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GUIDELINES FOR PERFORMING A COUNTRY ASSESSMENT

Financing Assessment of Immunization Services

Partnerships for Health Reform

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PHR advances knowledge and methodologies to develop, implement, and monitor health reforms and their impact, and promotes the exchange of information on critical health reform issues.

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Abstract

Assessments of immunization programs have traditionally focused on epidemiological and logistical aspects of the programs. This immunization financing assessment tool (IF tool), developed by the U.S. Agency for International Development's Partnerships for Health Reform as a partner in the Global Alliance for Vaccines and Immunization, is intended for in-depth, systematic evaluations of the costs and financing of immunization programs. It may be used alone or in conjunction with the World Health Organization's Global Assessment Tool on Immunization Services. Following a narrative overview of the assessment process, the IF tool offers a checklist and tables that guide the user through information gathering, estimating current costs and financing, and developing a five-year plan. Findings are intended to help a country's health officials and international donors understand the costs and financing of an immunization program, so that they can develop policies to ensure financial sustainability of the existing program and plan improvements in terms of expanding coverage and adding new vaccines and technologies.

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Acronyms

ADB	African Development Bank
BCG	Bacillus Camille-Guerin (Tuberculosis Vaccine)
CMS	Central Medical Store
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Program on Immunization
FIC	Fully Immunized Child
GAVI	Global Alliance for Vaccines and Immunizations
GDP	Gross Domestic Product
GNP	Gross National Product
IEC	Information, Education, and Communication
ICC	Interagency Coordinating Committee
MOF	Ministry of Finance
MOH	Ministry of Health
NGO	Non-governmental Organization
NIP	National Immunization Program
OPV	Oral Polio Vaccine
PAHO	Pan American Health Organization
PHC	Primary Health Care
PHR	Partnerships for Health Reform
TT	Tetanus Toxoid
USAID	United States Agency for International Development
VII	Vaccine Independence Initiative
WHO	World Health Organization

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1. Introduction

This document contains a tool for assessing immunization program financing at the country level. This immunization financing tool (IF tool), created by the United States Agency for International Development's Partnerships for Health Reform (PHR), responds to the need for national and local authorities and non-governmental organizations (NGOs) in developing countries to have detailed, systematic information on immunization financing. The information will allow those countries to more effectively utilize limited resources, identify financing issues, and prepare for improvements in immunization programs.

1.1 Background

Several evaluations and assessments of national immunization programs (NIPs) and activities have been conducted over the past 20 years. Most focused on epidemiological and logistical factors. Little analysis was done on the economic and financial aspects of these programs, despite the fact that the costs and financing of immunization activities play a primary role in NIP sustainability and maintaining the level of coverage achieved. Moreover, costs and financing are important to the new challenges that many countries face: to reduce the inequalities of access to immunizations, to introduce new vaccines and technologies, and to integrate preventive and curative activities at the local level.

To make NIP assessments more comprehensive, the World Health Organization (WHO), under the Global Alliance for Vaccines and Immunization (GAVI), developed the Global Assessment Tool on Immunization Services. As its name implies, the GAVI tool provides for an overall assessment of a national immunization program. As such, it gives GAVI, international partner organizations, and in-country managers a "big picture" of achievements and deficiencies in a NIP, and it provides guidance for future planning and coordination. It contains a financial component. However, because of the tool's breadth of focus, its financing component cannot probe all the costing and financing aspects in detail.

1.2 The IF Tool

The IF tool was developed by PHR to meet developing countries' needs for in-depth assessments of NIP costing, financing, and planning issues at the regional and national levels. To do so it estimates current and future costs and uses the estimates to develop financing strategies. It is intended for developing countries, because it is their immunization programs that are most likely to suffer from scarcity of resources that could jeopardize coverage and introduction of new vaccines and technologies. Its methodology was developed for four PHR country case studies on immunization financing.[1] It can be used to complement the GAVI tool, especially where the GAVI financing component suggests deficiencies in an NIP, or to make an independent financing assessment of a program.

[1] PHR has done country case studies of immunization financing in Bangladesh, Colombia (forthcoming, spring 2000), Cote d'Ivoire (forthcoming, spring 2000), and Morocco. To view or download the case study reports, go to www.PHRproject.com or contact the PHR Resource Center.

The IF tool is intended for use primarily by country-level NIP managers and coordinating bodies such as an interagency coordinating committee (ICC), as well as by officials from ministries such as health and finance.

2. Objectives of an Immunization Financing Assessment

The primary objective of the IF tool is to improve the financial sustainability of national immunization programs. More specifically, the tool is intended to do the following:

- Evaluate the costs and financing of routine immunizations, national immunization days (NIDs), and mop-up activities
- Determine the funding of a NIP by program component
- Evaluate the trends in funding amounts from local and external resources
- Describe and analyze vaccine and supply procurement and financing
- Analyze the impact of the current financing strategies on utilization, coverage, and equity
- Evaluate the costs of closing access gaps, increasing coverage, and introducing new vaccines and technologies
- Determine the gaps between estimations of needed and anticipated funding
- Estimate the potential for increasing local resource mobilization and appropriate and efficient use of external funding
- Identify options for financing strategies for the next multi-year timeframe

These objectives should be tailored to an individual country's priorities and needs and focus on how to improve immunization coverage and sustain improvement. Ultimately, NIP managers need to be able to document cost and financing status and related issues, analyze trends in costing and financing (e.g., decreases or increases in external support), and effectively integrate data collection, analysis, planning, and decision making.

3. Methodology

To carry out a comprehensive financial assessment, evaluators must gather information on both financial and non-financial aspects of the NIP. Financial aspects include costs of current activities, additional costs of new vaccines and technologies, and sources and mechanisms of financing. Non-financial aspects include political and legal issues, and the process by which the country makes decisions regarding its immunization program. The IF tool therefore looks at both financial and non-financial components of an NIP.

3.1 The Pre-assessment Phase

3.1.1 Setting Parameters

The host government and the evaluation team should agree upon specific terms, timeframe, scope, and objectives of the assessment before the assessment begins. This ensures that host-country officials understand the assessment process and needs of the evaluators, and that the evaluation team work expeditiously.

3.1.2 Securing Political Support

Support from the senior officials of the host government is essential for the assessment to succeed, for it ensures that the evaluation team will receive cooperation from health authorities during the assessment, that assessment findings will be accepted, and that assessment recommendations will be implemented. Support from senior ministry of health (MOH) and ICC officials[2] is particularly critical, because they are best placed to use assessment findings to make resource allocation decisions for a country's NIP, and often can secure the technical guidance required to carry out assessment recommendations.

