			
			HIS
% of HIV+ pregnant women receiving ART for PMTCT	✓	✓	
# of Voluntary Confidential Counselling and Testing sites operating in public and non-for profit sector	✓		
% PLHAs on ART survival after a 12-month treatment.	✓	✓	
Case detection rate of smear (+) pulmonary TB (%)	✓	✓	
TB cure rate (%)	✓	✓	
Incidence of malaria reported at public health facilities per 1,000 population			
# of Malaria cases treated at public health facilities per 1,000 population	✓	✓	
% of families living in high malaria endemic areas (< 1 km from forest) of 20 provinces have sufficient (1 net per 2 persons) treated bed nets (LLIN/ITN)	✓		
Dengue hemorrhagic fever case fatality rate report to public health facilities	✓	✓	

Non-Communicable Diseases' Health Priorities and Essential Services

Health Priority & Essential Services
• Diabetes • Cancer • Cardio-Vascular Diseases • Mental illness, including substance abuse • Blindness prevention • Oral health • Environmental health risks • Injury, trauma from accidents • Accident • Occupational health • Rehabilitation • Elderly • Food safety • Tobacco

Indicator	Annual	Core JAPR	Sources
			CDHS
% of deaths due to road traffic accident			
			HIS
% of injured population with head trauma due to road traffic accident received treatment	✓	✓	
Incidence of cervical cancer per 10,000 population reported from public health facilities	✓		
Prevalence of adult with diabetes reported from public health facilities	✓	✓	
Incident of hypertension per 1,000 population	✓		
% of adult smoking male/female	✓		
Blindness rate (%)	✓		
% Decayed missing filling teeth for children	✓		
# of mental health cases reported from public health facilities	✓	✓	
# of IDUs enrolled in Opioids substitution treatment	✓		

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