



# Mid-Level Management Course for EPI Managers

Block II: Planning/organization

Module 4: Planning  
immunization activities

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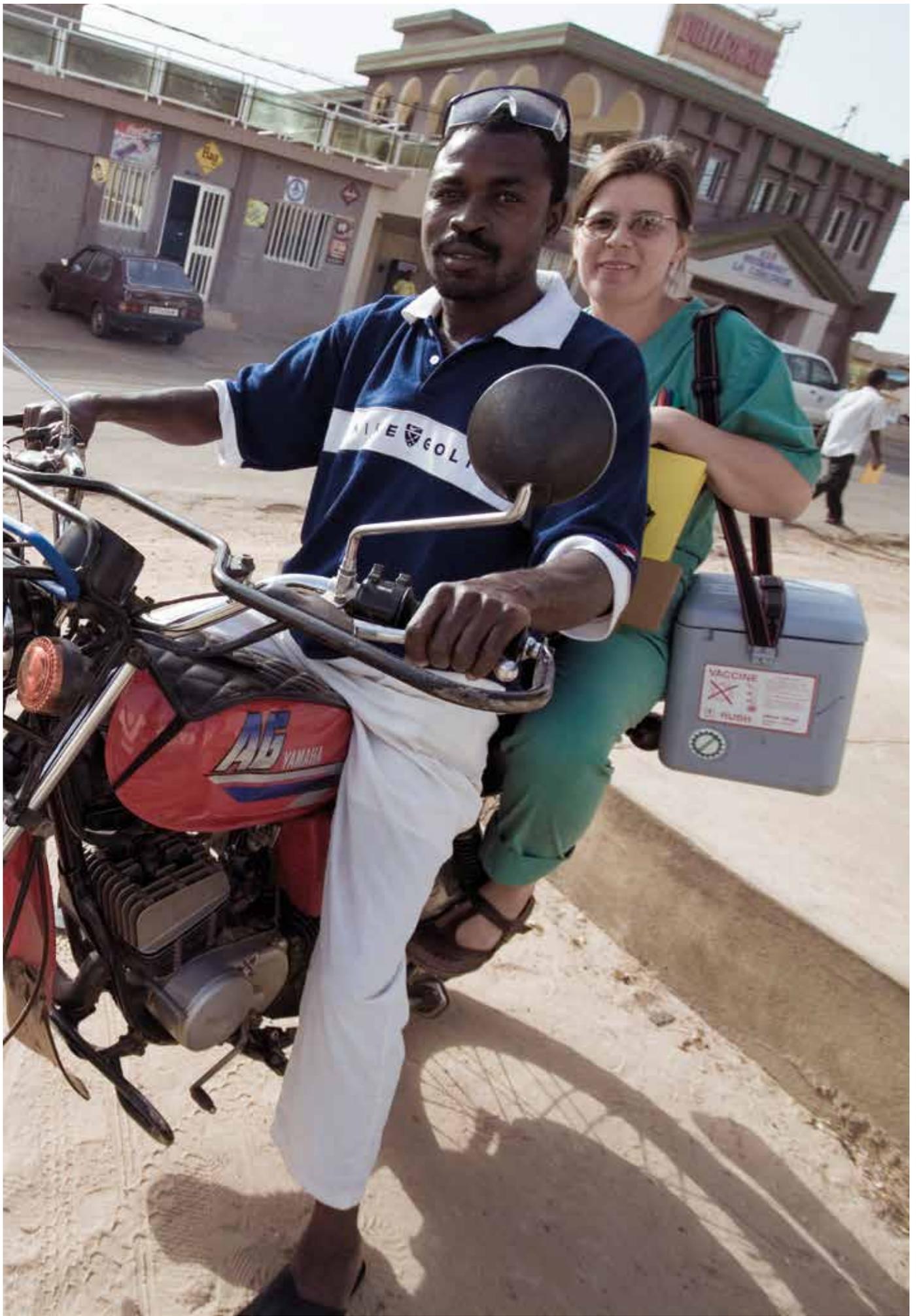


World Health  
Organization

REGIONAL OFFICE FOR

Africa





# Mid-Level Management Course for EPI Managers

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Module 1: A problem-solving approach to immunization services management

Module 2: The role of the EPI manager

Module 3: Communication and community involvement for immunization programmes

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## **BLOCK II: Planning/organization**

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# Abbreviations and acronyms

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AD	auto-disable (syringe)
AEFI	adverse events following immunization
AFP	acute flaccid paralysis
AVW	African Vaccination Week
BCG	Bacillus Calmette-Guérin (vaccine against TB)
CHW	community health worker
cMYP	comprehensive multi-year plan
DTP	diphtheria-tetanus-pertussis-containing vaccine
EPI	Expanded Programme on Immunization
FC	capital/fixed costs
GAPPD	Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea
Gavi	Global Alliance for Vaccines and Immunization
GVAP	Global Vaccine Action Plan (2011–2020)
HepB	hepatitis B vaccine
Hib	<i>Haemophilus influenzae</i> type b vaccine
ICC	interagency coordination committee
IEC	information, education, communication
IMCI	Integrated Management of Childhood Illness
JRF	WHO/UNICEF Joint Reporting Form
MNCHW	Maternal, Neonatal and Child Health Week
M&E	monitoring and evaluation
NID	national immunization day
OPV	oral polio vaccine
PAB	protected at birth (related to newborn protected from neonatal tetanus at birth)
PCV	pneumococcal conjugate vaccine
Penta	pentavalent vaccine (a vaccine combination with five antigens)
PHC	primary health care
PPP	public-private partnership
RED/REC	Reaching Every District/Reaching Every Community
RI	routine immunization
RSPI	Regional Strategic Plan for Immunization (2014–2020)
SIA	supplementary immunization activities
SMART	specific, measurable, appropriate, realistic, time-bound

SWOT	strengths, weaknesses, opportunities, threats (a tool for situation analysis)
TT	tetanus toxoid
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VC	recurrent/variable costs
VPD	vaccine-preventable diseases
WHO	World Health Organization

# Glossary

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<b>Activity</b>	Relevant intervention to implement each strategy, distributed in time and space in the workplan. It is a task or a set of interrelated tasks aimed at generating a product or a result.
<b>Aim</b>	Purpose or final objective.
<b>Annual plan</b>	A plan that covers the period starting January and ending December of each year. The annual planning cycle may differ in some countries.
<b>Assessment</b>	An examination of inputs, process, outputs of a project or programme conducted to measure performance and ascertain readiness and capacity to perform roles and responsibilities or achieve set objectives. It is linked to policies and systems under which the programme operates.
<b>Constraints and alternatives</b>	Possible difficulties or obstacles that may be encountered when implementing your plan. They often relate to the activities or resources. The alternatives are various options and possible solutions for dealing with each constraint.
<b>Evaluation</b>	A periodic assessment of overall programme status: performance, effectiveness and efficiency. It is linked to policies, programme processes, systems under which the programme operates, strategic choices, outcomes and impact.
<b>Financial plan</b>	An estimated statement of revenue and expenditure, consisting of the objectives, services and budgetary estimations.
<b>Implementation</b>	The act of actually undertaking an intended and planned course of action.
<b>Indicator</b>	A variable that is used to measure progress towards the achievement of targets and objectives. It is used to compare performance in terms of efficiency, effectiveness and results. It is also used to measure impact of interventions.
<b>Milestone</b>	Step of a significant achievement towards the accomplishment of an activity or a programme. Usually it also includes “milestone” years when the specific activity should be completed.
<b>Mission</b>	A continuing task or responsibility that an organization is destined or specially called upon to undertake. For example, the EPI mission is to immunize the target population in order to control or eradicate diseases preventable by immunization.
<b>Monitoring</b>	A systematic and continuous process of examining data, procedures and practices to identify problems, develop solutions and guide interventions. Monitoring is conducted on a regular basis (daily, weekly, monthly and quarterly). It is linked to the implementation of programme activities. The information collected is used to direct programme activities on a continuous basis.

<b>Objective</b>	A quantifiable product or a positive change expected from implementation of a plan. It is the end result a programme, project or institution seeks to achieve.
<b>Plan of action</b>	A document defining activities for generating result/product under a specific programme by identifying who does what, when, how and for how much.
<b>Programme</b>	A coherent entity of related projects or services that are directed by a group of people at achieving specific objectives.
<b>Progress</b>	Step reached towards the achievement of an objective or goal.
<b>Project</b>	A set of activities planned to achieve specific objectives by project staff within a given budget, having a definite beginning and end.
<b>Resources</b>	Include all the material, financial and human resources required for carrying out planned activities.
<b>Strategic or multi-year plan</b>	For the purpose of this module, a multi-year plan covers a period of five years. This plan provides mid-term strategies and resource potentials for achieving strategic goals and objectives (e.g. EPI routine coverage levels exceeding 80% or arriving at certification status of polio eradication, etc.).
<b>Strategy</b>	A description of how the objectives of EPI will be achieved, namely the types of services or methods of intervention.
<b>Targets</b>	Categories expressed exclusively in measurable terms in relation to each objective. They are time-bound and have a specific deadline for achieving the desirable level or result.

# 1. Introduction

## 1.1 Context

The Expanded Programme on Immunization (EPI) is a key global health programme. Its overall goal is to provide effective and quality immunization services to target populations. EPI programme managers and staff need to have sound technical and managerial capacities in order to achieve the programme's goals.

The immunization system comprises five key operations: service delivery, communication, logistics, vaccine supply and quality, and surveillance. It also consists of three support components: management, financing and capacity strengthening.

National immunization systems are constantly undergoing change, notably those related to the introduction of new vaccines and new technologies, and programme expansion to reach broader target populations beyond young children. The EPI programme also faces external changes related to administrative decentralization, health reforms, as well as the evolving context of public-private partnerships (PPPs) for health, among others.

To ensure the smooth implementation of immunization programmes, EPI programme staff have to manage these changes. This requires specific skills in problem-solving, setting priorities, decision-making, planning and managing human, financial and material resources as well as monitoring implementation, supervision and evaluation of services.

National immunization programmes (NIPs) operate within the context of national health systems, in alignment with global and regional strategies. For the current decade, 2011–2020, the key global immunization strategies are conveyed through the Global Vaccine Action Plan (2011–2020) (GVAP) and the African Regional Strategic Plan for Immunization (2014–2020) (RSPI).

These strategic plans call on countries to:

- improve immunization coverage beyond current levels;
- complete interruption of poliovirus transmission and ensure virus containment;<sup>1</sup>
- attain the elimination of measles and make progress in the elimination of rubella and congenital rubella syndrome;<sup>2</sup> and
- attain and maintain elimination/control of other vaccine-preventable diseases (VPDs).

The key approaches for implementation of the GVAP/RSPI include:

- implementation of the Reaching Every District/Reaching Every Community (RED/REC) approach and other locally tailored approaches and move from supply-driven to demand-driven immunization services;
- extending the benefits of new vaccines to all;
- establishing sustainable immunization financing mechanisms;
- integrating immunization into national health policies and plans;
- ensuring that interventions are quantified, costed and incorporated into the various components of national health systems;
- enhancing partnerships for immunization;
- improving monitoring and data quality;
- improving human and institutional capacities;
- improving vaccine safety and regulation; and
- promoting implementation research and innovation.

The RSPI promotes integration using immunization as a platform for a range of priority interventions or as a component of a package of key interventions. Immunization is a central part of initiatives for the elimination and eradication of VPDs, and of the integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) by 2025.

It is understood that while implementing the above strategies, EPI managers will face numerous challenges and constraints that they need to resolve if the 2020 targets are to be met. Building national capacity in immunization service management at all levels of the health system is an essential foundation and key operational approach to achieving the goals of the global and regional strategic plans.

In view of this, the WHO Regional Office for Africa, in collaboration with key immunization partners such as the United Nations Children's Fund (UNICEF), United States Agency for International Development (Maternal and Child Survival Program) (USAID/MCSP), and the Network for Education and Support in Immunisation (NESI), have revised the Mid-Level Management Course for EPI Managers (MLM) training modules. These modules are complementary to other training materials including the Immunization in Practice (IIP) training manuals for health workers and the EPI/Integrated Management of Childhood Illnesses (IMCI) interactive training tool.

<sup>1</sup> WHO, CDC and UNICEF (2012). Polio Eradication and Endgame Strategic Plan 2013–2018.  
<sup>2</sup> WHO (2012). Global Measles and Rubella Strategic Plan 2012–2020.

This module (4) titled *Planning immunization activities* is part of Block II: Planning/organization.

## 1.2 Purpose of the module

This module constitutes the basic structure for conceptualizing the planning process. The aim of this module is to assist EPI managers to develop strategic multi-annual and annual plans as well as operational plans. The planning process offers each EPI manager an opportunity to introduce issues related to the quality of services and their delivery. The module also helps programme managers plan their future needs for cold chain equipment, vaccines, staff training and to develop techniques for preparation of the programme budget.

## 1.3 Target audience

This module is intended for EPI managers at national, regional and district levels. It will help national and regional managers to think strategically, and district managers to prepare and implement their operational plans.

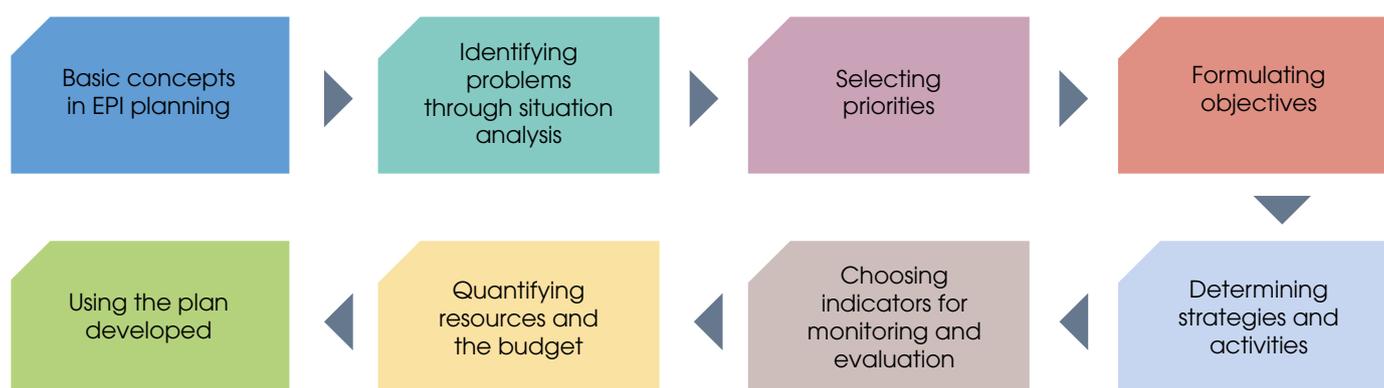
## 1.4 Learning objectives

At the end of this module, participants should be able to:

- understand the fundamental principles/basic concepts in planning
- conduct a situation analysis of the immunization programme
- identify priority problems
- set objectives and targets
- identify appropriate strategies and activities
- identify and select appropriate indicators to monitor the implementation of the plan
- quantify the resources required to implement the plan
- translate the plan into an action plan for the peripheral level.

