# SMTDP Costing Guidelines for Ministries, Departments and Agencies (MDAs)

## Ministry of Finance

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# Preface

In the last two decades, the Government of Ghana has made significant progress in the area of public financial management through the implementation of various programmes including:

I. Public Financial Management Reform Program (PUFMARP), from 1997-2003 as well as GoG's Short and Medium Term Action Plan (ST/MTAP), covering 2006-2009;
II. The suite of reforms associated with the Ghana Integrated Financial Management Information System (GIFMIS), 2010-2014
III. The Public Financial Management reform Project which was approved in 2015

Adhering to the medium-term national development policy framework, namely, the Ghana Poverty Reduction Strategy I & II (GPRS I & II), 2003 – 2009 and the Ghana Shared Growth and Development Agenda I & II, (GSGDA I&II) 2010-2017, the Ministries, Departments and Agencies (MDAs) prepare Sector Medium-Term Development Strategies which thereafter, are converted into Sector Medium Term Development Plans (SMTDP) for implementation.

Various studies, and assessments have revealed gaps in the current public financial management processes of Ghana, in terms of budget credibility and forecasting, stemming out of several causes including optimistic revenue forecasts, excessive capital expenditure, poor commitment controls, weak establishment controls over payroll, fiscal indiscipline and weak oversight of compliance.

To add to the issues mentioned above, there exist inconsistencies in the costing of plans carried out by MDAs and lack of integration between the costing estimates developed and the resource ceilings set by the Medium Term Expenditure Framework. Currently in Ghana, costing is carried out with little or no consideration for the resource constraint put forth by the MTEF. The lack of a scientific and performance-oriented approach for costing operations of MDAs renders the estimates rather unrealistic. With costing for SMTDP being conducted in an unconstrained and unscientific manner, the funds required as per the SMTDP costing estimates often end up exceeding the budget ceilings for those sectors such that they cannot be reconciled with the Medium Term Fiscal Framework (MTFF) of Ghana. These issues lead to SMTDPs being merely a routine exercise without becoming a significant contributing component to budget formulation. Collectively these gaps also act as a weakness in the integration of the Annual Budget with the National Medium Term Development Policy Framework (currently GSGDA II for 2014-2017) of the country.

In this context, this Guideline has been developed to facilitate the costing exercise of the MDAs for arriving at SMTDP budget estimates, such that the SMTDP becomes an indispensable and effective component of the budgetary process. This is also expected to address the need for integrating all development plans and corresponding budgets prepared by various stakeholders across all levels.

The Guideline has been arranged into the following chapters:

- Chapter 1: Introduction
- Chapter 2: Purpose of the Guidelines
- Chapter 3: Roles of Various Stakeholders
- Chapter 4: Determining the Costs
- Chapter 5: Formats
- Chapter 6: Annexure

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| List of Acronyms | |
|---|---|
| AMC | Annual Maintenance Contracts |
| BAU | Business-As-Usual |
| DPR | Detailed Project Report |
| EIRR | Economic Internal Rate of Return |
| GSGDA | Ghana Shared Growth and Development Agenda |
| MDAs | Ministries Departments and Agencies |
| MDG | Millennium Development Goal |
| M&E | Monitoring and Evaluation |
| MoF | Ministry of Finance |
| MTDP | Medium Term Development Plan |
| MTEF | Medium Term Expenditure Framework |
| MTFF | Medium Term Fiscal Framework |
| MTNDPF | Medium Term National Development Policy Framework |
| NDPC | National Development Planning Commission |
| NPV | Net Present Value |
| PBB | Programme Based Budgeting |
| PFMRS | Public Financial Management Reform Strategy |
| PIs | Performance Indicators |
| STMDP | Sector Medium Term Development Plan |
| TCFR | Techno Commercial Feasibility Report |

# 1 Introduction

Over the last couple of decades, public sector reforms the world over, especially those in the area of public finance management have seen a paradigm shift in the way programs are managed. Authorities are gradually moving away from the age old traditional budgeting practice based on historical data, to a more performance linked budget. It is in this transitional scenario and thereafter that costing of programs has become so critical a catalyst in ensuring efficiency in budgetary processes. A costing exercise based on performance indicators, when carried out objectively with a vision of the future plans (long-term and short-term) of the ministries, departments and agencies, also aptly complements the three pillars of efficient Public Financial Management, namely, fiscal discipline, allocative efficiency and technical efficiency.

Costing of programs is critical for any government as the correct estimation of costs of programs / sub-programs helps the Government in allocating adequate resources for program execution. The correct estimates also equips the program managers in exploring multiple implementation mechanisms for programs that have high implementation costs. A uniform costing method across government ministries, departments and agencies makes the programs / sub-programs comparable, thereby providing enough information to the policy makers to prioritize interventions best suited to meet the strategic goals of the government.

A costing exercise carried out prudently, supports the government agencies in achieving efficiency in public financial management in a variety of parameters, some of which are enumerated below:

- Improved budget management, enhanced resource allocation and accountability, as well as greater efficiency in service delivery
- Sustained improvements in fiscal discipline supported by accountability for budget outturns
- A framework that supports the strategic objectives of the modernized budget
- An integrated and comprehensive STMDP that maximizes returns to government spending through better targeting of strategic priorities and effective spending
- Sustained and measurable improvements in costing
- Better unit costing of Government programs for the government based on information flowing out of the costing observations

In light of the above benefits, the critical role played by costing of programs for achieving fiscal efficiency, can, in no way be undermined, given its ability to generate performance-linked cost estimates which act as the building blocks for the overall budget of the agencies and the state. By delving deep down into the minutest component of cost, a detailed costing exercise emanates realistic, granular-level and performance oriented estimates for the decision makers in the government.