3.1.3 Assessment Team

The financing assessment is ideally carried out by a team made up of national and international immunization financing experts and consultants. A typical assessment team has three to five "core" members who guide the assessment from start to finish and draw on other experts as needed. In-country authorities provide technical personnel familiar with the country's NIP and health system, facilitate data access, and make onsite logistical arrangements. International experts and consultants assist the national team and provide additional information and capacity to conduct the assessment. They collaborate closely with national vaccine policy and logistics experts and managers to identify

[2] A government's capacity to implement and manage effective immunization activities is significantly enhanced by the existence of an organized, active entity such as an interagency coordinating committee. The ICC comprises representatives from a country's national and local government agencies, private sector, international partners, and other interested parties. In addition to being an audience for the findings and recommendations of a NIP assessment, it should play a lead role in the assessment. The ICC may choose to revise the assessment components described in this tool to more appropriately fit the local context. Often, there are issues of local importance that the committee would like to highlight or address in greater depth.

priorities, needs, objectives and next steps. Box 1 lists the types of experts needed for an assessment team.

Illustrative Assessment Team

- NIP experts and managers
- District-level managers with responsibility and experience in health system management, particularly of immunization services
- International expert in assessment methodology for immunization activities
- Financial planning specialist

3.2 The Assessment Process

3.2.1 Timeframe

On average, the financing assessment is carried out in five phases and takes three weeks. The five phases of the assessment are as follows:

> Planning assessment activities

> Collecting data (fieldwork)

> Analyzing data

> Preparing the report and multi-year action plan

> Presenting the findings and plan to the MOH, donors, and key partners

While at least 60 percent of the three-week period should be devoted to data collection, this process is often time consuming and may cause significant delays in completing an assessment on time. Therefore, it is strongly recommended that local members of the assessment team start to collect data one month prior to the actual assessment, and to organize the data and draw out key findings. Annex A lists data that would ideally be collected and organized during the pre-assessment phase.

3.2.2 Information Gathering

Data for the assessment are collected primarily in three ways:

> A review of documents, figures, and other written records from the preceding 3-5 years of the NIP,

> Interviews with national and international personnel involved with the NIP, and

> In some cases, direct observation.

Where similar data have been compiled recently, the assessment may involve collecting only supplemental or more up-to-date information.[3]

In seeking information for an assessment, the IF tool looks at three levels of a country's NIP: national, subnational, and organizational. Data gathering is not automatically done at every level. Rather, how and what data are collected should be defined by the specific objectives and desired results of the evaluation. For example, when concerns about decentralization issues are important, information at the intermediate and peripheral levels is relevant. When the assessment is focused on the national level and good records are available, data gathering at the central level may suffice, or be supplemented by limited regional information.

Interviews are an especially important information-gathering tool. They are conducted with staff members or individuals representing the following groups:

- National level
  - Ministries (health, finance, social affairs, etc.)
  - Units responsible for NIP, procurement, finance
  - NIP managers; chiefs of budget, epidemiology, surveillance, logistics, equipment, primary health care
  - International organizations, donors, lenders
  - Public and private health sector institutions working with NIP
  - Technical experts, community leaders, professional associations, universities, NGOs
- Subnational level
  - Governors, prefects, mayors
  - Managers of health services and NIP activities
  - Staff members involved in the allocation of resources for immunization programs
  - International associations, NGOs working with NIP
  - Community leaders, professional associations
- Operational level
  - Technical or administrative leaders of health services (inclusive of political figures presiding over health programs)
  - Health workers involved with NIP
  - Private sector, NGOs, personnel administering or delivering immunizations
  - Community leaders
  - NIP users

[3] Data older than three years should be evaluated and updated.

4. Guidelines for Information Gathering

The assessment team adapts their information gathering sources and methods to each national immunization program and country setting. Annex B contains a matrix to guide evaluators through the information-gathering process. It is organized into 10 topics, or components, about which information is collected. It sets out the organizations whose representatives should be interviewed, the most appropriate method(s) by which to gather data, and the levels—national, subnational, and operational—that should be researched.

This section provides a discussion of the matrix. It is ordered by matrix component and includes the rationale for each.

Component: Political priority and legal basis of NIP (objectives, organization, financing)

RATIONALE

The information gleaned in this component puts NIP financing in its broader context, including determining its priority within the Ministry of Health and in national policy. This involves:

- Finding out what key informants say about the value and the priority given to the NIP;
- Determining the position of the NIP in the organization structure of the MOH;
- Learning to what extent national government resources are formally allocated to immunizations and what part of costs are borne by individuals; and
- Examining the legal basis for immunizations, including whether they are a legal right or only something that it is desirable for children to receive.

Evaluators should ask the following questions:

> What political priority has the government assigned to the NIP?

> Are there laws that support immunization as a social and health priority?

> Is immunization considered a right for each child and family?

> Is there a legal basis for charging no fees for immunization activities/services?

> Does the government budget contain vaccine and/or immunization line items?

Component: Programming, planning, decision-making process

RATIONALE

It is important to determine how systematically the MOH and decentralized units plan immunization activities, follow the plan, and modify it in light of performance. This may have implications for wastage, efficiency, effectiveness, and attainment of equitable and complete coverage. This involves:

- Determining and understanding the process by whom, how and why decisions are made;
- Understanding the roles and responsibilities of critical actors and entities involved in managing and providing immunization services, and how the actors and entities can be mobilized to make sustained improvements; and
- Analyzing the extent to which detailed planning, including the setting of clear objectives, written and quantified plans are made and followed, and feedback information is generated and used to monitor and evaluate performance at the appropriate levels (national and decentralized).

> What are the main agencies and bureaucratic mechanisms for planning and decision making, especially for financing? Who are the key ministry officials involved?

> What are the goals, objectives, and priorities as defined by the MOH and ministry of finance (MOF)?

> Are government databases complete and do they contain the most current and reliable information (e.g., population, level of resources, coverage, cold chain, and storage capabilities)?

> Is there an annual or multi-year action plan?

> To what degree has the action plan been implemented?

> To what degree are the decentralized administrative levels (e.g., regions, districts) involved in program planning and management?

Component: Organization, coordination, and evaluation

RATIONALE

A good immunization program does not operate in isolation, but works in coordination with other MOH units, other government sectors, across decentralized levels, with NGO partners, and with international assistance organizations. Hence, it is important to find out about the extent of coordination and communications in all of these directions.

> What are the functions and roles of the NIP unit within the MOH?

> Is the setting of objectives, activities, and resource allocations coordinated with other units in the MOH (e.g., procurement, planning, maintenance, primary health care, information systems)?

> Are there functional mechanisms for inter-MOH departments and interagency coordination?