## 1.5 Contents of the module

This module, developed according to the main steps of the planning process, contains the following sections.

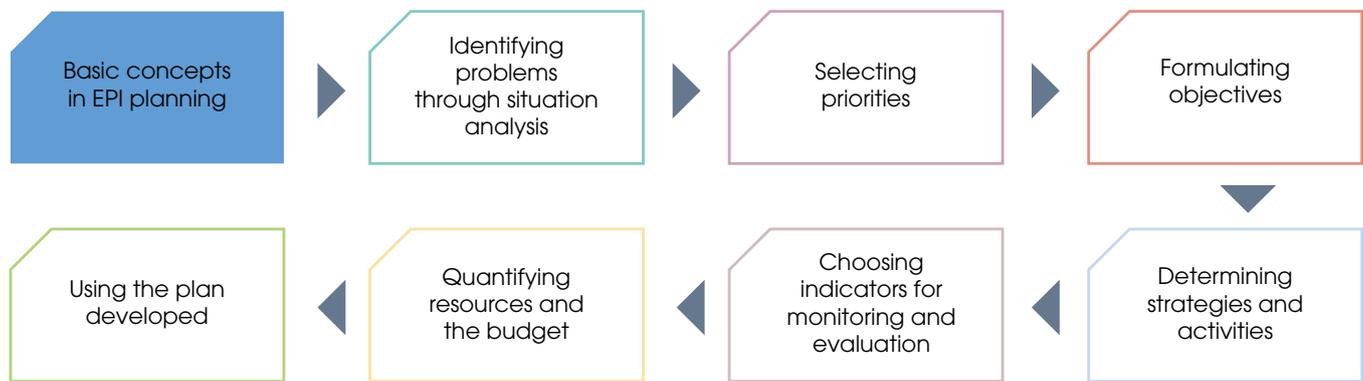


## 1.6 How to use this module

To ensure effective use of the module, the following approach is proposed:

- read the text thoroughly;
- follow attentively the audio-visual presentations by the facilitators;
- ask for necessary clarifications;
- discuss the key concepts in plenary session;
- go through the relevant exercises/case studies individually or in small groups; and
- exchange your findings with other colleagues and the facilitators.

To master the detail of each planning step, participants should move systematically from one exercise to the next. The main topics for discussion will include routine immunization (RI), logistical support to improve immunization coverage, surveillance and social mobilization activities. A supplementary exercise refers to the introduction of new vaccines in the immunization schedule. This helps participants acquire techniques in planning and also exposes them to the challenges they will face.



## 2. Basic concepts in EPI planning

To be effective, any programme should have a clear vision of the future and a well-thought-out plan to translate this vision into reality. The planning of EPI is defined as a continuous process for analysing data, evaluating achievements and constraints, and taking decisions to achieve the objectives.

The EPI planning exercise should help managers better understand the programme, its objectives, its strategies and the activities and resources required for achieving these objectives. The plans should provide answers to the following questions:

- What is the vision of EPI?
- What is the current situation of EPI at national, regional, district and grassroots levels?
- What does EPI intend to do in the next five years?
- How can it be done (what strategies will be used)?
- What can be done (what are the activities)?
- How will EPI activities be funded?
- How will EPI activities be monitored and evaluated?

### Exercise 1

Form four groups.

Group 1: Refer to the glossary. Using the brainstorming technique, propose a functional definition in your own words of the following concepts: vision, planning/plan, objective, strategy, target, milestone, activity, indicator, activity schedule, budget.

Group 2:

Task 1: Refer to the Regional Strategic Plan for Immunization (2014–2020).

- Identify the contents of the plan (constituent chapters);
- Identify the vision of EPI within the African Region.

Task 2: Based on your experience, define different plans with which you are familiar (type, duration, purpose, etc.).

Groups 3 and 4: Review your background document on the Global Vaccine Action Plan (2011–2020). Within your group discuss the six strategic objectives of GVAP and ascertain what is actually being or can be done in your countries to address each specific objective. Use the format below for your presentation.

GVAP strategic objectives (six)	What is being done	What else can be done

## 2.1 Organization of the planning process

As a complex and vital process, planning requires skills, resources and time. From the beginning, it is important to understand that the planning process helps to expose all the problems associated with EPI and to develop appropriate strategies for resolving them. The most frequent and current challenges are, how to:

- Increase immunization coverage.
- Ensure sustainability of immunization services after external resources have been exhausted.
- Maintain the quality of immunization services.
- Reduce missed opportunities and un- and under-immunized.
- Resolve issues related to the introduction of new vaccines.



The planning process requires teamwork. Selection of the members of the planning team depends on the type of planning. Generally, the first step is to constitute the planning team, which should comprise policy-makers, actors/partners, health-care providers and beneficiaries. At the outset, ensure that all the members of the team have the same understanding of the immunization programme, the problems it faces, and the same vision of the future. All of them must be motivated to perform assigned tasks.

### 2.2 Mission statement

The preparatory stage of the planning process consists of stating the overall mission of EPI. This involves specifying the unique and strategic vision of the national EPI, its aims and priorities. Participants should bear in mind that:

- EPI is a programme that interacts with other health programmes and related ongoing reforms within the health sector as well as current changes in its external environment (demographic, epidemiological, macro-economic, political and others).

- The core operations of the immunization programme consist of immunization service delivery, vaccine supply and quality, logistics, surveillance, advocacy and communication. The supportive components are management, funding and human resources. (For more details on these categories refer to Module 1: *A problem-solving approach to immunization services management*.)

The mission statement addresses what EPI should achieve as a single programme and also its contribution to the achievements of the wider health sector, including other related health programmes such as reproductive health, Integrated Management of Childhood Illness (IMCI), nutrition and others. The EPI mission statement may be summarized in several ways, for example:

- Improving the health of children by eradicating polio and combating all vaccine-preventable diseases as part of the general improvement of health services.
- Improving the health of the child and the pregnant woman by providing them with quality immunization services in an equitable and safe manner.
- Enhancing the availability and use of quality immunization services, everywhere and for all.

### 2.3 Types of planning process

- Depending on the hierarchy of the national health system, EPI planning may be **centralized** or **decentralized**.
- Planning is centralized when the national plan takes precedence and thus generates regional plans from which district plans are drawn (top-down planning).
- In decentralized planning, the district plans engender regional plans, which in turn constitute the national plan (bottom-up planning).
- Depending on the level of the national health system, the planning may be **strategic** or **operational**.
- Strategic planning results in a long-term plan and includes aims, objectives and strategies of EPI. The central level of the ministry of health (MOH) normally develops strategic plans that regional/provincial and district levels use as a reference. To define a long-term vision and give orientation and coherence to planning at district level, the national programme should develop a national five-year strategic plan, describing the policies, long-term objectives and general strategies of the programme.

- Operational planning at district level is the concrete expression of the strategic plan. It is the mainspring of the implementation, the action and field interventions.

The district annual micro-plans constitute the basis for developing efficient plans at national level. Using the national strategies and policy as a basis, the districts should carefully determine their needs, as well as the strategies, activities and resources to facilitate the achievement of EPI objectives. In countries where EPI management and funding are decentralized, the districts provide the central level with their plans and needs. The completeness and accuracy of district data will

contribute to the development of a good EPI annual plan. This action plan, based on data compiled from district micro-plans, will describe in greater detail the activities and resources that should contribute to the achievement of the EPI objectives for the specific year.

The three stages of the EPI planning process, namely the development of the national five-year strategic plan, the district annual micro-plan and the national annual EPI plan, are interdependent. Figure 2.1 represents the planning process, i.e. sequential steps to follow for preparing plans. (Participants should also refer to Annex 2 on the proposed structure of the plan.)

**Figure 2.1 The planning process**



## 2.4 Contents of the plan

The duration and content of the plans vary according to their type, as shown in Table 2.1.

**Table 2.1 Main characteristics of various types of plans**

Characteristics	Strategic plan	Operational/action plan
<b>Frequency/period covered</b>	Five years or more	Annual, half yearly, quarterly
<b>Contents/major items</b>	EPI vision statement: <ul style="list-style-type: none"> <li>• Situation analysis</li> <li>• Long-term aims, objectives and targets</li> <li>• EPI policies and strategies</li> <li>• Major activity areas</li> <li>• Timeline of implementation</li> <li>• Monitoring indicators</li> <li>• Evaluation schedule</li> <li>• Overall resource requirements by component and by year</li> <li>• Total cost of the plan based on estimated budget</li> </ul>	Annual operational objectives and expected results: <ul style="list-style-type: none"> <li>• Activities in detail</li> <li>• Monitoring indicators</li> <li>• Timetable or schedule of activities</li> <li>• Responsible officials/institutions for each activity</li> <li>• Detail budget and resource requirements</li> <li>• Sources of funding</li> </ul>
<b>Overall responsibility for implementation</b>	National EPI manager	All EPI managers or focal points at different levels

All types of plans should contain the following elements (derived from the cMYP):

### 1. Context

- geopolitical context
- socioeconomic context
- health profile

### 2. EPI situation analysis

- current situation
- problems and priority challenges

### 3. Objectives

### 4. Targets

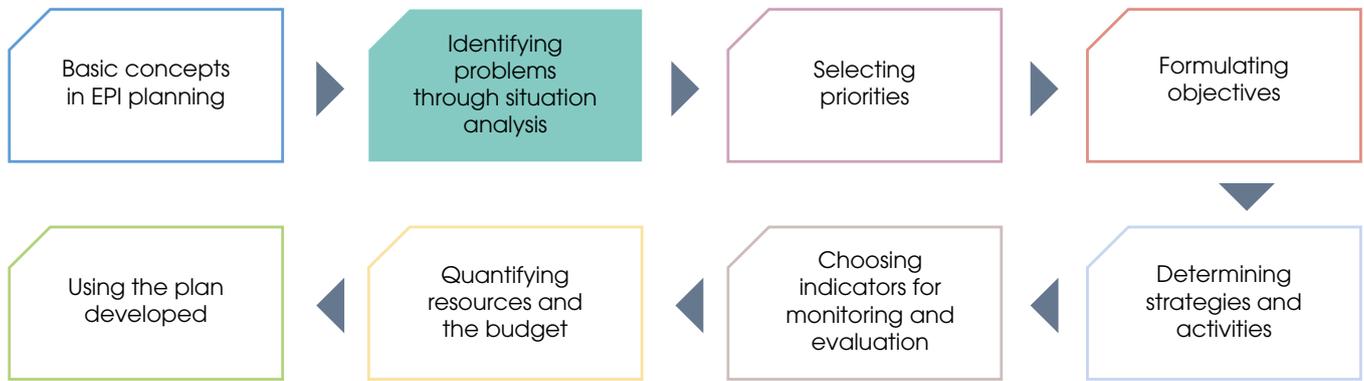
### 5. Strategies

**6. Activities** covering RI, disease surveillance and supplementary immunization and their schedule, including monitoring indicators

### 7. Necessary resources

### 8. Budget and financing

**9. Monitoring and evaluation (M&E) framework** – methods and schedule for the evaluation.

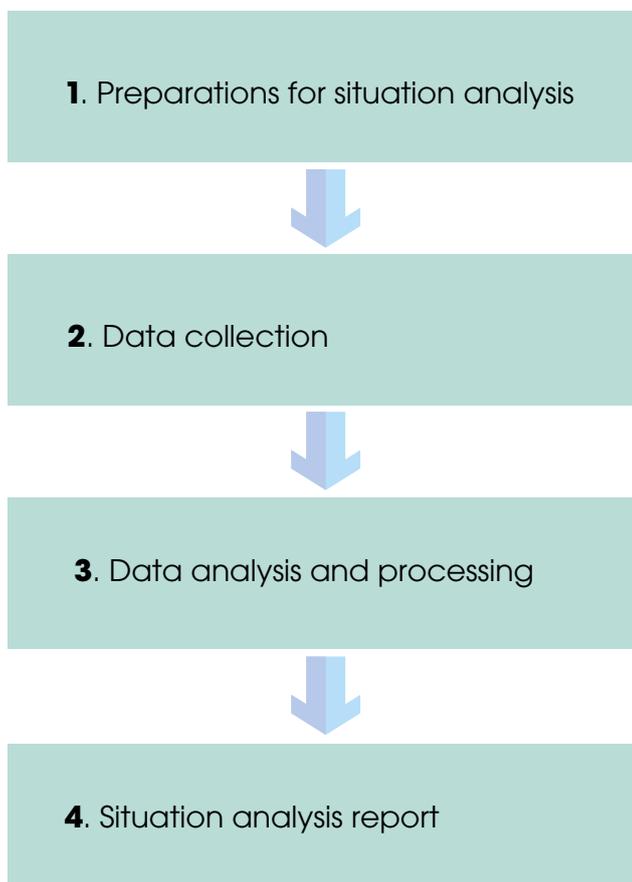


## 3. Identifying problems through situation analysis

Situation analysis or initial assessment consists of collecting data on the achievements of the immunization programme and related problems. In particular, it provides answers to the following questions: Where are we now? What problems do we have? What are the challenges ahead? Thus, the situation analysis helps to identify the needs, the problems, and their causes, their effects and potential solutions.

In concrete terms, the situation analysis identifies aspects of the programme that need to be improved or strengthened. It includes analysis of both the external and internal environments. It is a comprehensive review that should be conducted in a team.

### 3.1 Steps in situation analysis



**Step 1:** Process initiation – selection of analytical tools and programming of data collection activities. At this step, the necessary resources for conducting the situation analysis and their sources should be identified.

**Step 2:** Data collection through desk reviews, interviews with the key informants and, if necessary, conducting field surveys.