# 2 Purpose of the Guidelines

The Public Financial Management Reform Strategy (PFMRS) of the Government of Ghana has observed that accuracy of the costing exercise carried out by the Ministries, Departments and Agencies (MDAs) still poses a weakness to the overall budgetary process of the Government. The inability of MDAs to prepare an efficient and effective Sector Medium Term Development Plan (SMTDP) in alignment with the resource constraints put forth by the Medium Term Expenditure Framework (MTEF) renders the costing estimates ineffective and in-achievable due to their unconstrained nature. Further, they cannot be reconciled with the Medium Term Fiscal Framework (MTFF) of the state. Given the lack of realistic estimates, the SMTDP remains a mere statutory exercise without contributing much to the formulation of the budget strategy and the estimation of budget ceilings by the Government. This gap renders the link between the Annual Budget and the Ghana Shared Growth and Development Agenda (GSGDA) rather weak with regard to the overall public financial management of the country.

In the above context it is of utmost importance and urgency that the gap in the costing process be addressed through issuance of proper and implementable guidelines which in turn shall bridge the gap between the SMTDP and the MTEF estimates, making them more relevant and essential components of the overall budget of the Government.

Therefore, the purpose of the Guidelines is to assist MDAs in preparation of costing estimates for the Sector Medium Term Development Plans (SMTDPs) in a scientific and consistent manner. The costing guidelines have been developed to provide adequate guidance to MDAs to minimize the variations between actual and budget outturn. The lower variation between the actual and budgeted costs of SMTDPs shall attribute and uphold the credibility of the budgetary estimates leading to effective implementation of policies and strategies defined by Government of Ghana. Accurate estimation ensures optimal utilization of funds leading to sustainability of financial balance and growth.

The objectives of the Guidelines are to:

- Provide clarity in terms of the roles and responsibilities of various stakeholders in estimating costs
- Establish standardised methodology for arriving at cost estimates including principles of determining unit costs for various cost heads
- Equip the MDAs in understanding and defining various costs items in order to have a better estimation of cost drivers
- Ensure timely, accurate and relevant representation of financial information to stakeholders

## 2.1 Stakeholders' consultations and piloting of costing guidelines

Due to the desire to make the guideline practical, implementable and user-friendly, extensive stakeholder consultations were undertaken to ensure that the needs and views of each stakeholder in a costing exercise was taken care of. The initial consultations included engagements with the following institutions.

- National Development Planning Commission (NDPC)
- Ministry of Finance (MoF)
- Ghana Audit Service
- Ministries, Departments and Agencies (MDAs)
    - Ministry of Roads and Highways
    - Ministry of Lands and Natural resources
    - Ministry of Transport
    - Ministry of Interior
    - Ministry of Food and Agriculture
    - Office of Government Machinery

- Ministry of Education
- Ministry of Power

Following these consultations, an initial draft of the costing guideline was developed and piloted with the support of the
Ministry of Finance in two MDAs namely:

- The Ministry of Education and
- The Ministry of Roads and Highways.

The pilot was meant to assess the effectiveness of the steps and formats in the initial draft of the guideline and to validate our initial understanding of the issues articulated during the stakeholder consultation processes.

At the end of the pilot test, the MDAs provided comments to fine-tune the guidelines further. These revisions eventually led to the conclusion of the guidelines.

Following the conclusion and subsequent submission of the guideline to the Ministry of Finance, a team was also constituted by MoF to review the guideline and ensure the alignment of the formats with Hyperion. The team also provided comments that led to another review of the guidelines. The guidelines were finally concluded and submitted to the Ministry of Finance.

## 2.2 Building the capacity of MDAs to use the formats

As part of the terms of reference for this assignment, the consultant was required to provide the requisite training to enable MDAs use the guidelines in costing their respective SMTDPs. In the light of this, trainings were organised in conjunction with the Ministry of Finance for all MDAs. The trainings were in two sessions for different set of MDAs.

The trainings offered the MDAs the opportunity to relate with the guidelines and clarify any issues they had or anticipated to encounter in the use of the guideline. The interactions with the MDAs during the training sessions also resulted in additional suggestions which were also reflected in the formats and steps in the guideline.

# 3 Roles of Various Stakeholders in Costing for SMTDP

The Guideline has been prepared to help MDAs in preparing the Sector Medium Term Development Plan (SMTDP) in general and specifically in costing of the SMTDPs, under the guidance of National Development Planning Commission (NDPC) and Ministry of Finance (MoF). The overall roles of the various stakeholders are outlined below:

## 1. National Development Planning Commission

- Provide guidance to MDAs for preparation of MTDPs
- Develop Medium Term National Development Policy Framework (MTNDPF ) and issue SMTDP preparation guideline to MDAs
- Supervise the preparation of the SMTDP including the costing assumptions and base costs
- Collaborate with Ministry of Finance
- Approve the MTDPs prepared by the MDAs along with the Costing Estimates
- Monitor formulation and implementation of Medium Term Development Plan (MTDP) including the costing assumptions and base costs
- Ensure adherence of MTDP with MTNDPF

## 2. Ministry of Finance

- Collaborate with NDPC for understanding MTNDPF
- Determine resource envelope and budget ceilings for the MDAs
- Ensure costing of MTDPs by MDAs are aligned to the fiscal constraints for the medium term defined for programs and sub-programs
- Ensure budget is allocated for MDAs to carry out programmes contained in the plan
- Release funds to MDAs to implement the approved MTDPs