> Are there criteria, mechanisms, and resources for periodic and consistent evaluation?

Component: Procurement and financing of vaccines and supplies

RATIONALE

A comprehensive review of procurement issues is one of the most crucial aspects of a NIP assessment. Deficiencies in procurement mechanisms and related issues can significantly increase wastage of resources and reduce a country's capacity to achieve its desired immunization coverage. An assessment will help managers determine the most cost-effective mode of procuring vaccines and how best to finance procurement. Important aspects of a NIP's capacity to manage vaccines and supplies include its ability to forecast vaccine needs, to secure the timely delivery of vaccines of acceptable quality, and to maintain adequate and appropriate stocks.

A variety of international agencies assist many countries with procurement. Thus, it is important to learn whether the country being assessed is eligible for this assistance, whether and to what extent it is used, and what the experience has been.

> What procurement mechanisms are used to obtain vaccines and other immunization-related supplies? Is there any local production concerned?

> How would one assess the vaccines procured in terms of adequate reliability, appropriate prices, and acceptable quality?

> What are the responsibilities of the different local and external actors involved?

> What are the linkages between procurement and funding mechanisms?

> How are procurement methods functioning in terms of prices, reliability, quality of product, methods of payments, and currency used? Procurement methods used may include direct procurement on the international market, procurement from local producers, and procurement through an international mechanism.

> Are there foreign exchange constraints?

> What are the main issues concerning procurement? For which vaccine or component?

> What is the government's experience with any of the procurement-assistance mechanisms, such as UNICEF'S Vaccine Independence Initiative (VII)? (What advantages are gained? What difficulties are encountered?)

> Does the government want to participate in any international or regionally supported mechanism (e.g., VII, the Pan American Health Organization's [PAHO] Revolving Fund, the European Union Initiative)?

Component: Costs of current activities

RATIONALE

Estimates of the costs of current activities are at the heart of the analysis of immunization financing. Costs may be looked at in several different ways that assist in overall program planning, analysis of efficiency, analysis of alternative delivery strategies, budgetary planning, analysis of who bears different parts of the costs and the risks associated with that distribution of responsibilities, and with the projection of financial needs as the NIP adds new features and new antigens. This IF tool calls for the estimation of costs in three main ways:

- *Total estimated costs*: the costs of the NIP including investment and operating costs, regardless of who bears them or whether they are shared with other programs, and spreading investment costs over the lifetime of the investment items;
- *Program-specific costs*: those costs incurred specifically for the delivery of immunizations, over and above the costs shared with other health activities and regardless of who pays them (e.g., vaccines, supplies, cold chain, surveillance); and
- *Recurrent, variable, non-personnel costs*: those costs that the MOH must mobilize each year for the NIP, either from its own budget or with the help of donors or lenders.

> What is the breakdown of current funding for NIP operating and investment costs by financing source (e.g., government allocation, donors, health insurance, cost recovery)?

> What is the breakdown of costs of NIDs activities in terms of operating and investment costs?

> What is the share of specific immunization costs[4] compared to total NIP costs?

> What are the estimated costs in local and foreign currencies?

> What is the cost per capita and per FIC for the six EPI antigens[5] and for the complete set of immunizations offered in the country, where applicable?

> What is the cost supported by households in the public and private sectors? For which vaccines and components?

Annex C contains charts that can guide the collection and organization of data needed to prepare comprehensive and appropriate analyses of costing issues. The charts are as follows:

C-1 Estimated Total Annual Costs of Routine Immunization Activities

C-2 Estimated Total Annual Costs of the NIDs

C-3 Estimated Total Annual Costs of the NIP (routine activities, NIDs)

C-4 Estimated Total Annual Costs of the NIP (by currency)

C-5 Estimated Program-Specific Costs of the NIP

[4] Specific immunization costs include vaccines and vaccine-related supplies such as syringes; cold chain and sterilization equipment; training on EPI activities; and social mobilization efforts focused on immunization.

[5] The six "traditional" EPI antigens are: BCG (Bacille Calmette-Guerin [against tuberculosis], DTP (diphtheria, tetanus and pertussis), polio, and measles vaccines.

C-6 Cost-effectiveness Estimates for the NIP

Component: Financing of current activities

RATIONALE

To determine the financial needs of the NIP, the sources of financing for various components of the program must be analyzed. The needs may be for continuation of a basic Expanded Program on Immunizations (EPI) program, extension of coverage of EPI, adding new technologies, renewing investments, pursuing new strategies (e.g., NIDs, mop-ups), or adding new antigens. Financing of different components may come from national or local government funds, donor or lender assistance, or from users through insurance mechanisms or directly from their pockets. The combinations of sources used can have implications for the long-term sustainability, equity, and possibility for expansion of the NIP.

> What are the overall patterns of health financing in the country, including public and private sources and uses of funds? (Please refer to any existing health sector financing review)

> What is the breakdown of current funding for NIP operating and capital costs by financing source (e.g., government allocation, donors, health insurance, cost recovery)?

> What is the breakdown of current funding for NIP by program component (e.g., vaccines, cold chain, supplies, personnel)?

> What is the breakdown of current funding for NIP by type of activity (e.g., routine, NIDs)?

> What is the breakdown of external resources between loans and grants by type of activity (routine, NIDs) and by component (vaccines, cold chain equipment, maintenance, transportation, social mobilization)?

> Is an efficient mechanism in place to track trends in the availability and use of external resources?

> Are specific roles assigned to each source of financing (e.g., increasing coverage for a target population, providing a specific vaccine, supporting a specific component of immunization activities)?

> What share of total government health spending is devoted to routine immunizations, NIDS, and immunization overall? How is this broken down across the central MOH, decentralized levels, and other sources?

> What share of GDP is devoted to immunizations through government and private spending? How does this compare to other countries of similar levels of per capita income?

Annex D contains charts that can guide the collection and organization of data needed to prepare comprehensive and appropriate analysis of financing issues. The charts are as follows:

D-1 Funding Sources for Routine Immunization Activities (by cost component)

D-2 Estimated Total and Program-Specific Costs of the NIDs (by source)

D-3 Expenditures on NIDs (by source and by cost component)

D-4 Breakdown of External Contributions (by donor and by program component) during the last five years

D-5 Trends in Donor/Lender Contributions (by donor)

D-6 Total Expenditures Financed through the NIP

D-7 Sources of Financing for the NIP

D-8 Trends in MOH Budget and Corresponding Share of the NIP

D-9 MOH Budget (by funding source)

D-10 Actual Expenditures for Immunization Activities (by line item)

Component: Coverage and equitable access

RATIONALE

Information about coverage and the equity of access to immunizations is needed to guide decisions on how to prioritize among increasing coverage with traditional EPI antigens, reaching out to underserved populations, adding new technologies, and adding new antigens to the NIP. The additional (marginal) costs of reaching higher levels of EPI coverage and reaching the underserved are important to financial planning and to seeking and securing adequate external financial support.