**Step 3:** Data processing and analysis, which includes the compilation of data and interpretation of results.

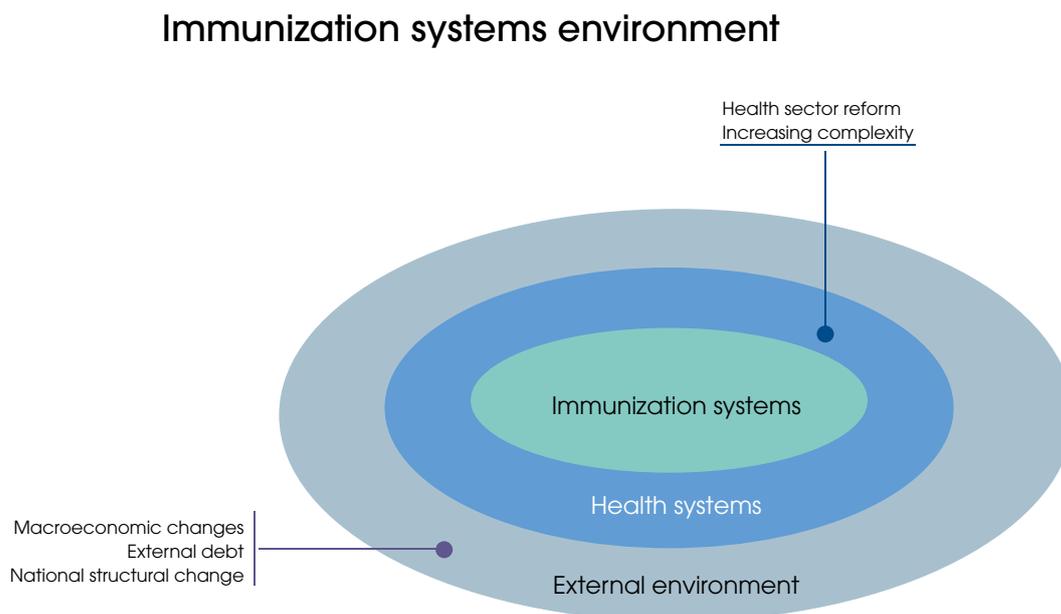
**Step 4:** Preparation of the situation analysis report, which should provide the background for the plan.

For further information on the process, consult Module 18: *Conducting assessment of the immunization programme* or go to the WHO Immunization, Vaccines and Biologicals website (<http://www.who.int/immunization/en/>), and check other sources such as the WHO-UNICEF guidelines for comprehensive multi-year planning for immunization (WHO, 2013).



## 3.2 Analysis of the external environment

**Figure 3.1 Interrelationship between immunization systems, health sector and the external environment**



Analysis of the external environment explores the following areas:

**Administrative set-up** of the country by regions/provinces (zones) and districts

- centralized/decentralized administrative systems
- intersectoral collaboration mechanisms

**Economic situation**

- trends in economy (recessions and growth) including overseas development assistance
- GDP per capita
- external debts
- availability of different energy sources (electricity, gas, solar power, etc.)

**Demographic data** (with source and year of reference)

- total population
- annual growth rate
- urban/rural population
- population by age groups (women of childbearing age, pregnant women, children under one, five and 14 years of age)
- fertility rate
- maternal mortality rate
- infant mortality rate
- number of surviving infants
- child mortality rate

**Means of communication**

- roads, air, boats, etc.
- radio, TV
- telephone, cellular phones
- internet, etc.

**Sociocultural data**

- beliefs and taboos associated with immunization
- attitudes of religious and traditional groups, traditional healers
- status of women and children in the family
- situation regarding the Charter on the Rights of the Child.

The reviewer must specify the sources and methods used in collecting the various data presented (e.g. census, survey, reports, publications, etc.).

## 3.3 Analysis of the internal environment

Health service access and delivery should be analysed, reviewing:

- accessibility to health services in urban and rural areas;
- antenatal care coverage;
- doctor-population, trained nurse-population ratio;
- proportion of villages with community health workers (CHW);
- integration among child health interventions (IMCI, Roll Back Malaria, nutrition, etc.);
- reform initiatives in the health sector; and
- trends in the budget of the MOH, its proportion in overall government budget.

Analysis of the internal environment for immunization should answer the basic question: Where are we now? It should also define the internal situation, including trends in the previous years and show EPI interaction with the health sector and the external environment. To guide participants in conducting the internal analysis, guidelines for immunization services assessment and the strengths, weaknesses, opportunities, threats (SWOT) method of analysis are described below.

### 3.3.1 Guidelines for immunization services assessment

All EPI planners should use these guidelines (see Table 3.1), which describe a methodology for collecting data on the strengths and weaknesses of immunization services and how they can be improved and sustained through:

- an increase in RI services, particularly in hard-to-reach areas;
- introduction of new vaccines and technologies; and
- assurance of adequate and sustainable funding.



**Table 3.1 Data required for immunization services assessment****Disease data**

- morbidity and mortality for the past five years
- case fatality rates
- number of cases of measles and their age distribution
- acute flaccid paralysis (AFP) notified and verified
- polio cases confirmed by the laboratory
- number of cases of neonatal tetanus and their geographical distribution
- yellow fever during the past five years and notification sites
- highly dangerous viral and bacterial diseases (e.g. Ebola, epidemic meningitis, etc.).

**Disease surveillance**

- system of notification of EPI target diseases, including reporting completeness and timeliness, information management, feedback at the operational level and monitoring methods
- epidemic preparedness and response
- role of the national referral laboratory
- community surveillance to report target diseases.

**Supply chain and demand for immunization services**

- immunization policies, vaccines and their schedule
- number and type of health facilities (peripheral, secondary and tertiary) and their distribution (rural/urban), schools
- number and type of immunization posts (fixed, outreach posts)
- mechanisms for forecasting, costing, purchasing and distributing vaccines and supplies
- target population for routine EPI: children from 0 to 11 months of age, women of childbearing age
- target population for supplementary immunization activities (SIAs) against polio: children from 0 to 59 months of age
- target population for SIAs against measles: choose the age bracket according to the epidemiology of measles in the country (<5 years, <10 years or <15 years)
- target population for the high-risk approach to neonatal tetanus: women of childbearing age in high-risk regions
- target population for adolescent girls (9–13 years) in school for HPV vaccination.

**Immunization strategies**

- fixed, outreach and mobile and percentage of the population covered by each strategy
- strategies adopted for reducing missed opportunities
- immunization strategies to access hard-to-reach populations
- country specific approaches to reaching the target population such as RED/REC, Maternal, Neonatal and Child Health Week (MNCHW), CHW, African Vaccination Week (AVW), national immunization days (NIDs) and other integrated approaches.

**Immunization coverage**

- national immunization coverage during the past five years: BCG, DTP1/Penta1, DTP3/Penta3, measles, PCV, rotavirus, HPV, OPV1, OPV3, TT2+, yellow fever and HepB, specifying the sources of data (routine data or data from coverage surveys)
- coverage achieved during SIAs.

**Vaccines and other supplies**

- trends in purchasing vaccines during the past five years, source of funding, including the percentage of annual contribution by government
- number and duration of stock-outs of vaccines or supplies during the current and past year.

**Injection safety**

- national policy on the types of injection equipment
- supply of injection equipment
- disposal of injection equipment.

**The cold chain**

- type (including source of energy), quantity and status of the cold chain equipment
- existence of an effective vaccine management assessment system
- percentage of facilities with a refrigerator/deep freezer in good condition.

**Communication and social mobilization**

- communication strategies and mechanisms in support of the programme
- social mobilization and information, education, communication (IEC) activities for RI.

**Management of the programme**

- Position of EPI within the structure of the MOH, e.g. autonomous or integrated within primary health care (PHC)
- capacity building: staffing situation, i.e. number and categories of staff, training opportunities, staff distribution, working conditions at health facilities
- quality assurance and supervision at different levels (method, tools and periodicity)
- coordination of the health sector including the immunization programme
- coordination of all immunization operations, including collaboration of partners and other programmes, functioning of the interagency coordination committee (ICC), level of participation by the heads of agencies and senior MOH officials.

**Resources and sources of funding**

- proportion of government and external funding of the immunization programme
- vaccines and logistics: who buys them?
- infrastructure and equipment
- human resources for immunization at central, intermediate and local level
- costs of immunization service delivery
- immunization cost recovery and community contribution
- contribution by immunization stakeholders and partners
- intersectoral collaboration in support for immunization
- mobilization, management and administration of funds
- funding of EPI during the past five years.

### 3.4 Problem identification through SWOT analysis

In the case of the internal environment, the components of SWOT analysis combine the strengths and weaknesses. In the case of the external environment, the components are the opportunities and threats. The context and situation of EPI in the country will result in analysis of factors considered as strong points and weaknesses of EPI, as well as opportunities (favourable or positive factors) and threats (obstacles or negative factors) associated with immunization activities (Table 3.2).

The analysis of strong points and weaknesses inherent in EPI will concern particularly the following areas:

- **Management capacities:** Structure, planning, coordination, personnel management, supervision, training, information management system, material resource management.
- **Programming and evaluation capacities:** Service delivery, communication, performance evaluation, quality of services, research, etc.
- **Financial capacities:** Sources, functioning of the ICC, resource mobilization, availability of funds and their utilization, cost recovery, community contribution, sustainability.

Here are a few examples to illustrate SWOT analysis:

- The efficient functioning of the cold chain, thus ensuring availability of active vaccines, could, for example, constitute a strong point of the programme.
- Poor telecommunications system or lack of supervision, thus limiting communication between the central level and field staff, could be a weakness.

- The funding of specific EPI activities by Rotary clubs could constitute an opportunity.
- A threat could come from the fact that due to high external debt, the government is reluctant to allocate funds for new vaccine introduction.

The situation analysis will result in the definition of strategies required for planning EPI activities with emphasis on sustaining good performance and addressing identified weaknesses. For instance, it is particularly useful to:

- Plan for the supervision and transportation of the immunization teams.
- Plan the IEC with special strategies for non-users of immunization services.
- Increase involvement of partners in immunization for hard-to-reach people.
- Arrange in-service training for health staff.

For more illustrations on SWOT refer to Module 1: *A problem-solving approach to immunization services management*.

In order to facilitate understanding of the planning steps, we will use the project method in which participants will work in four groups: RI, SIAs, disease surveillance, and cold chain and vaccine management. Each group will go through the seven steps (see Figure 2.1) of the planning process. The basic reference documents are: GVAP, RSPI, Module 1: *A problem-solving approach to immunization services management* (Section 4), and findings from surveys, assessments and EPI reviews.

**Table 3.2 SWOT analysis framework**

Impact	Environment	Internal	External
Positive		Strengths	Opportunities
Negative		Weaknesses	Threats

## Exercise 2 – Identifying problems in immunization systems

This exercise will help you to identify the major problems affecting immunization systems within the African Region/your country, especially those related to immunization operations, particularly RI, SIAs, disease surveillance, and cold chain and vaccine management. Please consult policy documents and strategic plans for controlling target diseases (poliomyelitis, measles and neonatal tetanus).

### Exercise 2.1

For all four groups.

Referring to the EPI problems as presented in the RSPI and as relating to your own countries, answer the questions at the end of the case study:

- As a newly appointed manager of the national EPI programme, you have been provided with the basic demographic and health data for the country. The country has a total population of 10 million inhabitants, most of whom live in rural areas. About 10% of rural communities are hard to reach. The government has a top-down administration system but there are plans to introduce decentralization which will affect all sectors of the economy, including health. There is a rumour that after it happens, some immunization partners will consider increasing their support to EPI.
- Children under one year of age represent 3% of the population and women of childbearing age 21%. Measles, whooping cough and neonatal tetanus are frequent diseases. The percentage of under-five mortality from pneumonia among all causes is about 28%. According to routine reporting data, immunization coverage rates for individual antigens range between 28% and 71%; the TT+ coverage rate being lowest (28%), and the rate for Penta3 highest (71%.) However, the recent immunization coverage survey revealed that Penta3 coverage reaches 82%.
- The immunization schedule conforms to WHO's recommendation. Reports on polio surveillance indicate low AFP rate. There is a written document on injection safety policy, but people hardly refer to it. No report on inventory of logistics is available. Some supervisory reports reviewed indicate cold chain equipment often breaks down in remote districts. ICC is functional but lacks decision-making capacity.

Answer the following questions:

1. What are the key problems that this country currently faces in its immunization programme?
2. Which problems in the immunization services are specific to other countries in the African Region?
3. What key points will you include in the situation analysis of this country?
4. On the basis of the previous subsections on situation analysis identify:
  - a) elements for reporting on the external environment of EPI
  - b) problems for which you intend to develop a plan.
5. Using SWOT analysis identify strong and weak points in the immunization programme of this country. Are there any opportunities or threats?

### Exercise 2.2

For individual groups.

Taking into account the main problems identified in Exercise 2.1, as well as the background information from the RSPI, groups should complete the following boxes related to their assigned programme areas:

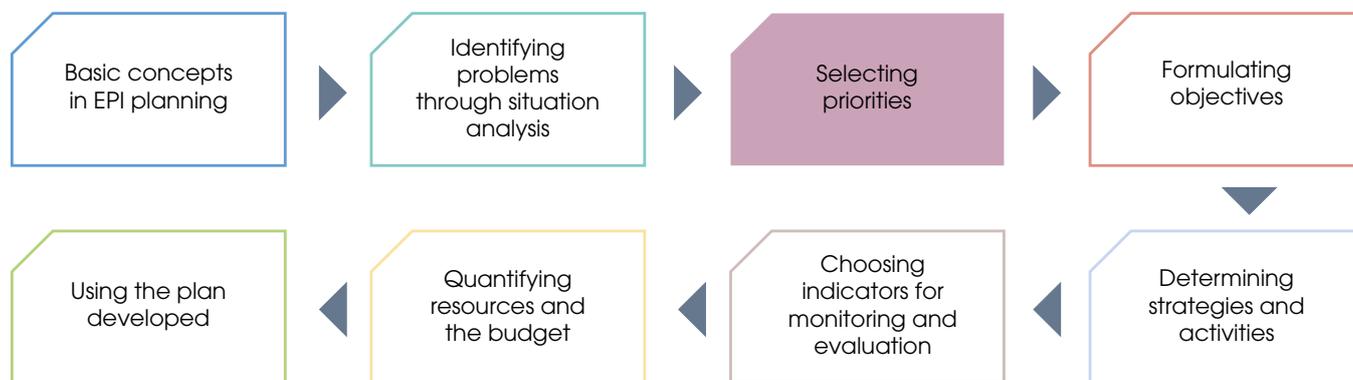
Group 1: RI issues

Group 2: SIAs (e.g. planning immunization campaigns against measles, tetanus or yellow fever)

Group 3: disease surveillance

Group 4: cold chain and vaccine management.