## 3. Line Ministries, Departments and Agencies

The Lead Ministers are responsible for all aspects of MTDPs and providing approval for draft MTDPs before their submission to NDPC for approval. The roles of the MDAs in preparation of MTDPs and costing estimates under the guidance of NDPC and MoF, are summarized below:

- Establish MTDP preparation teams comprising MDA officials like the MDA Chief Director and the Heads of Departments and Agencies
- Identify MDA's vision, mission and functions for a well-informed planning and budgeting processes
- Self-assess the performance of the MDA against targets set in prior medium term plan and provide explanations in case of abnormalities / gaps
- Prepare variance in costing estimates along with reasons attributable to budget outturns
- Update profile and baseline of the sector corresponding to the MDA, in terms of As-Is status of development
- Prioritize issues of the sector based on baseline assessment
- Formulate policy objectives and goals of the MDA including identification of performance indicators and setting targets for the ensuing years in line with the framework developed by NDPC.
- Prepare programs and sub-programs based on MDA's mandate
- Identify possible risks and devise mitigation measures
- Conduct costing exercise for programs and sub-programs to estimate budget requirement against set targets
- Coordinate with NDPC for approval of MTDPs, costing assumption and costing estimates
- Coordinate with MoF for release of funds

- *Ministries* – The Ministries shall be responsible for providing formats for the costing and validating the assumptions and unit costs. Ministries shall also ensure that the estimates conform to the prescribed ceilings.
- *Departments* and Agencies– The Departments and Agencies shall be responsible for carrying out costing exercise at a disaggregated / lowest level, selection of adequate costing methodology and undertaking all calculations involved to estimate costs at the minutest level of cost object. Once the costing estimates are prepared, the Departments / Agencies shall be responsible for aggregating entity level inputs and verifying costing inputs from historical trend, validating if correct costing methodologies are used etc.

# 4 Determining the Costs

The process of determining costs is set out in the following steps:

- Step 1: Define the sector policy objective, scope, schedule and strategy of implementation
- Step 2: Identify the programs and sub-programs linked to the Policy Objectives
- Step 3: Identify key interventions for Program Implementations in terms of Operations and Projects
- Step 4: Determine the inputs, outputs and outcomes for the operations and projects
- Step 5: Determine cost objects, define costs and identify cost drivers
- Step 6: Determine a suitable costing Methodology for the costing Input Costs
- Step 7: Classify costs appropriately
- Step 8: Allocate proportional costs within various sub-programs (if applicable) and aggregate to Programs
- Step 9: Validate the costing estimates with available historical costs to determine if the estimates are realistic; else make suitable adjustments
- Step 10: Identify factors that can affect the costs during implementation and prepare a suitable risk management plan and determine the cost variations
- Step 11: Develop a suitable M&E framework to ensure that the cost variations stay within pre-determined levels

**Step 1: Define the Sector Policy Objective, scope, schedule and strategy of implementation**

**Step 2: Identify the Programs and Sub-Programs linked to the Policy Objectives**

**Step 3: Identify key interventions for Program Implementations in terms of Operations and Projects**

The very first step in a costing exercise is to have clarity on the sector policy objective, scope as well as schedule and the implementation strategy. These should be provided by the Ministries to departments and implementing agencies in a pre-populated format. The policy in this document should be in line with the one defined in GSGDA / National Development Goals or as updated from time to by the NDPC. The Policy objectives should clearly spell out policy outcomes indicators and targets that have to be achieved by the departments and implementing agencies.  The details that need to be shared are:

- The Scope of the policy coverage in terms of the geographical out-reach and targeted population.
- Timeline for achieving the target based on the previous trends and the goals of the government
- Sector strategies and goals that are firmly anchored in the national thematic goals
- The Programs and Sub-Programs designed to achieve the Sector Goals
- The Operations within the Program and Sub-Programs linked to the outputs and outcomes that help in reaching the Sector Goals.

It is imperative that the information for Step 1 to 3 are derived from the PBB and the same are shared with the Departments and Implementing agencies at the very beginning so that the costing exercise is linked to the budgets.

The following suggestive formats may be used by Ministries for sharing with the Departments and Agencies, the information necessary for carrying out the costing exercise:

**Format for Step 1 -** Define policy objectives and strategies of the Sector that will exert influence between the National Development Goals and the Goals of the said Sector:

Table 1: Suggestive format for sharing information necessary for costing on relevant policies by Ministries

| Sl. No. | Policy Objective |
|---|---|
| 1 | Policy objective 1 |
| 2 | Policy objective 2 |
| 3 | Policy objective 3 |

**Format for Step 2 –** Identify programs and sub-programs which, when implemented, will contribute to realization of the envisaged objectives:

Table 2: Suggestive format for identifying programmes and sub programmes

| Sl. No. | Policy Objective | Program | Sub-program |
|---|---|---|---|
| 1 | Policy objective 1 | Program | Sub-program |
| | | Program | Sub-program |
| | | Program | Sub-program |
| 2 | Policy objective 2 | Program | Sub-program |
| | | Program | Sub-program |
| | | Program | Sub-program |
| | | Program | Sub-program |
| 3 | Policy objective 3 | Program | Sub-program |
| | | Program | Sub-program |
| | | Program | Sub-program |

**Format for Step 3 –** Identify operations/projects within a program/sub-program that have to be carried out in order to meet the policy objectives:

Table 3: Format for identifying relevant project / operations

| Sl. No. | Program | Sub-program | Operation / Project |
|---|---|---|---|
| 1 | Program 1 | Sub-program 1 | Operation 1 |
| | | | Operation 2 |
| | | | Operation 3 |
| 2 | Program 2 | Sub-program 2 | Operation 1 |
| | | | Operation 2 |
| | | | Operation 3 |
| | | | Operation 4 |

**Step 4: Determine the Inputs, Outputs and Outcome for the Operations and Projects**

The first step towards costing operations within Programs / Sub-Programs is to determine the inputs in terms of resources that shall be consumed in conducting the operation. Before the beginning of any

Program / Sub-Programs, it is necessary to determine if the resources required to reach the desired output or outcome are available or need to be procured separately. The Program / Sub-Program may not succeed in case the right resources are not made available at the right time and at the right place during program execution.