> What is the current and past peak level of coverage of the EPI package?[6]

> What disparities exist among regions and different groups of populations in terms of coverage rates?

> What is the estimated additional cost (broken down by antigen, investment, and operating costs, and by component) of increasing coverage by 10 percent? To reach 80 percent coverage? 90 percent?

> What is the estimated additional cost of raising the coverage of groups or geographical areas that are below the national average? To having them catch up to, and improve along with, the national program?

Component: Additional costs of new vaccines and technologies

RATIONALE

To adequately budget for and/or seek external help for the addition of new antigens and technologies to EPI, all of the costs of delivery of the new antigens and technologies must be estimated.

In planning for new antigens and technologies, efforts and mechanisms to improve cold chain quality are important.

[6] This question is beyond financing costing issues and could be considered by immunization experts and the global assessment team.

> What are the expected gains in terms of reduced disease burden and in economic terms?[7]

> What are the estimated additional costs associated with introduction of each potential new vaccine (especially Hib, HepB, and yellow fever, where applicable) in terms of:

- Vaccine costs
- Supplies
- Cold chain equipment
- Social mobilization
- Laboratory equipment
- Training of personnel
- Transportation
- Surveillance system
- New antigens
- New technologies to improve injection safety
- Other costs

> What are the estimated costs of introduction or generalization of safe injection practices and norms (e.g., clean syringes, safe disposal practices, adequate sterilization procedures)?

> What are the estimated costs of the introduction of combination vaccines? What are the estimated savings/gains of combination vaccines?

> What are the estimated costs in local and foreign currencies?

Component: Total NIP costs and gaps in terms of funding

RATIONALE

The combination of the cost and financing information allows the identification of financing gaps. These gaps may be in financing to maintain the current NIP or for its improvement in terms of coverage, equity, safety, or adding antigens. Additional immediate financial gaps may be identified in terms of the need to replace an aging cold chain, to replace lapsing donor or lender funding, or to ensure adequate foreign exchange to purchase imported inputs (e.g., vaccines).

> What is the total cost of current NIP activities, plus the improvements planned or needed (e.g., increasing coverage rate, reducing the inequities, renewing the cold chain, strengthening the surveillance system, introducing new vaccines, improving injection safety)?

> How are these allocated between annual operating and investment costs and, where applicable, specific catch-up or new component launch investments? Catch-up investments would be of the type needed to replace aging or obsolete cold chain equipment in a short

[7] This question is beyond financing/costing issues and could be considered by immunization experts and the global assessment team.

period of time. Investments in the launch of new components are items such as training of personnel in safe injection practices, the administration of a new vaccine, or the expansion of central cold stores to accommodate additional vaccines or a large-scale increase in coverage.

> What would the gap be in NIP financing with and without the changes planned?

> What strategies have been considered and/or implemented to address foreign exchange issues?

Component: Potential of cost savings and increasing resource mobilization

RATIONALE

The need for additional financing or the need to delay improvements in the NIP because of a lack of funding may be reduced if ways can be found to reduce the cost of current activities or to mobilize more funds locally. In close collaboration with vaccine policy and logistics experts and managers, cost savings may be found through reducing vaccine wastage, improving vaccine procurement to obtain lower prices, or better management of the delivery of immunizations, among others. Additional resources may be mobilized through expanding national and local government allocations, increasing external support, involving NGOs in financing and delivery of immunizations, obtaining insurance coverage for immunizations, and user contributions, especially through cross-subsidization by curative services and prepayment mechanisms.

> Possible cost savings by:

Î Vaccines

- Improving methods of projecting vaccine needs
- Reducing vaccine wastage rates

Î Procurement

- Improving capabilities in forecasting and projection of needs
- Improving procurement mechanisms
- Negotiating better prices for new vaccines and technologies
- Participating in an international pooled procurement mechanism

Î Management

- Implementing better coordination policy among MOH personnel and agencies
- Rationalizing the NIDS activities (targeting populations, reducing time needed to carry out activities through more efficient preparation and sharing of resources)
- Maximizing the number of appropriate immunizations provided at each session (thereby reducing the number of overall sessions needed to achieve coverage)
- Improving the reliability of the surveillance system (strengthening link between program priorities and surveillance activities)
- Improving stock and cold chain management methods to lower wastage
- Increasing the number of clients attending sessions and services

> Potential of increasing resource mobilization. The following ways to increase resources can be explored and estimated:

- Increasing central government budget allocations for the immunization program
- Expanding the role and budget allocations of local governments in financing immunization services
- Increasing the involvement of health insurance institutions
- Exploring cross-subsidization mechanisms and prepayment schemes
- Mobilizing NGOs and the private sector in expanding their support for the program
- Expanding the participation of multilateral banks and donors in specific areas such as financing for newer vaccines or renewing the cold chain

5. Developing a Medium-term Action Plan

Based on the findings of the overall assessment of the NIP and on the priorities adopted by the MOH, an outline and factors to consider for a multi-year action plan may be submitted for ICC consideration. Ideally, the preparatory document defines and examines options and scenarios to consider in terms of objectives, costs, resource mobilization, organizational requirements, general management, and evaluation. It has to be clear that it is the government's responsibility to define priorities, needs, and program direction, and to discuss these issues with the ICC and other concerned parties. In addition, the financial assessment data should be used to perform the financial component of the medium-term action plan. The framework for an action plan should include the objectives and components listed below.

5.1 Objectives

> *Improve* national coverage rate

> *Reduce* social and regional disparities of access

> *Introduce* new vaccines and technologies

> *Support* health system development

5.2 Major components

> *Quantitative objectives* (e.g., increase national and regional coverage by antigen, reduce geographical disparities in coverage rates, introduce new antigens and/or technologies as needed, improve injection safety, support health systems development)

> *Costs of current activities* (includes maintaining and replacing equipment and infrastructure)

> *Costs of NIP* (with planned improvements)

> *Gaps* in terms of organizational structure, management, and financing

> *Options and scenarios* designed to fill these gaps (e.g., cost saving, phasing in improvements, mobilizing additional resources)

> *Strategies for sustainable financing* of immunization activities

> *Mechanisms* to monitor progress in the multi-year timeframe

Annex E contains illustrative charts that can guide the collection and organization of data needed to prepare an effective action plan. The charts can be adapted for country-specific use; categories may vary slightly depending on the local cost and financing context and immunization needs. The charts are as follows:

E-1 Estimated Total Annual Costs of the NIP

E-2 Estimates of Financing Used for the NIP (by source and by program component)

E-3 Recurrent , Variable, Nonpersonnel Costs of the “Basic” NIP

E-4 Vaccine Requirements and Costs (using population-based method of estimating needs)

E-5 Estimated Vaccine Costs of Introducing New Antigen

E-6 Summary of Projected Costs of the NIP and Marginal Costs of Adding New Vaccines and Other Innovations (based on simulation model results and assumptions)

E-7 Projected Costs of Increasing Coverage

E-8 Projected Funding over next 5 Years (can consider various financing scenarios)

E-9 Projected Funding Gap (dependent on future cost and financing scenario being considered)

Annex A. Financing Issues

Draft List of Data (to be collected during pre-assessment phase)

> Economic and Social Indicators

- Trends in GNP per capita
- GDP average annual growth rate
- Trends in the Human Development Index
- Trends in balance of payments
- Debt service/exports (%)

> National Immunization Program: Resources

- Trends in health service provision in the private and public sectors (infrastructure/facilities, physicians, nurses, and equipment)
- Ambulatory services in public and private sector
- Number of immunization facilities in the public sector
- Trends in numbers of fixed and mobile immunization delivery points
- Development of the cold chain
- Main features of the cold chain (type of equipment, age, working order (or not)
- Quantities of vaccines procured over time (by antigen and source)
- Trends in the NIP budget (1991-2000)
- Trends in stock levels at different levels of the system
- Stock-outs by antigen: frequency, causes, etc.

> Costs of Immunization

- Quantity and prices of vaccines purchased (1991-2000)
- Quantities and prices of cold chain equipment obtained over time
- Personnel costs (over time)
- Buildings used for the EPI activities (numbers and costs)
- Cost of vehicles used for immunization activities
- Maintenance costs over time
- Costs of training activities
- IEC costs

- Immunization Financing
  - Trends in national and public health expenditures
  - Trends in the external resources for the health sector
  - Trends in immunization financing in the public sector
  - Sources of vaccine financing in the public sector
  - Trends in use of development bank loans (World Bank, Asia Development Bank, etc.) or external budgetary aid for vaccine and supplies purchases
  - Role and expenses of health insurance in immunization financing
  - Role and expenses of user fees for immunization financing
- Projections of Immunizations and Vaccine Needs (in the next 5 years)
  - Number of infants and women to be vaccinated with traditional antigens
  - Projections of population to be vaccinated with “new vaccines”
  - Projection of needs required for: polio or measles eradication plans, national immunization schedule, new vaccines, etc.

Annex B. Planning the Information Gathering and Analysis Phase

Component	Interview Sources	Level*	Methods**	Questions to Be Asked by Assessment Team
Political priority and legal basis of NIP (objectives, organization, financing)	MOH, MOF, Ministry of Planning, national assembly, NIP	N N N N N	I, D I, D I, D I, D I, D, F	> What political priority has the government assigned to the NIP? > Are there laws that support immunization as social and health priority? > Is immunization considered a right for each child and family? > Is there a legal basis for charging no fees for immunization activities/services? > Does the government budget contain vaccine and/or immunization line items?
Programming, planning and decision-making process	ICC, MOH, NIP, regional/ departmental/ municipal authorities	N N, S, O N, S, O S,O N,S,O N,S,O	I, D, F I I, F, D I, D I, F I,D,F	> Is there an annual or multi-year action plan? > What are the main agencies and bureaucratic mechanisms for planning and decision making, especially for financing? Who are the key ministry officials involved? > Are the government databases complete and do they contain the most current and reliable information (e.g. population, level of resources, coverage, cold chain and storage capabilities)? > What are the goals, objectives, and priorities defined by the MOH and MOF? > To what degree has the plan of action been implemented? > To what degree are the decentralized administrative levels (e.g. regions, districts) involved in program planning and management?
Organization, coordination, and evaluation	ICC, MOH, NIP, regional/ departmental/ municipal authorities	N N, S N, N,S, O	I I I, D I	> What are the functions and roles of the NIP unit within the MOH? > Is the setting of objectives, activities, and resource allocations coordinated with other units in the MOH (e.g., procurement, planning, maintenance, primary health care, information systems)? > Are there functional mechanisms for inter-MOH departments and interagency coordination? > Are there criteria, mechanisms and resources for periodic and consistent evaluation?

*Level: N=National, S=Subnational, O=Operational (e.g., health center)
**Methods: A=Analysis: processing of information assembled to try to draw findings and conclusions from it; I=Interview: conducting a verbal encounter with someone in which information and opinions may be obtained; D=Document Review: reading papers, reports, laws, regulations, etc., to learn about rules, practices, policies, findings, opinions, conclusions, and recommendations; F=Reviews of Figures: reading tables of numbers, ledgers, or other soruces of quantitative data; DC=Primary Data Collection: obtaining information directly from its source, rather than relying on data collected from others—this may entail direct observation, conducting interviews, or applying questionnaires or other instruments.

Component	Interview Sources	Level*	Methods**	Questions to Be Asked by Assessment Team
Procurement and financing of vaccines	MOH, Ministry of Trade, MOF, central medical store, NIP, wholesalers, pharmaceutical firms, WHO/UNICEF, donors	N	I, F	> What procurement mechanisms are used to obtain vaccines and other immunization-related supplies? Is there any local production concerned?
		N,S	I, F	> How would one assess the vaccines procured in terms of adequate reliability, appropriate prices, and acceptable quality?
		N	I, F, D	> What are the responsibilities of the different local and external actors involved?
		N	I, D, F	> How are procurement methods functioning in terms of prices, reliability, quality of product, methods of payments, and currency used? Procurement methods used may include direct procurement on the international market, procurement from local producers, and procurement through an international mechanism.
		N,S,O	I, F, A	> What are the linkages between procurement and funding mechanisms?
		N	I, A, F	> What are the results obtained from the mix of procurement methods used (e.g., direct procurement on the international market, procurement from local producers, procurement through an international collective mechanism)?
		N,S	I, A, D	> What are the main issues concerning procurement? For which vaccine or component?
		N,S	I,D,F	> What is the government's experience with any of the procurement-assistance mechanisms, such as UNICEF's Vaccine Independence Initiative (VII)? What advantages are gained? What difficulties are encountered?
		N	I, D, F	> Does the government want to participate in any international or regionally supported mechanism (e.g., VII, Pan American Health Organization's Revolving Fund, European Union Initiative)?
		N	I, D, F	> Are there foreign exchange constraints?
Costs of current activities	ICC, donors, international organizations, MOH, NIP, regional/ departmental/ municipal authorities	N,S,O	F, A, DC	> What is the breakdown of costs of routine activities in terms of recurrent and investment costs?
		N,S,O	F, A, DC	> What is the breakdown of costs of NIDs activities in terms of operating and investment costs?
		N,S,O	F, A	> What is the share of specific immunization costs compared to total NIP costs?
		N,S	F, A	> What is the cost per capita and per FIC for the six EPI antigens and for the complete set of immunizations offered in the country where applicable?
		O	I, F, A, DC	> What is the cost supported by households in the public and private sector? For which vaccines and components?
		N,S,O	F, A, DC	> What are the estimated costs in local and foreign currencies?