Problems	Causes/consequences	Possible solutions



## 4. Selecting priorities

Given the resources and capacities of African countries, the RSPI tries to address the following programmatic priorities:

- Large number of un- and under-immunized children in some countries of the Region.
- Resurgence of measles outbreaks in several countries in the region due to poor quality SIAs and sub-optimal RI performance.
- Risk of delay in the global eradication of poliomyelitis, especially in countries with high circulation of the wild poliovirus in the African Region.
- Inadequate investment in immunization.
- Challenges in the management and quality of data.

In prioritizing a problem, the following public health criteria should be applied:

- Magnitude of the problem – size of population affected.
- Seriousness of the problem – impact of the problem, such as deaths, disruption of services, pace of acceleration of the problem.
- Socioeconomic impact – degree of disruption of daily livelihoods.
- Population at high risk – most fragile.
- Technical feasibility – how easy to address the problem? Mechanism available to deal with the problem?
- Availability of cost-effective interventions – cost of addressing the problem versus the benefit.
- Financial affordability/availability of resources to address the problem.
- Perception of beneficiaries – issue perceived as a problem to the beneficiary.
- Perception of actors and partners, etc. – issue perceived as a problem by stakeholders and sponsors.

Remember, the needs and priority problems should be identified in each component of the immunization system (immunization delivery, logistics, supply and quality of vaccines, disease surveillance, advocacy and communication, management, capacity building and funding).



### Exercise 3 – Identifying and establishing priorities

Return to your respective groups.

Using the context and the situational analysis you just completed in exercises 2.1 and 2.2 and based on the criteria for selecting public health priorities, list the first five priorities which, in the view of the group, should feature in the national EPI plan.

You will need to note and weight your proposed priorities in the following table.

#### Criteria for selection of public health priorities

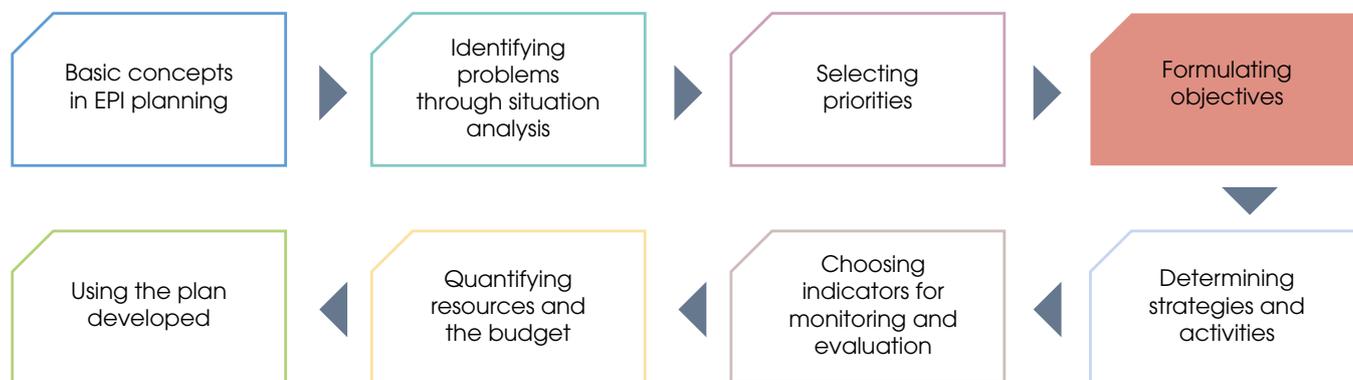
No.	Problem	Magnitude of the problem	Seriousness of the problem	Availability of cost-effective interventions	Affordability	Total points	Rank

#### Scoring

Groups may decide to use a scale of 1 to 3 where: 1 = low priority; 2 = medium priority; 3 = high priority.

Another scoring option is to use a wider scale, between 1 and 5, to give more flexibility to discussions.

Groups sometimes have to make a “reverse” scoring (for example, the **high** cost of a new vaccine may result in **low** scoring when discussing the affordability criterion).



## 5. Formulating objectives

Start by answering this important question: Where do we want to go from here or what are the expected results? The idea is to determine the best solutions to the problems identified and prioritized in Section 4. These solutions should be formulated in the form of measurable objectives, targets and expected results (refer to Glossary for definitions).

The formulation of objectives should follow the common principles used in public health: establish general and specific objectives and targets, using active and direct transitive verbs, content, criteria and conditions. The specific objectives and targets should have all the above-mentioned characteristics and they should be **specific**, **measurable**, **appropriate**, **realistic** and **time-bound** (SMART).

The first objectives to be formulated are those associated with immunization operations, followed by components in support of these services (management, funding, capacity building). A number of general and specific objectives are proposed below to address the priority issues within immunization programme. These are examples of objectives from the RSPI.

### 5.1 General objectives

The objective of the RSPI is to achieve universal immunization coverage within the WHO African Region.

### 5.2 Specific objectives and targets

The objectives are:

- (1) To increase vaccination coverage.
- (2) To complete the interruption of poliovirus transmission and ensure virus containment.
- (3) To eliminate measles and advocate for the elimination of rubella and congenital rubella syndrome.
- (4) To attain and maintain elimination/control of other vaccine-preventable diseases.

The targets are as follows:

#### Objective 1: To increase vaccination coverage.

- (a) Reach DTP3-containing vaccine coverage of at least 90% region-wide by the end of 2020.
- (b) All countries have introduced PCV by the end of 2020.
- (c) At least 37 countries have introduced rotavirus vaccine by the end of 2020.
- (d) At least 35 countries have introduced HPV by the end of 2020.
- (e) At least 25 countries have introduced a birth dose of HepB by the end of 2020.

#### Objective 2: To complete the interruption of poliovirus transmission and ensure virus containment.

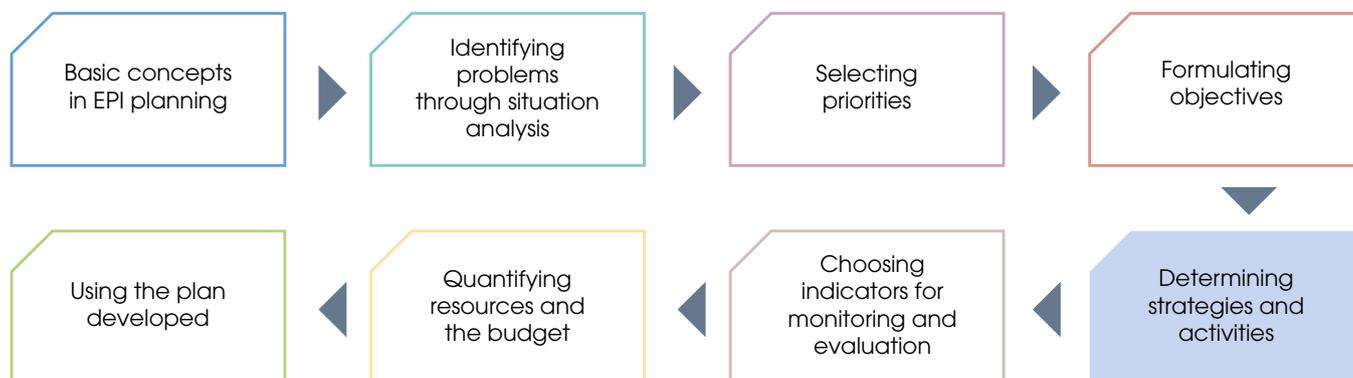
- (a) All countries have interrupted WPV transmission by the end of 2014.
- (b) All countries using OPV have introduced at least one dose of inactivated polio vaccine by the end of 2015.
- (c) All polioviruses are laboratory-contained and the Region certified polio-free by the end of 2018.
- (d) A regional polio legacy plan is finalized by the end of 2015.

#### Objective 3: To eliminate measles and advocate for the elimination of rubella and congenital rubella syndrome.

- (a) All countries have achieved an incidence of less than one confirmed measles case per million population by 2020.
- (b) Attain MCV1 coverage  $\geq 95\%$  at national and district levels and at least 95% SIAs coverage in all districts.
- (c) At least 25 countries have introduced rubella-containing vaccine by the end of 2020.

#### Objective 4: To attain and maintain elimination/control of other vaccine-preventable diseases.





## 6. Determining strategies and activities

### 6.1 Selecting strategies

The strategies should define the path chosen by EPI to achieve its objectives and targets. There are two types of strategies:

- **Reference strategies:** Generally associated with provision of primary health care (PHC) (e.g. strengthen integration of services within PHC package) or related to general EPI objectives (e.g. outreach or fixed strategy).
- **Operational strategies:** How to implement the activities (e.g. a school health programme to increase TT coverage among the female population).

The development of strategies also requires teamwork and involves the analysis of all the possibilities applicable to each aim/objective. You should ensure that your strategies are relevant, technically sound and financially feasible.

The following reference strategies are relevant means of improving the performance of immunization programmes:

- advocacy to engender political commitment
- capacity building and training
- coordination of EPI partners
- planning at national and district levels
- programme management (programme review, supervision, M&E)
- social mobilization and communication
- logistics, supply and quality of vaccines.

In 2008, WHO and partners revised the RED strategy guidelines. The five components are as follows:

1. Planning and management of resources – better management of human and financial resources.
2. Reaching target populations – improving access to immunization services by all through regular outreach visits to communities that are underserved.
3. Linking services with communities – partnering with communities to promote and deliver services.

4. Supportive supervision – regular on-site teaching, feedback and follow up with health staff.

5. Monitoring for action – using tools and providing feedback for continuous self-assessment and improvement through monitoring charts, maps for each facility catchment area, monitoring plans of action, etc. (refer to Annex 1 for more details).

As immunization services are currently delivered as part of integrated mother and child health-care interventions at district and health facility level in almost all African countries, the RED operational strategies have to be implemented in an integrated manner using immunizations as a platform with a range of priority interventions such as Roll Back Malaria, reproductive health, IMCI, HIV/AIDS, the Micronutrient Initiative and integrated disease surveillance. Building national capacity to reach every district is therefore an essential foundation and key operational strategy for the implementation of the 2014–2020 RSPI.

Operational strategies should be developed by referring to specific regional objectives and by considering the priorities, conditions and criteria of each country. Strategies for each component of the immunization programmes should also be developed to make the plan more precise and specific.

### 6.2 Determining activities

For each specific objective and target formulated and included in each component of the immunization programmes, you should determine the related specific activities. The activities are formulated in the form of an action verb with its direct object.

Example:

- order vaccines
- develop supervision tools
- train immunization staff
- administer vaccines.

EPI activities are classified into technical activities, which are related to immunization operations, and support activities, which relate to programme management, funding and capacity building. All technical and support activities attached directly to a specific objective are called **programme activities**. They are often preceded by **preparatory activities** and initiated through **launching activities**.

An example on how to implement a certain strategy, for example a RED approach, through specific activities is given in annexes 2 to 4.

#### Exercise 4

For all four groups.

Objective of the session: At the end of the session, participants will be able to determine strategies and activities related to RI (Group 1); SIAs (Group 2); disease surveillance interventions (Group 3); and cold chain (Group 4).

On the basis of the operational strategies proposed in the 2014–2020 RSPI, using the objectives and targets outlined in Section 5:

- Propose possible strategies at national level.
- Propose a set of support activities for each specific objective/target.

#### Examples

##### Group 1: Routine immunization (routine reporting)

Below is an example of objectives, targets, strategies and activities with a view to improve routine reporting in the country.

**Objective:** Improve routine reporting of immunization data to reflect true immunization coverage rates in the country by 2014.

**Target:** By the end of 2014 immunization reporting completeness and timeliness will have reached >80%.

**Strategies:**

- Training of health workers in data collection and reporting.
- Encouraging private sector to report on their immunizations performed in private clinics.
- Improve communication with health facilities.

**Activities:**

- Organize a national training workshop for health workers on data management.
- Increase frequency of supervisory visits to provinces B and F (from two to three per year) where major gaps in immunization reporting are observed.
- Send a circular letter to all private health clinics signed by the permanent secretary to report to MOH on performed immunizations.

##### Group 2: Supplementary immunization

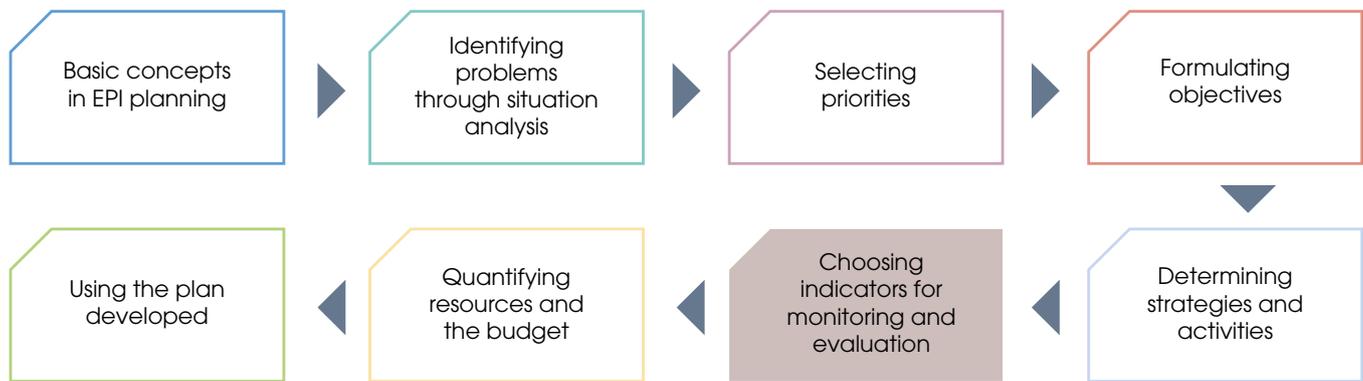
Certain EPI activities do not form part of RI. They may include campaigns for NNT elimination, measles, meningitis or yellow fever control, polio eradication, etc. Using the example for Group 1, define the objectives, targets, strategies and activities for controlling the disease or improving services you have chosen in Exercise 4.

##### Group 3: Disease surveillance

Using the previously defined objectives and targets as a basis (Section 5), define disease control strategies and activities to address disease surveillance problems in your chosen area.

##### Group 4: Cold chain

Follow the same procedure as for above groups to propose strategies and activities for improving the cold chain performance in the area.