The resources consumed during a Program / Sub-Program execution may be determined in terms of the manpower to be deployed, goods and services desired, and the utilities required for successfully carrying out the operations. The units of inputs required for envisaged outputs and outcomes also need to be estimated before the beginning of any Program / Sub-Program. The determination of the input resources is an important exercise which shall help Departments / Implementing Agencies in attaching costs to the input resources in order to arrive at the estimates for conducting an operation within a Program / Sub-Program. The aggregated costs of all Programs / Sub-Programs shall help in determining the total cost of a Government Program / Sub-Program.

A logical framework (logframe) may be used for linking the inputs with the outputs and outcomes. However, at this stage, the concept of Performance Indictor (PI) becomes crucial since it is this performance indicator that quantifies an output and helps in linking the different components of the logframe. A suggestive logframe is provided in Table 1 in the Section 5: Formats, of this document.

A Performance Indicator is a piece of information or data that quantifies any change or progress occurred in the output of an operation. Each output may have a single or multiple PIs to measure its progress. Hence, for selecting the most appropriate PI, the following yardsticks may be applied to the set of indicators:

- The indicator should be a 'direct measure' of output
- Data availability for the indicator should be timely and at minimal cost
- Indicators should be able to quantify the output accurately, e.g., indicators may be expressed in number/ count, percentage, proportion/ ratio. On qualitative aspects or those which are not readily measurable, e.g., involving perceptions or opinions, attempts should be made to quantify them, for instance, percentage of people subscribing to a particular opinion
- Authorities should be able to monitor / track the indicators with respect to inputs, operations, outputs, and outcomes continually so that for a particular intervention, it can be decided when and how to influence them. Close monitoring of targets provide timely inputs for decision making and policy changes and easier impact evaluation
- Indicators should be decided based on the capacity of the department, both in terms of human and systems

Once the logframe for mapping inputs, outputs and outcomes has been populated, the next task is to ascertain the targets for the ensuing 4 years for the various Performance Indicators (PIs) identified against the outputs. As a preparatory sub-task, previous 4 years' data has to be collected based on the following format:

Table 4: Format for historical trend data collection on targets

| Policy Objective | PI for Output | Historical trend | | | |
|---|---|---|---|---|---|
| | | $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$[1] |
| | | | | | |
| | | | | | |

[1] $Y_0$ is the year in which the SMTDP is being prepared for the ensuing 4 years $Y_1$, $Y_2$, $Y_3$, and $Y_4$.

Illustrative example for Health Sector:

Table 5: illustrative historical trend for a health sector

| Policy Objective | PI for Output | Measurement | Historical trend | | | |
|---|---|---|---|---|---|---|
| | | | 2010 | 2011 | 2012 | 2013 |
| Improve quality of health services delivery including mental health services | Institutional Malaria under 5 Case Fatality Rate | No. of children Under 5 who die as a result of malaria per year / no. of children admitted and diagnosed with malaria | 1.2 | 1.3 | 1.2 | 0.6 |

Based on the data collected, a comparative analysis of the PIs may be carried out, so as to gauge the position of the PIs with respect to world average and values of those indicators in similar / comparable countries (e.g., Kenya, Tanzania, Nigeria etc.). The following format may be used for this purpose:

Table 6: format for analyzing baseline information of similar countries

| Sl. No. | Performance Indicator | Value for Ghana | World Average Value | Value for comparable Country-1 | Value for comparable Country-2 | Value for comparable Country-3 |
|---|---|---|---|---|---|---|
| | | | | | | |

Once the aforementioned data has been collected and the analysis carried out, the next major task within this step is to set the targets for these PIs. For determining the targets, it is suggested that 3 scenarios be considered for each of the PIs, and against each of the scenarios, commensurate targets be set, such that they are aligned to the logframe prepared earlier.

The 3 scenarios mentioned above may be classified as follows:

i) **Low / Business-As-Usual (BAU) Scenario** – This scenario represents status quo, wherein it is assumed that the prevalent strategies and programs shall be continued at the same scale and pace, for the next 4 years with no major changes. The targets under BAU scenario will typically be very close to the previous year's target such that services are rendered to the public at the existing manner.

ii) **Mid / Moderate Scenario** – Herein, it is assumed that with a moderate increase in the resources available to fund priority services, a comparatively higher target (around 65%) of PIs will be achievable, as compared to the BAU scenario. Accordingly, targets have to be set such that the moderate targets are realized during the planning horizon.

iii) **High Scenario** – Under this scenario, it is assumed that a significantly high funding may be received, leading to accomplishment of the complete plan and meeting of targets to the tune of 85-90 per cent. The targets for this scenario will naturally be much higher than those for the Low and Mid scenarios.