*Level: N=National, S=Subnational, O=Operational (e.g., health center)

**Methods: A=Analysis: processing of information assembled to try to draw findings and conclusions from it; I=Interview: conducting a verbal encounter with someone in which information and opinions may be obtained; D=Document Review: reading papers, reports, laws, regulations, etc., to learn about rules, practices, policies, findings, opinions, conclusions, and recommendations; F=Reviews of Figures: reading tables of numbers, ledgers, or other soruces of quantitative data; DC=Primary Data Collection: obtaining information directly from its source, rather than relying on data collected from others—this may entail direct observation, conducting interviews, or applying questionnaires or other instruments.

Component	Interview Sources	Level*	Methods**	Questions to Be Asked by Assessment Team
Financing of current activities	ICC, MOH, MOF, NIP, social insurance companies, local researchers, private insurance companies, international organizations, WHO, UNICEF, regional authorities, Office of Statistics, National Health Accounts	N	F, I, A	> What are the overall patterns of health financing in the country, including public and private sources and uses of funds?
		N	F, I, A, DC	> What is the breakdown of current finding for NIP operating and capital costs by financing source (e.g., government allocation, donors, health insurance, cost recovery)?
		N	F, A, DC	> What is the breakdown of current funding for NIP by program component (e.g., vaccines, cold chain, supplies, personnel)?
		N	F, A, DC	> What is the breakdown of current funding for NIP by type of activity (e.g., routine, NIDs)?
		N	F, A	> What is the breakdown of external resources between loans and grants by type of activity (e.g., routine, NIDs) and by component (e.g., vaccines, cold chain equipment, maintenance, transportation, social mobilization)?
		N,S	F,A,D	> Is an efficient mechanism in place to track trends in the availability and use of external resources?
		N,S	I, F, A, DC	> Are specific roles assigned to each source of financing (e.g., increasing coverage for a target population, providing a specific vaccine, supporting a specific component of immunization activities)?
		N	I, D, A	> What share of total government health spending is devoted to routine immunizations, NIDS, and immunization overall? How is this broken down across the central MOH, decentralized levels, and other sources?
		N	I,F,D,A	> What share of GDP is devoted to immunizations through government and private spending? How does this compare to other countries of similar levels of per capita income?
Coverage and equitable access	MOH, NIP, regional/ departmental/ municipal authorities, local health services	NSO	D, I, F	> What is the current and past peak level of coverage of the EPI package?
		NSO	D, I, F	> What disparities exist among regions and different groups of populations in terms of coverage rates?
		N	A	> What is the estimated additional cost (broken down by antigen investment and operating costs, and by component) of increasing coverage by 10 percent? To reach 80 percent coverage? 90 percent?
		NSO	I, A	> What is the estimated additional cost of raising the coverage of groups or geographical areas that are below the national average? To having them catch up to, and improve along with, the national program?

*Level: N=National, S=Subnational, O=Operational (e.g., health center)

**Methods: A=Analysis: processing of information assembled to try to draw findings and conclusions from it; I=Interview: conducting a verbal encounter with someone in which information and opinions may be obtained; D=Document Review: reading papers, reports, laws, regulations, etc., to learn about rules, practices, policies, findings, opinions, conclusions, and recommendations; F=Reviews of Figures: reading tables of numbers, ledgers, or other soruces of quantitative data; DC=Primary Data Collection: obtaining information directly from its source, rather than relying on data collected from others—this may entail direct observation, conducting interviews, or applying questionnaires or other instruments.

Component	Interview Sources	Level*	Methods**	Questions to Be Asked by Assessment Team
Additional costs of new vaccines and technologies	MOH, NIP, WHO, UNICEF donors, firms	N,S,O	F, I, A	> What are the estimated additional costs associated with introduction of each potential new vaccine (especially Hib, Hep B, Yellow Fever where applicable) in terms of: ª Vaccine costs ª Supplies ª Cold chain equipment ª Social mobilization ª Laboratory equipment ª Training of personal ª Transportation ª Surveillance system ª New antigens ª New technologies to improve injection safety ª Other costs
		N, S	F, I, A	> What are the estimated costs of introduction or generalization of safe injection practices and norms (e.g., clean syringes, safe disposal practices, adequate sterilization procedures)?
		N, S	F, I, A	> What are the estimated costs of the introduction of combination vaccines? What are the estimated savings/gains of combination vaccines?
		N	I, A	> What are the estimated costs in local and foreign currencies?
Total NIP costs and gaps in terms of funding	MOF, MOH, NIP, WHO, UNICEF, donors	N	A, I, D, F	> What is the total cost of current NIP activities, plus the improvements planned or needed (e.g., introducing new vaccines, increasing coverage rate, reducing the inequities, renewing the cold chain, strengthening the surveillance system, improving injection safety)?
		N	A, I, D, F	> How do these costs break out into annual operating and investment costs and, where applicable, specific catch-up or new component launch investments?
		N	F, D, A, I	> What would the gap be in the NIP financing with and without the changes planned?
		N	I, D	> What strategies have been considered and/or implemented to address foreign exchange issues?