## 7. Choosing indicators for monitoring and evaluation

EPI monitoring and evaluation (M&E) are basic processes that facilitate the collection and analysis of the data required for verifying whether activities planned under the programme are being implemented effectively, or to what extent the objectives and targets defined have been achieved. To do this you need to have various indicators related to functions and components of the programme.

Indicators are often expressed in terms of numerical factors and help to compare actual performance to expected results. It is at the planning stage that the indicators and all the M&E activities are determined. Thus, any plan that does not comprise these indicators followed by M&E procedures is incomplete and impossible to implement.

### 7.1 Formulating indicators

The process of formulating indicators takes several steps.

**Reaching a consensus by programme staff** on which indicators should be developed. Staff will identify a list of M&E indicators and milestones that will assist in making sure that implementation goes according to the plan.

**Identifying indicators** that are considered essential for monitoring. Indicators should be able to specify:

- the target population (for whom)
- the quantity (how much)
- the quality (how well)
- the geographical coverage (where).

**Defining each potential indicator** in order to provide a comprehensive description of data needed. This will include intended use, denominator, numerator, sources and methods for data collection, staff involved, timing (periodicity of measurement) and limitations.

**Selecting indicators** based on established criteria. Indicators for monitoring purposes should be built into the plan itself and closely related to the means available for data collection and processing.

**Setting (adopting) the indicators** and establishing a baseline for each of them to be used at regular intervals. If the indicator has been selected for the first time, it is recommended to field test it before its adaptation.

The initial list of potential indicators could be long. After discussion, the number should be reduced to the basic essential.

### 7.2 Types of indicators

The objective of the immunization programme is to reach a high vaccination coverage of the target population through provision of quality services, using the available human, material and financial resources, so as to reduce morbidity and mortality, and eliminate or eradicate the diseases using available vaccines. In order to measure all the above parameters in the plan, the monitoring indicators are categorized into five key areas:

- **Input indicators:** Immunization policies, resource inputs (human, material, financial) and their use.
- **Process indicators:** These indicators examine the functionality and quality of the immunization programme and include planning (availability of plans), financing (release of funds), quality of service delivery (number of staff trained), immunization safety (number of adverse events following immunization (AEFI) reported), assessment of the programme and its efficiency (reviews), etc.
- **Output indicators:** Immunization coverage and other results achieved relating to the objectives of the programme.
- **Outcome indicators:** Related to the final achievement of goals, e.g. achieving polio eradication status, measles pre-elimination.
- **Impact indicators:** For example, reduction of morbidity and mortality of targeted diseases.

## 7.3 Selecting and using indicators

The following considerations should be taken into account when selecting indicators:

- How **practical and feasible** is it to collect data for the indicator?
- How **important** is the information provided by an indicator to the overall implementation process?
- How **difficult** is the method of measuring a particular indicator in terms of time, money and complexity?
- What are the **required qualities** of the indicator? Can it **measure** levels of achievement or changing parameters of an activity? Can it also be used to **compare progress** between various periods or various areas where the programme is operational?

Monitoring all aspects of the programme would consume too many resources. Therefore, the choice of indicators must be prioritized. The EPI manager should be able to adapt them to the programme needs and select those, which are most suitable and relevant to the basic requirements of the programme. This process requires experience and skills. There are some common criteria to guide you in your selection.

### 7.3.1 Criteria for selecting indicators

The selected indicators should satisfy some standard criteria. They should be:

**Pertinent (relevant):** To address the issue or area of the programme you are concerned with (e.g. drop-out rate is a relevant indicator to measure the proportion of the target population which has not returned to the health facility to complete their immunization).

**Sensitive:** To capture variations of values within a reasonable range (e.g. proportion of children who had their DTP3 vaccination before their first birthday – children vaccinated beyond this range are not counted for under DTP3 coverage indicator).

**Specific:** To reflect a specific objective or target.

**Technically valid:** Based on latest technical information.

**Feasible to collect:** This includes three sub-criteria:

- based on data that are readily **available** or that can be collected with reasonable extra efforts;
- collected data are **reliable**; and
- it is **accessible** (e.g. monthly reports at health centre are accessible to health worker or supervisor).

**Simple and understandable:** User-friendly.

**Verifiable:** For example, the tally sheets, which are used to record vaccinations, are stored at health facilities for a specified period of time and the information can be verified as needed.

### 7.3.2 Using indicators

The use of indicators depends on many factors:

**Purpose/type of activity:**

- To **monitor** your plan or programme, you will select and use mainly input and process indicators.
- For an **evaluation exercise** a wide range of indicators can be used with emphasis on outcome and impact indicators. If a major programme or a multi-year EPI plan is undergoing a final evaluation (e.g. polio eradication certification), outcome indicators are used.

**Frequency of the activity:**

- For **daily/weekly monitoring** select among input and process indicators to get information on availability of staff or funds to perform daily duties or to observe how your staff are performing vaccinations. Has a case of a disease of public health importance or a suspected AEFI been reported? Have suspected AEFIs been investigated? If the information system requires weekly reporting of infectious diseases, what is the reporting completeness of these weekly reports?
- For **monthly/quarterly/annual monitoring** select the first three categories of indicators: input, process and output, to monitor immunization coverage achieved, drop-out rate, vaccine wastage rate, quality of immunization performed, reporting completeness and timeliness and other aspects of the programme.

**Use of indicators versus components of the plan:**

You may decide to intensify your monitoring in **one or more components** of your plan to overcome certain weaknesses. In this case you will select relevant indicators for that particular component, for example:

- **Monitoring indicators for cold chain:**
  - indicators for monitoring vaccine stock
  - indicators to monitor resource mobilization
  - indicators to evaluate immunization policy implementation, etc.
- **Use of indicators versus level of monitoring/evaluation:**

Various levels of the health system (central, district or health facility) can use the same indicator. However, there are some indicators that are more relevant to certain level. As an example, take the indicator on DTP3/Penta coverage:

- DTP/Penta coverage rate – **use for all levels.**
- Number of unimmunized children (with DTP3/Penta) – **use at all levels.**

- Percentage of health facilities with DTP3/Penta coverage  $\geq 80\%$  – **use at district level.**
- Percentage of districts with DTP3/Penta coverage  $\geq 80\%$  – **use at national or province level.**

## 7.4 Indicators for monitoring and evaluation of immunization programmes

The health systems use indicators for monitoring of the implementation of the immunization plan in terms of coverage and quality of immunization services. Some examples of commonly used indicators are given below.

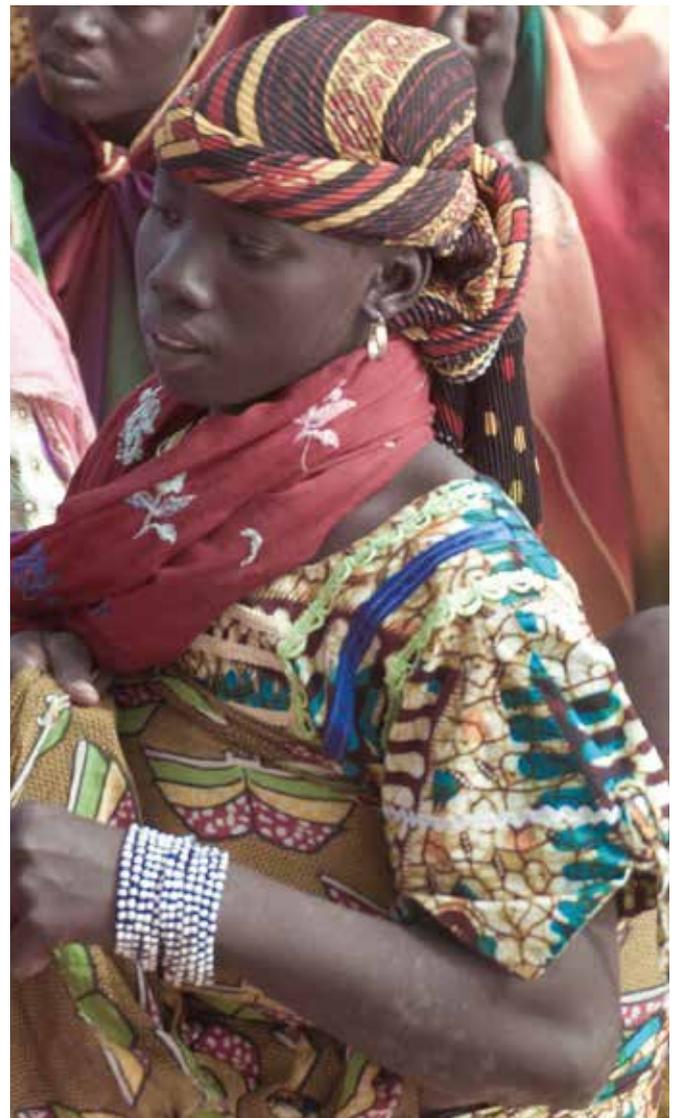
- **Coverage level for each vaccine:** And each dose of the same vaccine, included in the national immunization schedule.
- **Percentage of fully immunized children under one:** A fully immunized child under one has received all doses of vaccines according to the national vaccination schedule.
- **Percentage of pregnant women with adequate TT doses:** Adequate TT has been defined as the number of pregnant women who have received any one of the following doses: TT-2, TT-3, TT-4 and TT-5 during this pregnancy (otherwise known as TT2+).
- **Percentage of children protected at birth (PAB) from neonatal tetanus:** This is an alternative method to determine TT2+coverage (particularly where TT2+ is unreliable). To monitor PAB, health workers record during DPT1 visits whether the infant was protected at birth by the mother's TT status. PAB is then estimated for the given area as:

$$\% \text{ PAB} = \frac{\text{Number of infants protected}}{\text{Number of live births}} \times 100$$

**Note:** An infant is protected if the mother received a valid dose of TT2 + at least two weeks before delivery.

- **Non-polio AFP rate:** This is calculated by dividing the number of new cases (among under 15-year-old children) by the total number of under 15-year-old children in the catchment area multiplied by 100 000.
- **Neonatal tetanus (NNT) rate:** Number of new cases of NNT per 1000 live births. This is calculated by dividing the number of new cases of NNT by the total number of live births multiplied by 1000.
- **Measles incidence:** This is calculated by dividing the number of confirmed measles cases within a certain time period by the total population (expressed as a rate per million).

- **Availability of vaccines and supplies:** This is calculated by dividing the sum of days when each vaccine or supply item was available by the total number of days in the period under the reference, and the result should be multiplied by 100.
- **Drop-out rates especially for BCG-DPT/Penta3; DPT/Penta1-DPT/Penta3; DPT/Penta1-measles:** A comparison of the number of children or women who start receiving immunization and the number who do not receive later doses for full immunization.
- **Vaccine wastage rate:** Refer to Module 8: *Vaccine Management* and 15: *Monitoring and data management*.
- **Completeness of reporting:** Refer to Module 15: *Monitoring and data management*.
- **Timeliness of reporting:** Refer to Module 15: *Monitoring and data management*.
- **Outbreak investigation rate:** Number of reported outbreaks of target diseases investigated divided by total number of outbreaks of target diseases reported x 100.



## 7.5 Core indicators

The core indicators are related to the operational components and supportive elements of immunization programmes. Tracking these indicators will enable the managers to monitor all aspects of the programme and meet the reporting requirements. Participants may recall Module 1: *A problem-solving approach to immunization services management* referring to the following five operational components and supportive elements of the immunization system (Figure 7.1).

**Figure 7.1 Immunization system operational components and supporting elements**



**Basic elements of an immunization system**



To cover the entirety of immunization systems, all operational components with their supporting elements should be monitored and evaluated. This will provide a comprehensive picture of the programme. For that purpose, a list of core indicators for immunization services to be used at the national level has been developed. They are relevant, feasible to collect and to interpret, and inexpensive to measure in terms of time and cost. The core indicator set is representative but limited, and can be monitored at the national level using existing health information system. These indicators:

- Provide a practical and representative profile of the status of the national immunization programme and progress towards immunization objectives.
- Allow tracking of country performance. It is believed that the core set is common for every national programme and provides essential information needed by all EPI managers.
- Allow comparisons between countries and monitoring of the programme at global level.

A list of the core indicators is presented in Annex 3.

In an effort to limit the amount of information requested and avoid inconsistency of information, the core indicators are included in the WHO/UNICEF Joint Reporting Form (JRF); which allows for a uniform source of information on national immunization systems. Given recent developments in health sector reform, and the goal of reaching each district and each child, particular emphasis has been put on information relevant to the district level. All the information contained in the JRF and that produces the core indicators should be part of the national health information system. However, not all aspects of monitoring national immunization systems are included. National programme managers are not limited to this core set of indicators, additional choices can be made in accordance with their specific national programme objectives. Table 7.1 summarizes the indicators related to the operational components and the supporting elements of the immunization system.

**Table 7.1 Core indicators relating to immunization system operational components and supporting elements**

Component/supporting elements	Measuring parameter	Indicator
Service delivery	Access	DTP/Penta1 coverage
	Coverage	Coverage with: BCG, DTP3, OPV3, HepB3, Hib3, MCV1, MCV2, yellow fever, vitamin A, TT2+, PCV, Rota, HPV, MenA
	Equity	DTP3 coverage by catchment area or by district
	Utilization	Drop-out rates for DTP/Penta1 to DTP/Penta3; DTPI to measles
Logistics and cold chain	Availability Functionality Management	Availability and continuity of services (adequate equipment and transport for distribution, outreach and supervision) Vaccine storage and distribution systems Vaccine wastage rate
Vaccine supply and quality	Forecasting Ordering	Vaccines stocks (minimum, maximum and critical stocks) Sources of vaccine (reliability)
Surveillance and monitoring	Effectiveness of reporting system	Completeness of submitted reports Timeliness of submitted reports
	Disease incidence Deaths AEFI incidence	Disease incidence rate Proportion of cases confirmed by laboratory Case fatality rate Notified and investigated AEFIs
Advocacy and communication	Political commitment	Availability of aplan with budget Budget line on immunization Availability of immunization policy
	Community participation	Existence of active community health committees
Financial sustainability	Sustainable funding	Government funding of vaccines for routine immunization and programme recurrent costs Multiple-year commitment to financing (government and partner)
Human and institutional resources	Supervision Staff	Supervisory visits to health facilities per year/quarter Staff adequacy Proportion of staff trained
Management	Ability to plan and implement	Existence of micro-plans for each district Reports on implementation of the plans

### 7.5.1 Additional indicators

There follow a few additional examples of indicators that can be used to measure progress towards immunization goals.