For each of the scenarios, targets have to be presented using the following format:

Table 7: format for scenario analysis

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Policy Objective | | | | Performance Indicator | | | |
| Measurement | | | | Scenario | | Low | |
| Historical Trend | | | | Targets | | | |
| $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$ | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| | | | | | | | |
| | | | | | | | |
| Policy Objective | | | | Performance Indicator | | | |
| Measurement | | | | Scenario | | Mid | |
| Historical Trend | | | | Targets | | | |
| $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$ | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| | | | | | | | |
| | | | | | | | |
| Policy Objective | | | | Performance Indicator | | | |
| Measurement | | | | Scenario | | High | |
| Historical Trend | | | | Targets | | | |
| $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$ | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| | | | | | | | |

Based on the expectation of resources that will be available as well as the priority of the MDAs, the suitable scenario's targets shall be used while carrying out the costing exercise. As per the logframe populated earlier (input-output-outcome), the inputs required for achieving the envisaged targets shall be determined such that they facilitate the costing exercise as detailed out in the next step.

**Step 5: Defining Costs and Identifying Cost Objects and Cost drivers**

The American Institute of Certified Public Accountants, USA defines cost as - "the amount, measured in money, of cash expended or other property transferred, capital stock issues, services performed, or liability incurred, in consideration of goods or services received or to be received". The Chartered Institute of Management Accountants, London defines Cost as "the amount of expenditure (actual or notional) incurred on, or attributable to, a given thing".

The next logical step in the costing exercise is to identify the cost objects (anything that need to be costed) which are items for which cost is actually estimated. Thus, the input resources identified in Step 4 are the cost objects for operations and in turn, for Program / Sub-Program. The costs for the cost object may not remain stationary throughout the Program / Sub-Program period. Cost Drivers are factors that cause a change in the cost of an operation or output resulting in the operation consuming fewer or greater amounts of resources. The drivers are subject to changes in the business environment in the country – cost of input resources may change due the following factors (indicative and not exhaustive):

- Inflation in Economy
- Change in Oil Prices
- Change in regulatory environment
- Change in Government Policies

The Cost objects attributable for the costing of a Program / Sub- Program are set out below:

Box 1: cost objects for programmes / sub-programmes

21115 - Compensation Arrears
211- Wages and salaries
212 – Social Contributions
21 – Compensation of Employees

22101 – Materials and Office Consumables
22102 – Utilities
22103 – General Cleaning
22104 – Rentals Lease
22105 – Travel and Transport
22106 – Repairs and Maintenance
22107 – Training, Seminars and Conference Costs
22108 – Consultancy Expenses
22109 – Special Services
22111 – Other Charges and Fee
22112 – Emergency Services
22113 – Insurance Premium
221 – Use of Goods and Services
22 – Use of Goods and services

24 – Interest

25 – Subsidy

26 – Grants

27 – Social Benefits

28 – Other Expenses

3111 – Buildings and Structures
3112 – Machinery and equipment
3113 – Other Fixed Assets
311 – Fixed Assets
31 – Non-Financial Assets

The cost estimates for each of the above cost objects should ideally be taken into consideration while costing of Programs / Sub-Programs within a Sector; however, since the Compensation to Employees is taken into account separately, the same may be left out. However, the cost of temporary manpower/ contractual labor and workers (i.e., those not on the permanent payroll of the Government) associated with an operation within a Program / Sub-Program may be considered. It is imperative that a consultation is held between the key stakeholders in a department / implementing agency to make sure that all the relevant costs objects have been identified.

**Step 6: Determine a suitable Costing Methodology for the costing of Input Costs**

The next step in the costing process is to ensure that the most appropriate source of cost data has been used as base for attributing costs to the cost object. Cost base for items can be established through current-year expenditures, historical expenditures, multi-year average expenditures, estimates using appropriate costing methodology, forecasts based on prevailing macro-economic conditions, or standard costs. Each source must be chosen objectively, and the rationale for the choice must be documented. A suggestive template for estimating the cost base is provided below:

Table 8: Template for estimating cost base

| Cost Object | Description | Methodology for Preparing Costing Estimates | Assumptions |
|---|---|---|---|
| **Compensation of Employees** | | | |
| Wages and Salaries | | | |
| Social Contributions | | | |
| **Use of Goods and Services** | | | |
| Materials and Office Consumables | | | |
| Utilities | | | |
| General Cleaning | | | |
| Rentals Lease | | | |
| Travel and Transport | | | |
| Repairs and Maintenance | | | |
| Training, Seminars and Conference Costs | | | |
| Consultancy Expenses | | | |
| Special Services | | | |
| Other Charges and Fee | | | |
| Emergency Services | | | |
| Insurance Premium | | | |
| **Interest** | | | |
| **Subsidy** | | | |
| **Grants** | | | |
| **Social Benefits** | | | |
| **Other Expenses** | | | |
| **Fixed Assets** | | | |
| Buildings and Structures | | | |
| Machinery and equipment | | | |
| Other Fixed Assets | | | |
| **Grand Total** | | | |

Supporting spreadsheets with details on each of the above items need to be developed to capture and calculate the relevant cost information. Depending on the nature of the good / service to be provided by the government, some of the methodologies that may be relevant for costing the above cost objects is set out below:

**Costing Methodology for estimating Costs associated with Compensation of Employees:**

The inherent assumption while costing for personnel for Government Programs and Sub-Programs is that, it is included in the normal budgetary resources and hence, is not included in the costing of the SMTDPs. However, the inherent assumption may not be true for all Programs and Sub-Programs which may need dedicated administrative posts or hiring of temporary manpower. The input for any such manpower along with the existing manpower working dedicatedly on Government Programs / Sub-Programs may be provided through SMTDP for accurate costing of Programs. The justification for the manpower needs to be provided by the Agencies and Departments. The approval for same however, needs to be provided by Ministries and the same has to be taken into account while preparing the Ministry specific budgets. The detailed format that may be used for the aforementioned purpose is set out below:

Table 9: format for justifying manpower cost / compensation

| Category of employee | Pay Band / Total Compensation | Operations for which the manpower is needed | Justification |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

The costs for permanent manpower may be estimated based on the administrative grads with suitable provisions for Inflation adjustments over the Program / Sub-program Period. However, the estimates for the temporary manpower may be established either through:

- Current-year expenditures: The Agency / Department may estimate the manpower cost based on the prevailing manpower expenditure on resources rendering similar services to the Agency / Department.
- Historical expenditures: In case the current year expenditure for resources rendering similar services are not available then historical estimates may be used which are based on the three or five year average expenditures on resources rendering similar services. These costs then need to be adjusted for inflation to arrive at reasonable estimation of costs.