*Level: N=National, S=Subnational, O=Operational (e.g., health center)

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Component	Interview Sources	Level*	Methods**	Questions to Be Asked by Assessment Team
Potential of costs saving and increasing resource mobilization	MOH, NIP, WHO, UNICEF, regional/ departmental/ municipal authorities	N,S,O		Possible *cost saving* by:
			A, I	> Improving methods of projecting vaccine needs
			A, I	> Improving stock and cold chain management methods to lower wastage
			A, I	> Reducing vaccine wastage rates
			I	> Improving capabilities in forecasting and projection of needs
			A, I	> Improving procurement mechanisms
			A, I	> Increasing the number of clients attending sessions and services
			A, I	> Rationalizing the NIDS activities (targeting populations, reducing time needed to carry out activities through more efficient preparation and sharing of resources)
			A, I	> Negotiating better prices for new vaccines and technologies
			I	> Implementing better coordination policy among MOH directions and agencies
			I	> Participating in an international pooled procurement mechanism
			A, I	> Maximizing the number of appropriate immunizations provided at each session (thereby reducing the number of overall sessions needed to achieve coverage)
			I	> Improving the reliability of the surveillance system (strengthening link between program priorities and surveillance activities)
				Potential of increasing and resource mobilization. The following ways to increase resources can be explored and estimated:
		N, S	A	> Increasing central government budget allocations for the immunization program,
		N, S, O	A	> Expanding the role and budget allocations of local governments in financing immunization services,
		N	A, I	> Increasing the involvement of Health insurance institutions,
		N	A, I	> Exploring cross-subsidization mechanisms and prepayment schemes
		N, S, O	A, I	> Mobilizing NGOs and the private sector in expanding their support for the program
		N, S, O	A, I	> Expanding the participation of multilateral banks and donors in specific areas such as financing for newer vaccines or renewing the cold chain

*Level: N=National, S=Subnational, O=Operational (e.g., health center)
**Methods: A=Analysis: processing of information assembled to try to draw findings and conclusions from it; I=Interview: conducting a verbal encounter with someone in which information and opinions may be obtained; D=Document Review: reading papers, reports, laws, regulations, etc., to learn about rules, practices, policies, findings, opinions, conclusions, and recommendations; F=Reviews of Figures: reading tables of numbers, ledgers, or other soruces of quantitative data; DC=Primary Data Collection: obtaining information directly from its source, rather than relying on data collected from others—this may entail direct observation, conducting interviews, or applying questionnaires or other instruments.

Annex C. Estimating Costs

Immunization finance tool tables are presented in amounts of U.S. dollars; if amounts are given in local currency, that should be noted with exchange rates to U.S. dollars. All tables should cite sources of data.

Table C-1. Estimated Total Annual Costs of Routine Immunization Activities, Year X (US$)

Cost Component	Amount (US$)	% of Total
Capital Costs		
Building space		
Vehicles		
Long-term training		
Equipment		
Other		
Subtotal		
Recurrent Costs		
Personnel		
Vaccines		
Supplies		
Transportation		
Monitoring and surveillance		
Short-term training		
IEC/Social mobilization		
Maintenance and overhead		
Other		
Subtotal		
TOTAL		

Table C-2. Estimated Total Annual Costs of the NIDs, Year X

Cost Component	Costs of Health Sector Inputs		Costs of Non-Health Sector Inputs		Total Additional Costs	
	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total
Personnel						
Vaccines						
Transport						
Short-term training						
Long-term training						
IEC/Social mobilization						
Equipment						
Vehicles						
Maintenance and overhead						
Other						
TOTAL						

Table C-3. Estimated Total Annual Costs of the NIP (routine activities/NIDs), Year X

Cost Component	Routine Program Costs (US$)	NID Costs (US$)	Total Program Costs (US$)	% of Total
Capital Costs				
Building space				
Vehicles				
Long-term training				
Equipment				
Other				
Subtotal				
Recurrent Cost				
Personnel				
Vaccines				
Supplies				
Transportation				
Short-term training				
Monitoring and surveillance				
IEC/Social mobilization				
Maintenance and overhead				
Other				
Subtotal				
TOTAL				
% of Total Costs				

Table C-4. Estimated Total Annual Costs of the NIP, Year X

	Cost in Local Currency	Cost in US$	% of Total
Operating Items			
Vaccines			
Personnel			
Vaccine supplies			
Transport			
Training			
Social mobilization			
Other			
Subtotal			
Capital Items*			
Cold chain equipment			
Vehicles			
Other			
Subtotal			
TOTAL			

* Depreciation amounts

Table C-5. Estimated Program-specific Costs of the NIP, Year X

Cost Component	Routine Program Amount (US$)	% of Total	NIDs Amount (US$)	% of Total	NIP Amount (US$)	% of Total
Recurrent						
Vaccines						
Supplies						
Transportation						
Short-term training						
IEC/Social mobilization						
Monitoring and surveillance						
Maintenance and overhead						
Other						
Subtotal						
Capital Costs						
Vehicles						
Equipment						
Long-term training						
Other						
Subtotal						
TOTAL						

Table C-6. Cost-Effectiveness Estimates for the NIP, Year X

Measure	Output	Cost-Effectiveness Ratio
Number of doses administered		
During routine activities		per dose
During NIDs		per dose
Total		per dose
Children fully immunized by Age 12 Months		per FIC
Per capita cost of Immunizations		per capita

Annex D. Tracking Financing

Immunization finance tool tables are presented in amounts of U.S. dollars; if amounts are given in local currency, that should be noted with exchange rates to U.S. dollars. All tables should cite sources of data.

Table D-1. Funding Sources for Routine Immunization Activities (by Cost Component), Year X (US$)

	Domestic Resources				External Resources			TOTAL
	Central Govt.	**Local Govt.**	**Health Insurance**	**Others**	**Loans**	**Grants**	**Others**	
Recurrent Costs								
Personnel								
Vaccines								
Supplies								
Transportation								
Monitoring and surveillance								
Short-term training								
IEC/Social mobilization								
Maintenance and overhead								
Other								
Subtotal								
Capital Costs								
Building space								
Vehicles								
Long-term training								
Equipment								
Other								
Subtotal								
TOTAL								
% of Total								

Table D-2. Estimated Total and Program-specific Costs of the NIDs, by Source, (US$)

	Total Costs					Program-specific Costs				
	Government	Health Insurance	Loans	Grants	Total	Government	Health Insurance	Loans	Grants	Total
Recurrent Costs (NIDs)										
Personnel										
Vaccines										
Supplies										
Transportation										
IEC/Social mobilization										
Monitoring and surveillance										
Short-term training										
Other										
Subtotal										
Capital Costs										
Cold chain equipment										
Laboratory equipment										
Vehicles										
Long-term training										
Other										
Subtotal										
TOTAL										

Table D-3. Expenditures on NIDs (by Source and by Cost Component), Year X (US$)

	Domestic Sources				External Sources					TOTAL
	Central Govt.	Local Govt.	Health Insurance	Others	Loans	UN Agencies	Bilaterals	Other Donors	Ext. NGOs	
Recurrent Costs										
Personnel										
Vaccines										
Supplies										
Transport										
Short-term training										
Social mobilization										
Monitoring and surveillance										
Maintenance and overhead										
Other										
Subtotal										
Capital Costs										
Equipment										
Vehicles										
Long-term training										
Other										
Subtotal										
TOTAL										
% of Total										

Table D-4. Breakdown of External Contributions (by Donor and Program Component), During the Last 5 Years