#### Process indicators:

- Proportion of provinces providing written feedback on immunization to district level at least every quarter.
- Proportion of provinces with annual workplan for immunization services.
- Proportion of districts that have experienced stock-outs of any vaccines.
- Proportion of provinces with injection safety as a component to the workplan.

#### Output indicator:

- Proportion of provinces with Penta3 coverage  $\geq 80\%$ .

#### Outcome indicator:

- Proportion of provinces/regions that have attained NNT elimination status (number of regions with less than 1 per 1000 live births).

#### Impact indicator:

- Proportion of countries that have reduced infant mortality rate by two thirds.

### 7.5.2 Indicators on immunization policy and implementation guidelines

The development and introduction of new (or revised) immunization policies and policy implementation guidelines at country level opens new areas for monitoring implementation at field level. The policy implementation will be routinely monitored within the framework of the cMYP by MOH Family Health Division or EPI unit staff as well as by stakeholders and concerned partners.

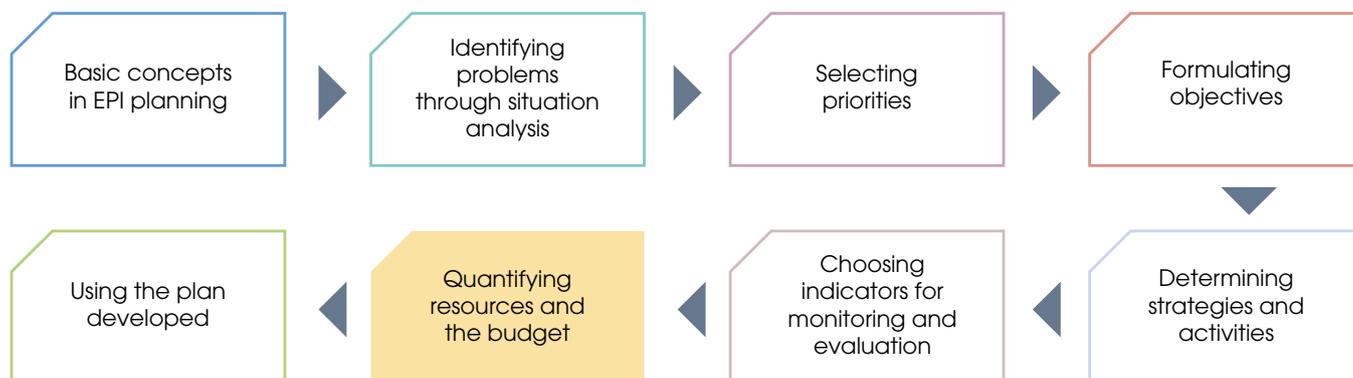
The ICC can serve as a suitable forum to regularly review the implementation using the following and some other indicators to measure the extent of the policy implementation process:

- Proportion (%) of health units having received the policy document.
- Proportion (%) of health personnel trained on the policy document.

With the introduction of the GVAP, which includes an accountability framework, the role of monitoring indicators becomes crucial. Recognizing the importance of close monitoring of the GVAP implementation progress, a World Health Assembly resolution calls for annual reports on progress at each regional committee meeting. To demonstrate the level of achievement, the national delegations to the regional committee will use these indicators to present their progress reports. These indicators are presented in Annex 4. EPI managers are requested to familiarize themselves with these indicators and adapt them to their country situation.

#### Remember

- Choose relevant, technically valid, simple and measurable indicators.
- Select indicators according to the level you monitor your programme: local, district or national.
- While selecting indicators, consider components of the immunization programme (service delivery, logistics, vaccine quality, surveillance, advocacy) as well as crosscutting elements (financing, human resources and management).



## 8. Quantifying resources and the budget

### 8.1 Quantifying resources

Now that we have the list of technical and support activities to be carried out, we should determine the required resources for each activity to be implemented. The determination of resource requirements is a vital step – intended to answer the following questions: Who should carry out EPI activities? With what other resources should the identified EPI activities be carried out? The resources are generally divided into five categories:

- human resources
- material resources
- financial resources
- information resources
- time as a resource.

The plan should specify the amount of each resource for each activity in quantifiable terms.

- define the activity with clear start time and end time
- break down the activity into manageable task
- determine the number of people to complete the task
- determine the materials required
- cost the materials.

For the human resource requirement, identify all categories and numbers of staff directly involved in the activity:

- the right number of people
- with the right skills
- in the right place
- at the right time
- with the right attitude
- at the right cost
- with the right work output.

Costing helps in putting together

- what we want to do
- how we want to do it
- who will do it
- when will it be done.

Cost is calculated with a simple formula:

$$\text{Cost} = \text{Quantity} \times \text{Unit price}$$

Cost is what you pay, usually denominated in monetary terms. Financial cost is different from economic cost. Economic cost combines financial cost with opportunity cost. You will learn more about this in Module 6: *Immunization financing*. It is also useful to distinguish between recurrent cost and fixed cost:

- **Recurrent/variable costs (VC):** Costs incurred every year (e.g. personnel time, vaccines) – they often vary with quantity of output, e.g. with number of target population covered.
- **Capital/fixed costs (FC):** Includes value of inputs which have a useful life of longer than one year (e.g. vehicles, equipment, building/land space, long-term training, non-recurrent social mobilization, start-up costs) and often do not vary with the coverage (output).

To summarize inputs and costs involved:

- List all inputs to be used or needed in an intervention.
- Group inputs into categories with similar characteristics, e.g. personnel, supplies, buildings, vehicles, equipment, vaccines.

### 8.2 Preparing the budget

By definition, the budget is a process for estimating income and expenditure. Budget preparation is part of the financial plan, which entails:

- analysis of income and expenditure
- estimation of proposed costs.

Often, the estimated expenditure could be far from the expectations, leaving a gap in funding. This becomes a tool for resource mobilization – to cover the gap. The financial plan should be developed by the EPI manager in close consultation with the financial administrator.

Budget preparation should be realistic, taking into consideration possible inflation and price changes as well as fluctuation in income over the life of the budget. It is advisable to be as detailed as possible, providing

explanations to assumptions made in developing the budget. Take time to identify expenditures that will fall due in later years (especially for multi-year plans). This will determine when you need to seek funds.

### Exercise 5 – Quantifying resources and budget

At the end of the session, participants will be able to quantify the resources and estimate the budgets for RI, SIAs, disease surveillance activities and cold chain.

Return to four groups (RI, SIAs, disease surveillance and cold chain) and use the following tables on vaccines, the cold chain, injection equipment training etc. Each group should choose from exercises 5.1 to 5.10, according to their group's activities.

#### Exercise 5.1 – Quantifying vaccine needs

Assess vaccine needs based on the following factors: target population; coverage objective; number of doses; reserve stock and wastage factor.

Estimate the costs based on the following factors: unit price, administrative costs, freight charges.

Complete the table by indicating funds obtained from each source while clearly specifying deficits (if any).

**Vaccine needs assessment for routine immunization**

Vaccines and vitamin A	Target population	Doses according to the immunization schedule	Wastage factor (%)	Coverage objective	Reserve stock (25%)	Duration of storage	Net needs	Comments
	A	B	C	D	E	F	G	
BCG		1						
DTP		3						
Measles		1						
OPV		4						
Yellow fever		1						
BCG		1						
TT		2						
HepB		1						
PCV		3						
Rota		2 or 3						
Men A		1						
Vitamin A								

Summary of procedure for calculating the necessary vaccines:

A: Target population: children of 0 to 11 months of age; pregnant women or women of childbearing age.

B: Doses required by each antigen according to the immunization schedule.

C: Wastage factor (check the figures: 2 for BCG, 1.18 for OPV and DTP, and 1.6 for measles).

D: Coverage objective per district or at national level.

E: Minimum reserve stock (25% of doses required for the period).

F: Duration of storage (for the example presented above = 12 months).

G: Net needs.

Refer once again to Module 7: *Cold chain management* and Module 8: *Vaccine management* and calculate your annual needs for each antigen.

### Calculating the cost of vaccines (refer to your vaccine needs assessment and calculate the cost of each antigen)

Vaccine	Quantity of vaccine Total cost	Unit cost Funds available	Total cost Source	Deficit
BCG				
DTP				
Measles				
OPV				
Yellow fever				
TT				
HepB				
Vitamin A				
Others				
Grand total				

This table summarizes the cost of immunization of women and children. You should be able to send your deficit, if any, to the MOH and the ICC or other interested partners to look for additional resources to cover the above deficit.

#### Exercise 5.2 – Cold chain needs

For this exercise, refer to Module 7: *Cold chain management* and Module 8: *Vaccine management*. Needs associated with the cold chain include: refrigerators/deep freezers, spare parts, cold boxes, vaccine racks, cold storage, thermometers, cold chain monitors, fuel (kerosene, petrol) and the annual cost of maintenance and/or equipment replacement. Calculate these costs using data from the district or health establishment.

#### Cold chain needs for routine immunization

Item	Quantity	Unit price	Total cost
Deep freezer (without CFC)			
Refrigerators (without CFC)			
Vaccine packs			
Cold packs			
Thermometer			
Cold chain monitor			
Cold box (without CFC)			
Generator			
Cold room (without CFC)			
Kerosene			
Petrol			
Communication			
Repairs/maintenance/spare parts			
Grand total			

### Exercise 5.3 – Transportation needs

Stop for a while to discuss transport policies and develop a plan for the items indicated in the following table. Estimate the number and cost of transport used in the district (motorcycles, domestic animals, vehicles, etc.) that should be repaired, replaced or bought. Assess fuel needs for vaccine distribution, and for outreach/mobile strategies. Assess the cost of maintenance of transport at district level.

#### Transportation needs

Item	Available	State	Additional needs	Unit price	Total cost
Vehicle		Functional			
		To be repaired			
Motorcycle		Functional			
		To be repaired			
Bicycle		Functional			
		To be repaired			
Animal		In good health			
		To be replaced			
Hiring of means of transport					
Other means of transport					
Gas/oil					
Petrol					
Grand total					

#### Maintenance of vehicles/motorcycles/bicycles

Item	Quantity	Unit cost	Total cost
Regular maintenance			
Spare parts			
Grand total			

### Exercise 5.4 – Establishing a plan for injection equipment

Before starting this planning exercise, you need to discuss your country's current policies on injection equipment and safety. The estimates should take into account the target population for each injectable vaccine, the number of doses required and the wastage factor. On the basis of policies adopted in the countries and stocks of equipment available in health centres and district warehouses, assess the needs and costs related to:

- auto-disable (AD) syringes and needles
- sterilization equipment in new centres, needs related to replacement in case the use of re-usable equipment is normal practice
- safety boxes for destruction of AD syringes/needles.

Example:

Number of syringes for DTP = Target population x 3 doses x Wastage factor

(For AD syringes, WHO recommends the wastage factor of 1.1. If known, use the factor usually used in your district or country – following two tables).

### Needs in injection equipment (AD syringes/needles) for routine immunization

Vaccine	Target population	Doses as per schedule	Stocks in reserve (%)	Coverage (%)							
				Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Syringes	Safety boxes	
	A	B	C	E	F	G	H	I	J	K	
BCG		1	25								
DTP		3	25								
Measles		1	25								
Yellow fever		1	25								
HepB		3 or 4	25								
Routine TT		Up to 5	25								
Other injectable vaccines (specify)											
				Syringes			Safety boxes				
				For injections		For reconstitution					
Total quantity											
Unit price											
Total cost											
Grand total											
<p>A: Specify your target population (children under one year of age).            B: Specify the number of doses on your schedule.            C: Revise, if necessary, the amount with your programme manager.            E+F+G+H+I: Specify your coverage objectives per antigen for the planning year and multiply the total number of syringes by that figure to get adjusted quantities of syringes.            J: <math>(E+F+G+H+I) \times A \times 100 / (100-C)</math>.            K: <math>J/100</math> (each safety box generally contains 100 syringes).</p>											

### Cost of injection/sterilization equipment for routine immunization

Item	Quantity	Unit price	Total cost
AD syringes			
Fuel/spare parts			
Safety boxes			
Destruction of injection equipment			
Others			
Grand total			

### Exercise 5.5 – Developing a plan to support training

Training needs are examined in other modules. Refer to them while working on your plan. Specify the number of training sessions and describe the type (e.g. workshop, in-service training, etc.); specify the number and categories of staff to be trained, as well as the duration and cost of each session.

Describe and evaluate the cost of training.

#### Planning support for training at national level

Training objective (areas)	Type of training	Number of staff to be trained	Unit cost	Total cost	Resources				Schedule of activities or date and venue of training	
					Funds available/needs	Human resources available/needs	Material available/needs	Deficit in monetary terms	Dates	Venue
Training coordination at national level										
Pool of national trainers for EPI										
Orientation session for programme managers and national EPI programme team										
Training of provincial officials										
Training of district officials										
Training of peripheral level health workers										
Training in preparing of an equipment plan										
Training of private practitioners										
Training in supervision tools										
Training in evaluation process										
Others (specify)										
		Complete the boxes corresponding to your needs. Please note dates of the training activities are important for calculating the resource needs (due to daily subsistence allowances involved). Similarly, the travelling costs need to be considered (air or bus tickets, mileage claims etc.).								

### Exercise 5.6 – Developing a plan for an integrated communication and social mobilization approach in support of the programme

The committee in charge of communication at national level should collaborate closely with the national ICC. The committee analyses specific problems of districts (low coverage, low motivation of health workers, political commitment, public interest for EPI, etc.), as well as data on the communication activities in support of the programme. Integrated communication and social mobilization activities should comprise of needs related to:

- Message formulation (pretesting, contracting, etc.).
- Informing and involving various target groups (parents, other caregivers, politicians, community leaders, etc.).
- Material development and information dissemination (e.g. radio/TV production).
- Training.
- Qualitative/formative research.

For further details and better interpretation of these components, consult Module 3: *Communication and community involvement for immunization programmes*.

#### Components of the integrated communication and social mobilization plan

	Advocacy	Social mobilization	Communication in support of the programme
Problem definition			
Objectives			
Targets			
Strategies			
Activities			
Equipment			
Communication channels			
Budget			
Monitoring and evaluation indicators			

### Exercise 5.7 – Developing a plan for disease surveillance

Do not forget to take the following factors into account in planning surveillance activities (and issues related to the collection, compilation, analysis, dissemination and data feedback).

- Assessing training needs for epidemiologists, data managers and health workers.
- Maintenance needs of reference laboratories (for countries where they exist).
- Needs of the national laboratory: equipment, supplies and reagents.
- Assessing needs in case investigation of target diseases: personnel, daily allowance, transport.
- Sensitization of health workers and ICC partners.
- Needs in supervision, monitoring and evaluation of surveillance activities.