<u>**Costing Methodology for estimating Costs of Goods / Materials:**</u>

A government program may involve procurement of Goods / Materials from the market for the program implementation. The materials / goods that may be procured by Agency / Department may involve procurement of IT Equipment, Consumables, Medicines and Furniture etc. which are fairly standardized products. The Government of Ghana has such a list of good / materials available for the consumption of government bodies under pre-determined rates. **These rates can be used by the Department and Implementing Agencies while estimating cost of Programs / Sub-Programs involving procurement of standard goods from the market.** The indicative list of cost objects that can be estimated using this methodology are set out below:

- Materials and Office Consumables
- Machinery and Equipment

Where rates of material / goods are not available, the Agency / Department may determine the same using the methodology outlined below for arriving at costing estimates.

Step 1: Estimate the quantity – The quantity can be estimated using the nature of the product and consumption pattern (e.g. in case of oral immunization program like polio estimate the quantity of total vials will be based on the total drops per vial and the total target population. The total quantity of Consumables will be based on reasonable estimates based on historical consumption etc.)
Step 2: Estimate the unit  price – The same can be estimated based on either market survey for prevailing market rates or the prices can be based on the average rates of last three years  procurement of similar goods and making suitable adjustments for possible price increases due to changes in inflation.
Step 3:  Estimate the frequency – the frequency or the number of times a good or material is expected to be procured over the course of the budget year should be determined based on past trends or planned/ projected volume of operations.

The cost shall be calculated using the formula
**Cost = (unit price x ( quantity x frequency)**

Table 10: format for estimating the total cost of goods / materials

| Input | Budget Year Total Unit Price | Budget Year Total Quantity | Budget Year Total Frequency | Budget Year Total Amount |
|---|---|---|---|---|
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**Costing Methodology for estimating Costs of Services:**

The Government may engage service providers for providing various services to the Department / Agency which my range from Annual Maintenance Contracts (AMC) for equipment, plant and machinery to large-scale turnkey projects with long gestation periods. Appropriate costing for all such services needs to be estimated as part of the SMTDPs. For the costing of routine services e.g. AMC contracts, travel agency, insurance etc. the costing estimates needs to be made based on the following:

- Current-year expenditures: The Agency / Department may estimate the cost of services based on the prevailing market rates by inviting quotations from at least three vendors providing similar services.
- Historical expenditures: In case the quotation cannot be invited due to various factors like confidentiality etc. then historical estimates may be used which are based on the three or five year average expenditures on vendors providing similar services. These costs then need to be adjusted for inflation to arrive at reasonable estimation of costs. The indicative list of objects that can be costed using this methodology include:
  - Travel and Transport
  - Insurance Premium
  - AMC
  - Printing Cost
  - General Cleaning
  - Rentals Lease
  - Repairs and Maintenance
  - Training, Seminars and Conference Costs
  - Consultancy Expenses
  - Emergency Services

The Program / Sub-Program may also involve procuring services of vendors for turnkey projects involving creation of capital assets for the Government which include construction of universities, erection of a power plant, building of roads and bridges, dams, canals, setting up of oil refineries etc. Such services may require significantly large capital expenditure and involve large gestation period. Also, such services may require specific skills which may only be provided to the Government by private companies / firms. The cost estimation for each such operation needs to be estimated based on Detailed Project Report (DPR) / Techno Commercial Feasibility Report (TCFR) prepared by qualified individual within the Government or with the help of Consultants hired for preparing such DPRs / TCFRs. The DPRs / TCFR must contain Economic Internal Rate of Return (EIRR), Net Present Value (NPV) associated with such Projects. The Departments may outline from time-to-time the list of Projects for which the costing estimates should be based on DPRs / TCFRs. The Agency / Department may provide the following details about Projects based on the DPRs / TCFRs:

Table 11: format for providing details about projects by agencies / departments

| Work Type (indicative) | Target for $Y_1$ | Target for $Y_2$ | Target for $Y_3$ | Target for $Y_4$ | Total |
|---|---|---|---|---|---|
| Widening of Road / Construction of Railway Over Bridge / Construction of Under Bridge / Construction of Dam | | | | | |

Table 12: format for classifying projects under cost heads

| Cost Heads | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ | Total |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
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**Format to be used for providing Operation-wise, year-wise Costs:**

Thereafter, total year-wise cost for each cost object has to be calculated. The following format may be used for this purpose:

| Table 13: format for providing operation – wise, year cost **Operation:** | | | | |
|---|---|---|---|---|
| **Cost Object –** | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| Target | | | | |
| Quantity to be Procured (allowing 1% leakage) | | | | |
| Inflation | | | | |
| Inflation Adjusted Price | | | | |
| Total Year-wise Cost for the Cost Object | | | | |
| **Cost Object –** | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| Target | | | | |
| Quantity to be Procured (allowing 1% leakage) | | | | |
| Inflation | | | | |
| Inflation Adjusted Price | | | | |
| Total Year-wise Cost for the Cost Object | | | | |