Program Component	EU		USAID		Other Donor		Other Donor		Total Donor Contributions	
	Est. Amount ($US)	% of Total	Est. Amount ($US)	% of Total	Est. Amount (US$)	% of Total	Est. Amount (US$)	% of Total	Est. Amount (US$)	% of Total
Vaccines										
Personnel										
Vaccine supplies										
Transportation										
Monitoring and surveillance										
Short-term training										
Social mobilization										
Maintenance and overhead										
Equipment										
Vehicles										
Long-term training										
Other										
TOTAL										

Table D-5. Trends in Donor/Lender Contributions, Years X-Y (by Donor)

Year	UNICEF		USAID		Other Donor		Other Donor		Total Donor Contributions	
	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total
1995										
1996										
1997										
1998										
1999										
2000										
TOTAL										

Table D-6. Total Expenditures Financed through the NIP, Years X-Y

Year	Domestic Resources				External Resources			
	Central Government	Local Government	Health Insurance	Others	UN Agencies	Donors	Loans	Other
1995								
1996								
1997								
1998								
1999								
2000								

Table D-7. Sources of Financing of the NIP, Year X (US$)

	Domestic Resources				External Resources			TOTAL
	Central Government	Local Government	Health Insurance	Others	Loans	Grants	Others	
Capital Costs								
Building space								
Vehicles								
Equipment								
Other								
Subtotal								
Recurrent Costs								
Personnel								
Vaccines								
Supplies								
Transport								
Monitoring and surveillance								
Short-term training								
IEC/Social mobilization								
Maintenance and overhead								
Other								
Subtotal								
TOTAL								
% of total								

Table D-8. Trends in MOH Budget and Corresponding Share of the NIP, Years X-Y

Year	MOH Budget Amount (US$)	% of Total Expenditures		% of Total Expenditures by Use			NIP Budget (US$)	NIP as % of Total MOH Budget	NIP % of PHC Services
		Capital	Operating	PHC	Hosp.	Admin.			
1996									
1997									
1998									
1999									
2000									

Table D-9. MOH Budget (by Funding Source), Years X-Y

Year	MOH Budget		Sources of Revenue			
	Amount (US$)	% Increase	Domestic Sources (US$)	Loans (US$)	External Budgetary Aid (US$)	Others (US$)
1996						
1997						
1998						
1999						
2000						

Table D-10. Actual Expenditures for Immunization Activities, by Line Item, Years X-Y, (US$)

Type of Expenditure	1996	1997	1998	1999	2000
Cost of personnel					
Vaccine					
Operational cost					
Training, monitoring of operational research					
Equipment					
Supplies					
Vehicles					
Others					
TOTAL					

Annex E. Developing a Medium-term Action Plan

Immunization finance tool tables are presented in amounts of U.S. dollars; if amounts are given in local currency, that should be noted with exchange rates to U.S. dollars. All tables should cite sources of data.

Table E-1. Estimated Total Annual Costs of the NIP, Year X

	Cost in Local Currency	Cost in US$	% of Total
Capital Items			
Equipment			
Vehicles			
Long-term training			
Other			
Subtotal			
Operating Items			
Vaccines			
Personnel			
Vaccine supplies			
Transport			
Short-term training			
Social mobilization			
Monitoring and surveillance			
Other			
Subtotal			
TOTAL			

Table E-2. Estimates of Financing Used for the NIP (by Source and by Program Component)

Program Component	Central Government		Local Government		Community-Based Financing (e.g., cost recovery)		Health Insurance		Donors/Lenders (All)		Total	
	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total
Vaccines												
Vaccine supplies												
Personnel												
Equipment												
Transport												
Maintenance and overhead												
Training												
IEC/Social mobilization												
Monitoring and surveillance												
Overhead												
Other												
TOTAL												

Table E-3. Recurrent, Variable, Non-personnel Costs of the "Basic" NIP from Years X-Y (US$)

Cost Component	2000	2001	2002	2003	2004	Total
Vaccines						
Transportation						
Training						
IEC/Social mobilization						
Maintenance and overhead						
Supplies						
Other						
TOTAL						

Table E-4. Vaccine Requirements and Costs (using population-based method of estimating needs), Year X

	Avg. Vaccine Doses (years)		Wastage Ratio (Supplied/ Used)	Target Population Size	Total No. Doses Required	Price per vial (US$)	Total Estimated Cost (US$)
Vaccine	Supplied	Used					
BCG							
DPT							
OPV							
Measles							
TT							
Others							
TOTAL							

Table E-5. Estimated Vaccine Costs of Introducing a New Antigen, Years X-Y

Year	Target population	Wastage Coefficient	Vials Needed (X doses)	Unit Price (US$)	Total Cost (US$)
2000					
2001					
2002					
2003					
2004					

Table E-6. Summary of Projected Costs of the NIP and Marginal Costs of Adding New Vaccines and Other Innovations (based on simulation model results and assumptions) (US$)

Cost Component	Current Program	Marginal Cost of Increasing coverage to __%	Marginal Cost of Adding (new vaccines)	Marginal Cost of Innovation (e.g. auto-destructible syringes)	Total
Vaccines					
Vaccine supplies					
Cold chain equipment					
Transportation					
Training					
IEC/Social mobilization					
Surveillance system					
Others					
TOTAL					

Table E-7. Projected Costs of Increasing Coverage, Years X-Y, (US$)

Program Component	Estimated Cost at Current Coverage Rate (___%)	Estimated Cost to Increase Coverage by 10 percentage points to __%	Estimated Cost to Increase Coverage to ___ % (80% or 90%)
Personnel			
Vaccines			
Vaccine supplies			
Transportation			
Monitoring and surveillance			
Short-term training			
IEC/Social mobilization			
Equipment			
Vehicles			
Long-term training			
Other			
TOTAL			

Table E-8. Projected Funding over next 5 years (can consider various financing scenarios)

Program Component	Central Government		Local Government		Community-Based Financing (e.g., cost recovery)		Health Insurance		Donors (All)		Total	
	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total	Amount (US$)	% of Total
Personnel												
Vaccines												
Vaccine supplies												
Transportation												
Monitoring and surveillance												
Short-term training												
IEC/Social mobilization												
Maintenance and overhead												
Equipment												
Vehicles												
Long-term training												
Other												
TOTAL												

Table E-9. Projected Funding Gap (dependent on future cost and financing scenario being considered) (US$)

Component	Projected Funding	Projected Costs (with assumptions: increase coverage, new vaccines, etc.)	Project Funding Gap
Personnel			
Vaccines			
Vaccine supplies			
Transportation			
Monitoring and surveillance			
Short-term training			
IEC/Social mobilization			
Maintenance and overhead			
Cold Chain equipment			
Other			
TOTAL			

Annex F. Bibliography

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