The laboratory is an important and indispensable component of surveillance activities. The equipment and reagents should be ordered from a supplier accredited by WHO in order to obtain quality products at reasonable prices. Preventive maintenance and equipment replacement should also be planned.

A few important factors must be taken into account when planning laboratory surveillance:

- **Reagents and equipment:**
  - order from the WHO reference list of laboratories
  - clearly specify known quality products and their reference numbers
  - secure adequate stocks according to turnover and time for replenishment
  - consider appropriate preservation period and stock control.

- **Capacity building:**
  - performance tests and quality assurance
  - data management
  - in-service training.
- **Transportation and communication needs.**

#### Seminars and workshops for monitoring and supervision

Item	Quantity	Unit cost	Total cost

#### Exercise 5.8 – Developing a plan for EPI financial, administrative and management support

Immunization activities are coordinated by national and district health teams. Issues related to human resources extend beyond the responsibilities of the immunization programme manager and cover general human resource development at national level. Technical skills in EPI planning, implementation, monitoring and evaluation are dealt within appropriate modules. This exercise encourages the programme manager to plan the daily needs of the immunization teams at national and district levels. Participants should estimate the operational and management costs of: equipment (computers, printers, photocopying machines, vehicles, etc.); office supplies (paper, pens, diskettes, management tools and others, immunization cards, forms, registers); maintenance of vehicles; office equipment; payroll expenditure; communication; operational expenditure; and management needs for immunization activities.

#### Human resources

Level	Number of staff	Annual salary	Total cost
National			
Regional			
District			
Subtotal			

#### Equipment

Item	Quantity	Unit price	Total cost
Computers			
Printers			
Office supplies			
Radio/communication			
Repairs/maintenance			
Subtotal			

#### Office furniture, immunization cards, registers and other supplies

Item	Quantity	Unit price	Total cost
Office furniture			
Management tools			
Immunization cards			
Subtotal			

#### Exercise 5.9 – Developing a plan to support formative supervision

You may refer to Module 16: *Supportive supervision by EPI managers* for more ideas on this aspect.

Item	Quantity	Unit cost	Total cost
Daily allowance of staff according to the number of visits planned			
Transport (fuel, mileage)			
Supervision checklist			

### Exercise 5.10 – Planning for routine immunization

Using the activities generated already on routine immunization in this exercise, quantify the required resource and budget to implement the activities.

Item	Quantity	Unit cost	Total cost

#### Take note

During the past decade, RI coverage rates in countries of the African Region were either declining or stagnant. Evaluation also showed that some districts were less successful than others. Consequently, some countries focused attention on low-coverage districts, providing them with additional resources to help them improve their services. The following list contains suggestions to assist countries to target their problem districts and provide them with relevant support and resources.

Identify the districts concerned and inform them about the need to make greater efforts to improve EPI coverage. Assist them to set realistic objectives for their districts. Discuss with them the possible strategies, using the problem-solving approach (expect specific solutions from the districts, including the most unusual ones).

Define the priority strategies – not all the strategies will produce the expected results.

Ensure that the districts plans include each of the following components:

- vaccines
- cold chain
- injection equipment
- training
- communication and social mobilization.

Operational expenditure, including special strategies aimed at increasing immunization coverage:

- monitoring and supervision
- develop a summary budget.

Discuss with national officials the micro-plans for mobilizing supplementary resources.

You need to work as a group during this exercise in order to analyse and establish plans for resolving the problems accounting for low immunization coverage. Issues to be examined when developing plans for low-coverage districts:

- What are the causes of poor EPI performance in your district?
- What are the priorities to be tackled?
- What are the perceived solutions of each problem identified?
- What are the advantages and disadvantages of each solution?

Low-coverage districts should envisage implementing both routine and supplementary immunization activities to improve coverage.

### Exercise 6 – Consolidation of the plan prepared

Participants so far have been dealing with the different subsections of the plan. The time has come to consolidate them into a coherent and comprehensive plan of action. Therefore:

- Each group should work on the following three tables (routine immunization, supplementary immunization and disease surveillance) to summarize their plans.
- As a component of the plan, groups prepare a Gantt chart (as shown in Annex 5) on the schedule of activities to be implemented. You may modify this diagram according to your needs.
- Your plans are ready. You may prepare your presentations to the plenary!

## Routine activities

Resource needs	Quantity needed	Total cost (US\$)	Funds pledged/expected (US\$)					Deficit
			Government	Others*	Others*	Others*	Total	
A. Routine immunization								
A.1 Vaccines – BCG								
DTP								
OPV								
Measles								
Hepatitis B								
Yellow fever								
TT								
Others (specify)								
A.2 Cold chain equipment								
A.3 Injection equipment								
A.4 Transport								
A.5 Training								
A.6 Social mobilization								
A.7 Monitoring and evaluation								
A.8 Functioning and management								
A.9 Others (specify)								
Funds not yet earmarked for specific use								
Subtotal								

Note: \* Specify source of funding, e.g. agencies (UNICEF, World Bank), private enterprises etc.

### Supplementary immunization

Resource needs	Quantity needed	Total cost (US\$)	Funds pledged/expected (US\$)					Deficit
			Government	Others*	Others*	Others*	Total	
B. Supplementary immunization								
B.1 Vaccines - OPV								
Measles								
TT								
Vitamin A								
Others (specify)								
B.2 Cold chain equipment								
B.3 Injection equipment including A-D syringes								
B.4 Transport								
B.5 Planning and training								
B.6 Social mobilization								
B.7 Personnel								
B.8 Monitoring and evaluation								
B.9 Others (specify)								
Funds not yet earmarked for specific use								
Subtotal								

Note: \* Specify source of funding, e.g. agencies (UNICEF, World Bank), private enterprises etc.

### Disease surveillance

Resource needs	Total cost (US\$)	Funds pledged/expected (US\$)					Deficit
		Government	Others*	Others*	Others*	Total	
C. Surveillance							
C.1 Support for active surveillance							
C.2 Cost of transportation of equipment							
C.3 Training monitors for case finding							
C.4 Sensitization meetings for clinicians							
C.5 Sample collecting kits							
C.6 Community sensitization							
C.7 Others (specify, e.g. laboratory needs)							
Funds not yet earmarked for specific use							
Subtotal							
Grand total							

You could also estimate the cost of immunization per child. In this case, divide the total cost of routine activities by the number of children under one year of age:

Total cost (US\$)/Population of children under one year to be immunized (planned coverage figure) = Cost of immunization per child.

Note: \* Specify source of funding, e.g. agencies (UNICEF, World Bank), private enterprises etc.



## 9. Using the plan developed

You should transform the plan you have developed into a workplan or an action plan. The workplan prepared by the manager and staff specifies the activities planned, their duration (starting and completion dates), the necessary resources as well as officers responsible for implementation. It is a precious tool for the implementation, monitoring and evaluation of the programme. Each plan, five-year or annual, should have its own workplan. The workplan is developed at all levels and in a team. Each member of the team must have a copy of the workplan (operational plan).

The workplan should provide answers to the following questions:

- What are the objectives pursued?
- What are the most important activities?
- What will be their implementation sequence?
- Who will be responsible for implementing them?
- Where are they implemented?
- What resources will be available for their implementation?

The workplans should be adaptable to possible variations and changes during programme implementation. The workplan will enable the EPI manager to monitor the programme closely and win the support of the different actors and partners that is crucial for resource mobilization.

**Figure 9.1 Sample Gantt chart**

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Conduct training needs assessment	■	■										
Review training materials and tools			■	■	■	■						
Conduct training of trainers							■	■	■	■		
Review pre-service curriculum							■					
Conduct in service training											■	■

To develop workplans, there are several techniques called organization or programming techniques. One of the most frequently used techniques is the Gantt chart and each EPI manager should be able to construct a Gantt chart – a double entry graph: one entry for activities to be carried out, and the other for their implementation schedule, as shown in Figure 9.1. The period of implementation is represented in the form of horizontal bar showing duration of activity. An example of a Gantt diagram is illustrated in Annex 5.

For more details on the format of a plan and core indicators for monitoring the plan, refer to annexes 2 – 4.

During the period immediately following development of the plan, managers should put a lot of effort into getting the plan approved and “selling” it to all stakeholders, including partners. The approved plan should then be disseminated to all relevant stakeholders. In countries with a functional ICC, the involvement of partners in the planning process facilitates their support for the plan developed.

## Exercise 7 – How to use your plan

For all four groups.

Task 1: Groups should discuss and try to reach consensus on how this plan should be used by the national programme manager or the district immunization programme officer for resource mobilization and implementation. Possible discussion points may include the following:

- Apart from the national or district EPI team, which other people will be interested in our plan?
- How do we involve different actors with the implementation of the plan?
- In what form will the plan be most useful in our dialogue with the EPI stakeholders and partners?
- When should we involve others with the implementation of the plan?

Task 2: Present your output to the plenary.

## Recommended reading

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WHO (2008). Implementing the Reaching Every District approach: A guide for district health management teams. Regional Office for Africa: World Health Organization. Available at: [http://www.who.int/immunization/programmes\\_systems/service\\_delivery/AFRO-RED\\_Aug2008.pdf](http://www.who.int/immunization/programmes_systems/service_delivery/AFRO-RED_Aug2008.pdf) (accessed 5 December 2016).

WHO (2013). Global Vaccine Action Plan 2011–2020. Geneva: World Health Organization. Available at: [http://www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en/](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/) (accessed 5 December 2016).

WHO (2013). WHO-UNICEF guidelines for comprehensive multi-year planning for immunization. Geneva: World Health Organization. Available at: [http://www.who.int/immunization/programmes\\_systems/financing/tools/cmyp/en/](http://www.who.int/immunization/programmes_systems/financing/tools/cmyp/en/) (accessed 5 December 2016).

WHO (2015). Regional Strategic Plan for Immunization 2014–2020. Regional Office for Africa: World Health Organization. Available at: [https://www.who.int/afro/immunization/strategic-plan-immunization-2014-2020](https://www.who.int/afro/immunization/strategic-plan-immunization-2014-2020/en/) (accessed 5 December 2016).

World Bank, GAVI Alliance (2010). Immunization financing toolkit: A resource for policy-makers and program managers.

### **Website**

WHO – Immunization, Vaccines and Biologicals: <http://www.who.int/immunization/en/>

# Annex 1: Activities for planning to reach every district

## 1. Planning and management of resources

At district and facility levels, planning should identify what resources are needed to reach all target populations in a way that can be managed well and thus maintained. Good planning involves: (a) understanding the district/health facility catchment area (situational analysis); (b) prioritizing problems and designing micro-plans that address key gaps; (c) as part of micro-planning, developing a budget that realistically reflects the human, material and financial resources available; and (d) regularly revising, updating and costing micro-plans to address changing needs.

### District level

- Develop comprehensive annual micro-plans.
- Plan all supervisory meetings with health workers and communities.
- Conduct periodic review meetings to review data and assess performance.

### National level

- Use the cMYP as a basis for realistic costing of human and financial resources necessary to undertake the RED/REC strategy at district level.
- Ensure that all elements of the district micro-plans are included in the plan.
- Identify any gaps in funding or human resources.
- Use the national ICC to raise funds.
- Prepare costing of activities to ensure 80% coverage and above in all districts.
- Review human resources to ensure efficiency and links between immunization and other health programmes.

## 2. Reaching the target populations

This is a process to improve access and use of immunization and other health services in a cost-effective manner through a mix of service delivery strategies that meet the needs of target populations.

### District level

- A register tracks target population children.
- A simple hand-drawn map is used to outline villages in the catchment area of each health unit.
- Review session plans for fixed immunization to meet the needs of the community.

- An outreach micro-plan is developed and budgeted using a schedule that is adapted to community convenience.
- Health staff participates in outreach at least every two weeks.
- Appropriate supplies, forms/registers and allowances are assured for every planned outreach trip.
- Appropriate transport is provided for outreach, which could include, for example, a motorcycle for a 6–20-km radius, or a bicycle for less than 5-km radius.
- An influential community focal point is identified and active.
- Outreach is planned and implemented with community participation.
- In negotiation with the community, other interventions are included in outreach (with vitamin A as a minimum).
- Good communication is achieved between service providers and community members.
- Prioritize health facility catchment areas by total number of unimmunized and partially immunized children.
- Develop plans to conduct additional outreach visits or periodic intensification of routine immunization (PIRI) to reduce the number of unimmunized children.
- Immunization advisers are identified to assist with planning and monitoring outreach services.

### Subnational (state, provincial or regional) level

- Prioritize districts by total number of unimmunized and under-immunized children.
- Re-orientation workshops for priority districts to produce district micro-plans using MLM Module 5: *Increasing immunization coverage*.
- Support plans and implementation of accelerated activities to increase coverage and reduce unimmunized and under-immunized children in priority districts.

### National level

- Analyse all districts, including coverage and drop-out rates, unimmunized and under-immunized population, mapping and feedback.
- Guide districts to conduct bottleneck analysis of immunization coverage and develop appropriate strategies.

- Review national policy, strategies, plans and budgets for outreach and PIRI including transport management.
- Systematic monitoring of fixed and outreach immunization sessions at district level through supportive supervision, follow up and feedback.

### 3. Supportive supervision

#### District level

Supportive supervision focuses on promoting quality services by periodically assessing and strengthening service providers' skills, attitudes and working conditions. Regular supervision should go beyond checklists and reports. It should build capacity to carry out safe, good quality immunization services at district level. In addition, it should upgrade the skills of health workers by on-site support, training, monitoring and feedback. This should include preparation of district micro-plans and budgets within the district.

- District supervisor visits health units at least once per month to help with planning, budgeting, monitoring, training and problem-solving.
- During a supervision session the supervisor should:
  - stay for at least two to three hours;
  - provide training on specific subjects including safety and waste management;
  - watch health workers conduct immunization sessions to ensure quality and safety;
  - watch health workers train other colleagues;
  - include a technical update; and
  - monitor progress on a standard wall chart.
- Supervisors must be mobile and transport must be planned, provided and budgeted for each supervisory visit.
- When a health worker visits the district level there should be an opportunity to continue training.
- When a health worker visits the district level he/she should travel with appropriate supplies and forms.
- The supervision visit would not necessarily need to be exclusively focused on immunizations, so long as the supervisor gives immunization due attention.

#### Subnational (state, provincial or regional) level

- Organize training of trainers and supervisors in priority technical areas.
- Implement regular supportive supervision in priority districts according to plans.