Subsequently, the operation-wise cost for each of the years of the planning horizon may be presented using the following format:

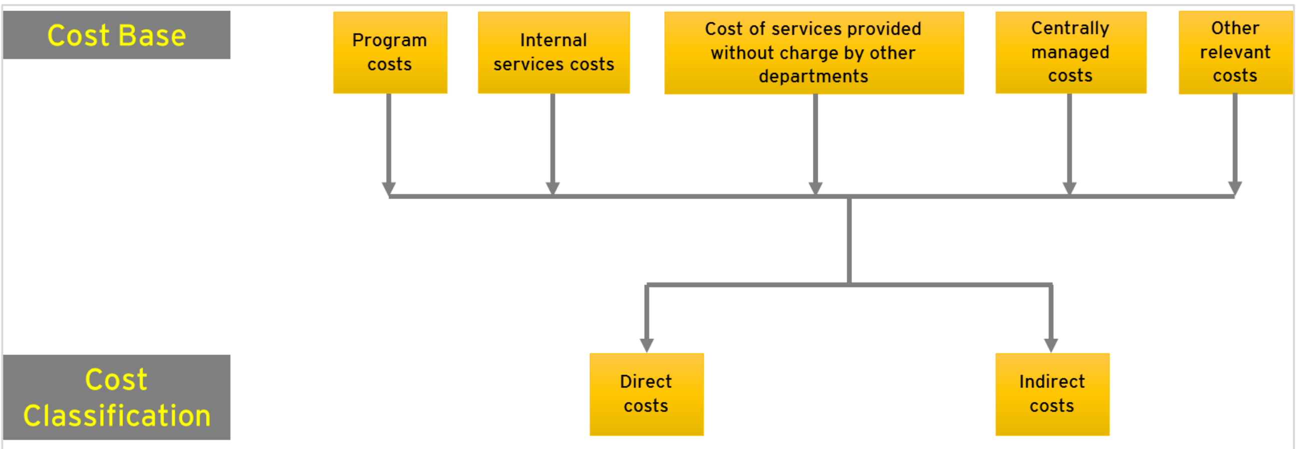
Table 14: format for operation wise cost for the SMTDP years.

| Operation | Cost (in GHS) $Y_1$ | Cost (in GHS) $Y_2$ | Cost (in GHS) $Y_3$ | Cost (in GHS) $Y_4$ | Total Operation Cost (in GHS) |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| Grand Total (in GHS) | Total Cost for $Y_1$ | Total Cost for $Y_2$ | Total Cost for $Y_3$ | Total Cost for $Y_4$ | Total cost for all operations of the output |

**Step 7: Classify costs appropriately into Direct Cost and Indirect Costs:**

Once, the costs are arrived at using various costing methods, the next step is to classify them into Direct Costs and Indirect Costs. The figure below illustrates the concept of cost classification.

Figure 1: classification of costs




It is suggested that process costing and job costing (cost accounting approaches that allocate direct costs to production processes or to individual jobs) be applied to the identification of direct costs.

**Direct Costs** may be classified as:

- **Direct Staffing Costs:** These include the wages or salaries of staff and on-costs such as annual leave (including loading) and long service leave entitlements expense, superannuation, workers' compensation insurance, fringe benefits tax, shift penalties, etc. Expenditure on protective clothing, training and allowances also falls under direct staffing costs
- **Other Direct Costs:** These are identified as being directly related to the service. Examples of such costs may include: assets expensed on purchase; communication services such as telephones, internet and

couriers; consultants or contractors; consumable supplies; and the cost of inventory consumed in the course of producing a service.

**Indirect costs** are costs that are not directly attributable to a particular service. They are sometimes referred to as overheads and can include, for example, 'corporate' costs such as the chief executive officer's salary or costs associated with executive administration, financial services, human resources, records management, information technology, accommodation, and depreciation and amortisation charges (relating to assets employed in service delivery). Consistent with the objective of reporting on the full cost of services, wherever possible these indirect costs should be allocated to the relevant service where there is a rational basis for doing so. Depending on the circumstances of individual agencies, some of these costs may be regarded as direct costs.

> Additional examples of overhead costs include utilities like water, telecommunications, postal charges, sanitation charges; accommodation, rentals for building, land, vehicles, furniture and fittings, computers and accessories; lease of vehicles, office equipment etc. Typically, these should be classified as indirect costs since their levels of utilization is not always directly correlated with the level of service being provided by the Government.

The following is a suggestive cost classification template that may be used in this step.

Table 15: format for classifying costs

| Item | Direct Cost | Indirect Cost | Total |
|---|---|---|---|
| **Compensation of Employees** | | | |
| Wages and Salaries | | | |
| Social Contributions | | | |
| **Use of Goods and Services** | | | |
| Materials and Office Consumables | | | |
| Utilities | | | |
| General Cleaning | | | |
| Rentals Lease | | | |
| Travel and Transport | | | |
| Repairs and Maintenance | | | |
| Training, Seminars and Conference Costs | | | |
| Consultancy Expenses | | | |
| Special Services | | | |
| Other Charges and Fee | | | |
| Emergency Services | | | |
| Insurance Premium | | | |
| **Interest** | | | |
| **Subsidy** | | | |
| **Grants** | | | |
| **Social Benefits** | | | |
| **Other Expenses** | | | |
| **Fixed Assets** | | | |
| Buildings and Structures | | | |
| Machinery and equipment | | | |
| Other Fixed Assets | | | |
| **Grand Total** | | | |

It is pertinent to note that it is the responsibility of each agency to adopt a methodology that reflects as accurately as possible the circumstances in which their services are delivered.