#### National level

- Review TORs and duties of supervisors and assess national supervisory plan.
- Redefine TORs of supervisors to improve on-site support and/or training at health facility level.
- Determine training needs of supervisors.
- Identify and secure resources necessary to make regular supervisory visits possible.

### 4. Links between community and health services

#### Health facility level

- Identify a mobilizer to alert the community that the outreach worker has arrived and the outreach session has begun.
- Attend all sessions.
- Mobilize children and mothers.
- Consult on the time and place of an outreach session.
- Inform the community of the next outreach session.

#### District level

- In collaboration with health workers, establish regular meetings with stakeholders to discuss performance, identify local health issues and problems and agree on solutions, e.g. reducing dropout through defaulter tracing.
- Build community networks (communication channels).

#### Subnational (state, provincial or regional) level

- Develop/revise strategies and plans that will result in the systematic identification of community focal points or committees in priority districts.

#### National level

- Identify national focal point for advocacy, communications and social mobilization.
- Review national plans and strategies including orientation of health workers on improving links between community and service.

### 5. Monitoring for action

#### Health facility level

- Determine the target population and catchment area of each health facility in consultation with district level and communicate upward to the province and national level.

- Record each dose of vaccine given for all EPI antigens both at fixed posts and during outreach sessions.
- Record vaccine stocks and calculate wastage rates.
- Penta1 is the standard indicator for “access” for the purpose of standardization and simplicity. Other indicators will continue to be used to measure the quality and impact of the service.
- Chart cumulative monthly Penta1 and Penta3 percentage coverage and monitor Penta1-Penta3 dropout.
- Ensure that simple hand-drawn maps are available at each health facility showing villages and populations.
- Ensure the community participates in and is notified about immunization targets.
- Data compiled and discussed at monthly district meetings with the supervisor with a critical review of numerators and denominators.
- Plan supplementary immunization activities when necessary.
- Conduct outbreak investigation and response.

### **Subnational (state, provincial or regional) level**

- Organize quarterly meetings for district teams and supervisors.
- Analyse district data and provide feedback to districts.

### **National level**

- Strengthen national capacity to produce and maintain district-level indicator database including mapping.
- Review timeliness, completeness and accuracy of district reporting system.
- Compare district, subnational and national numerators and denominators to ensure consistency.
- Develop national consensus on denominators and reporting guidelines.
- Identify priority districts and provinces for strengthening monitoring, evaluation, surveillance and reporting system.
- Follow up the implementation of activities designed to correct subnational and district performance deficiencies.

### **District level**

- Monitor completeness and timeliness of immunization coverage and surveillance reports.
- Chart cumulative monthly Penta1 and Penta3 coverage to monitor doses administered and drop-out rates.
- Distinguish between immunization recording and reporting at fixed post and outreach services.
- Calculate the percentage of health units that had no vaccine stock-outs during the month.
- Record vaccine stocks and utilization rates for each health facility.
- Identify problems and find appropriate local solutions.
- Compile information for reporting to province level on a monthly basis.
- Calculate the percentage of health units that have been supplied with adequate (equal or more) numbers of auto-disable (AD) syringes for all routine immunizations during the year.

### **Subregional (intercountry support team – IST) and regional level**

- Review national plans and budgets including cMYP to ensure that activities to increase coverage are included and adequately budgeted for.
- Request all countries to report on progress of the implementation of RED/REC and other strategies to increase coverage
- Provide feedback and technical support where needed to all countries regarding key performance indicators.

## Annex 2: Proposed format for preparation of an action plan on child immunization

**1.1 Introduction:** Give one- to two-page introductory remarks indicating the purpose and justifications for preparation of the action plan.

**1.2 Background information and situation analysis:** Provide an overview of childhood diseases in the country based on the history of the diseases, epidemiological data and disease statistics. Describe how recent developments in the country have affected childhood immunization programmes, immunization coverage and programme performance as a whole. Assess the current status of polio eradication, neonatal tetanus elimination and accelerated measles control programmes. Highlight current immunization strategies, the level of integration of EPI in the general health services, reflection of current health reforms on the programme, and identify major problems and constraints.

**1.3 Objectives:** Formulate programme objectives and goals preferably in measurable terms. Limit the number of objectives to three or four covering global features.

**1.4 Strategies:** Make a critical analysis of existing EPI strategies. Describe proposed strategies and approaches that will be applied. Try to identify innovative strategies for an effective implementation of the programme. Highlight the important role of the primary health care programmes and the role of communities in supporting immunization activities at grassroots level.

**1.5 Targets:** Specify targets in relation to each objective you have formulated in Section 5 of this module exclusively in measurable terms. Indicate time deadlines for achieving them. Try to be realistic, do not attempt to formulate targets that you cannot achieve with available resources. For example, if the country has only 50–60% immunization coverage for DTP3 in the current year, it will be too ambitious to plan for 85–90% coverage by next year! For each objective identify three to four targets – usually sufficient for an effective monitoring.

**1.6 Activities:** To achieve the above targets prepare a table of activities for each individual target. Decide and include implementation dates, responsible officials or organizations, estimated total cost and expected results.

**1.7 Monitoring and evaluation:** Describe how you are going to monitor the implementation of the plan; which indicators measure the achievements of your specific targets, when the review or evaluation (if it is a long-term plan) of the programme will take place. Specify deadlines and procedures for reporting and the level at which you have to report.

**1.8 Budget estimate:** From the activity table, extract cost values for each activity and prepare an overall budget for the plan. It is useful to specify the cost of each activity by code and programme component or target. Summarize the total cost of the plan and indicate available financial resources and the source. This section should also identify resource gaps to enable the programme management to approach partners for support.

**1.9 Annexes:** Support your plan with essential information, immunization statistics and graphs showing trends in target diseases and immunization coverage.

## Annex 3: Summary of immunization programme core indicators

Key component	Critical function	Area	Core indicator
Operations	Service delivery	Coverage	% of districts with $\geq 80\%$ Penta3 coverage
	Service delivery	Coverage	% of districts with $\geq 90\%$ measles coverage
	Service delivery	Utilization	% of districts with a Penta1-Penta3 drop-out rate $\leq 10\%$
	Service delivery	Safety	% of districts that have been supplied with adequate number of AD syringes for all routine immunizations during the year
	Logistics and cold chain	Vaccine management	National level vaccine wastage rates of Penta and new vaccines (HepB and Hib)
	Vaccine supply and quality	Vaccine supply	% of districts that had no interruption in vaccine supply (any vaccine) during the reporting year
	Surveillance	Reporting	% districts disease surveillance reports received at national level compared with number of reports expected (reporting completeness)
	Surveillance	Reporting	% of districts coverage reports received at national level compared with number of reports expected (reporting completeness)
	Advocacy and communication	Political commitment	Country having a plan budget line for focal point for advocacy and communication
Financial resources	Financial sustainability	Political commitment	Government-financed recurrent activities (salaries, duty travel etc.) Government spending on immunization programme (vaccines, safety supplies etc.)
Human and institutional resources	Strengthening of human resources	Supervision	% districts that have had at least one supervisory visit of all health facilities in the reporting year
Management development	Strategic planning	Micro-planning	% of districts with micro-plans that include immunization activities

## Annex 4: Global Vaccine Action Plan (GVAP) indicators

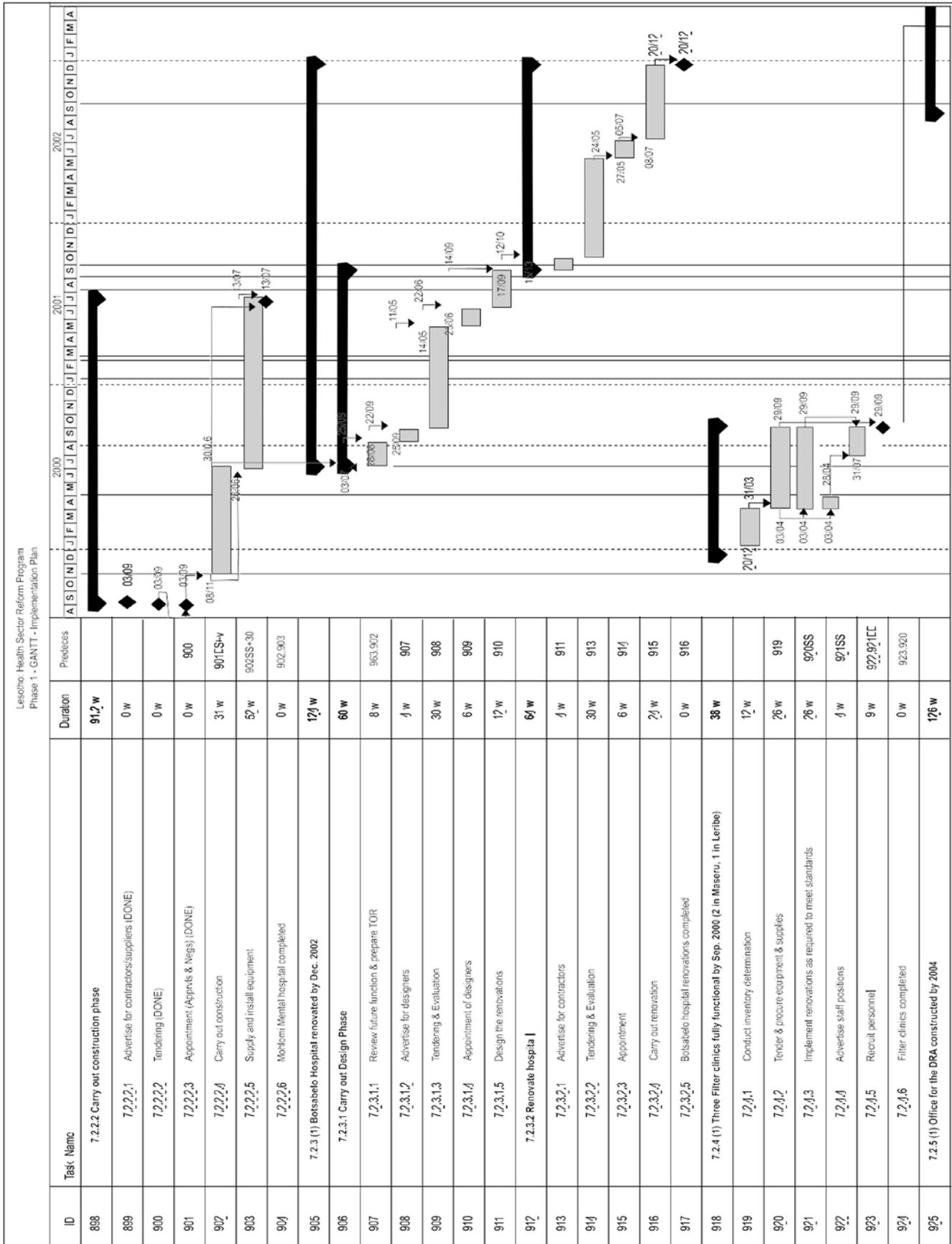
### Annex 4.1: Proposed goal-level indicators and targets

Goals	Target by 2015	Target by 2020
Achieve a world free of poliomyelitis	Interrupt wild poliovirus transmission globally (by 2014)	Certification of poliomyelitis eradication (by 2018)
Meet global and regional elimination targets	Neonatal tetanus eliminated in all WHO regions Measles eliminated in at least four WHO regions Rubella/congenital rubella syndrome eliminated in at least two WHO regions	Measles and rubella eliminated in at least five WHO regions
Meet vaccination coverage targets in every region, country and community	Reach 90% national coverage and 80% in every district or equivalent administrative unit with three doses of diphtheria-tetanus-pertussis-containing vaccines	Reach 90% national coverage and 80% in every district or equivalent administrative unit with all vaccines in national programmes, unless otherwise recommended
Develop and introduce new and improved vaccines and technologies	At least 90 low-income and middle-income countries have introduced one or more new or under-utilized vaccines	All low-income and middle-income countries have introduced one or more new or under-utilized vaccines Licensure and launch of vaccine or vaccines against one or more major currently non-vaccine preventable diseases Licensure and launch of at least one platform delivery technology
Exceed the Millennium Development Goal 4 target for reducing child mortality	Reduce by two thirds, between 1990 and 2015, the under-five mortality rate (Target 4.A)	Exceed the Millennium Development Goal 4 Target 4.A for reducing child mortality

## Annex 4.2: Proposed strategic objective-level indicators

Strategic objectives					
All countries commit to immunization as a priority	Individual and communities understand the value of vaccines and demand immunization both as a right and a responsibility	The benefits of immunization are equitably extended to all people	Strong immunization systems are an integral part of a well-functioning health system	Immunization programmes have sustainable access to predictable funding, quality supply and innovative technologies	Country, regional and global research and development innovations maximize the benefits of immunization
Monitoring indicators					
<p>1. Domestic expenditure for immunization per person targeted</p> <p>2. Presence of an independent technical advisory group that meets defined criteria</p>	<p>1. Percentage of countries that have assessed (or measured) confidence in vaccination at subnational level</p> <p>2. Percentage of un- and under vaccinated in whom lack of confidence was a factor that influenced their decision</p>	<p>1. Percentage of districts with 80% or greater coverage with three doses of diphtheria-tetanus-pertussis-containing vaccine</p> <p>2. Reduction in coverage gaps between lowest and highest wealth quintile and another appropriate equity indicator</p>	<p>1. Drop-out rates between first dose and third dose of diphtheria-tetanus-pertussis-containing vaccines</p> <p>2. Sustained coverage of diphtheria-tetanus-pertussis-containing vaccines <math>\geq 90\%</math> for three or more years</p> <p>3. Immunization coverage data assessed as high quality by WHO and UNICEF</p> <p>4. Number of countries with case-based surveillance for vaccine-preventable diseases that meet quality standards</p>	<p>1. Percentage of doses of vaccine used worldwide that are of assured quality</p>	<p>1. Progress towards development of HIV, TB and malaria vaccines</p> <p>2. Progress towards a universal influenza vaccine (protecting against drift and shift variants)</p> <p>3. Progress towards institutional and technical capacity to carry out vaccine clinical trials</p> <p>4. Number of vaccines that have either been re-licensed or licensed for use in a controlled-temperature chain at temperatures above the traditional 2–8°C range</p> <p>5. Number of vaccine delivery technologies (devices and equipment) that have received WHO pre-qualification compared with 2010</p>

# Annex 5: Example Gantt chart (from Lesotho health reform document)







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