The costs of internal services (e.g., legal services) are normally indirect costs. However, the internal service managers need to be consulted to determine whether any of the services are provided solely to support the cost object and could therefore be attributed directly. Whenever feasible, costs that are incurred solely to support the cost object should be attempted to be identified, and then these costs should be attributed directly because it will make the resulting information more precise.

**Step 8: Allocate proportional costs within various sub-programs (if applicable) and aggregate to Programs**

The above steps are for calculating the cost of interventions which may be spread across various sub-programs. The cost then needs to be apportioned appropriately to such sub-programs.

**Step 9: Validate the costing estimates with available historical costs to determine if the estimates are realistic; else make suitable adjustments**

Once the estimates for the program have been made, the same have to be compared against past estimates so as to ensure that the calculated estimates are realistic and they reflect the actual scenario most accurately. In case the estimates seem unrealistic, deliberations and subsequent revisions have to be made to arrive at more convincing estimates.

**Step 10: Identify factors that can affect the costs during implementation and prepare a suitable risk management plan and determine the cost variations**

Alongside preparing realistic cost estimates, the MDAs must ensure that they have factored in all possible causes of variation in the estimates like changes in inflation, world prices, regulatory changes, policy changes etc. Once these factors are taken into consideration, the MDA should prepare an appropriate plan for mitigating risks due to fluctuations in these factors and stipulate the limits for cost variation that may be allowed, such that the estimates can be adjusted accordingly going forward.

**Step 11: Develop a suitable M&E framework to ensure that the cost variations stay within pre-determined levels**

For ensuring consistency of the cost estimates, it is also essential that the MDAs prepare a monitoring and evaluation framework and devise a mechanism to oversee that cost variations are limited to the levels stipulated in the previous step.

**Note:**

It is important to note that not all steps and formats would apply in costing SMTDPs by an MDA. The varying nature of operations across MDAs may make it impracticable for all MDAs to apply every format in every step. However, the first four steps are applicable to every MDA and must be strictly followed in costing SMTDPs.

# Appendix A: Formats

## Format 1:

The following is a suggestive logframe for mapping inputs, outputs and outcomes of operations:

*Table 1: Input-Output-Outcome Logframe*

| Sl. No. | Policy Objective | Program | Sub-program | Outcome | Outcome indicator | Output | Output indicator | Operation | Input |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Illustrative example for Health Sector MTDP:

| Sl. No. | Policy Objective | Program | Sub-program | Outcome | Outcome indicator | Output | Performance Indicator for Output | Operation | Input |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Improve quality of health services delivery including mental health services | Health Service delivery | Primary and secondary health services | Improvement in handling medical emergencies including road traffic accident cases | % reduction in the number of deaths from emergencies | Reduced mortality rate in emergency / road traffic accident cases p.a. | No. of deaths in emergency / road traffic accident cases p.a. | Strengthen capacity of accident and emergency department of health facilities | Hospital |
| | | | | | | | | | Clinic |
| | | | | | | | | | Room |
| | | | | | | | | | Ambulance |
| | | | | | | | | | Beds |
| | | | | | | | | | Utilities |
| | | | | | | | | | First-aid kit |
| | | | | | | | | | Surgical instruments |
| | | | | | | | | | Medicine |
| | | | | | | | | | Saline water |
| | | | | | | | | | Doctor |
| | | | | | | | | | Staff |
| | | | | | | | | | Attendant |

## Format 2:

At the end of the costing exercise, for each Sector, the concerned MDAs should be able to populate the following table which shall be the core of that particular SMTDP and shall then be a critical contributor to the Annual Budget of Ghana.

*Table 2: Summary of Sector Costing*

| Sector: | | | | | Total Costing Estimate for sector: | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total cost at Policy Objective level | Total cost at Strategy level | Total cost at Program level | Total cost at Sub-program level | Total cost at Operation level | Total cost at Input level | Cost per unit of input required | Units required for the operation | Unit of measurement | Input description | Input Type (Good / Service / Capital) |
| | | | | | | | | | | |
| | | | | | | | | | | |

## Appendix B: An illustrative example of costing

During the actual execution of the costing exercise, the MDAs are expected to arrive at their goals, policy objectives and strategies based on priorities defined by the Government of Ghana in the Medium Term National Development Policy Framework and accordingly continue / modify / design new programs and sub-programs. Subsequently, based on macroeconomic indicators, the MDAs should select appropriate performance indicators of outputs against outcomes of the programs and sub-programs, analyze the progress of these indicators from past figures available in the Government documents like the performance reports, statistical surveys and databases, and arrive at targets for the ensuing 4 years against each of the indicators, guided by the MTNDPF.

As the starting point of this illustrative example, it is assumed that the PI targets have already been fixed by the concerned MDA (as outlined in the previous paragraph) and now, the MDA is ready for carrying out the actual costing exercise for the operations to be conducted for realization of the targets. To demonstrate the costing exercise we have assumed a hypothetical case wherein that the Ministry concerned is Ministry of Health which wants to carry out a costing exercise for a target of vaccinating 5,000 children against measles as a part of intensifying and sustaining Expanded Programme on Immunization (EPI).

**Please note that all data and figures used in this example are hypothetical in nature and purely intended for the purpose of demonstrating the costing methodology. The actual data and figures may differ, based on the real information / values and the priorities of the MDA concerned.**

The steps for carrying out the costing exercise for meeting the target of vaccinating 5,000 children against measles is elucidated below:

**Step 1 -** Defining policy objectives and strategies of the Sector that will exert influence between the National Development Goals and the Goals of the said Sector:

| Sl. No. | Policy Objective | Strategy |
|---|---|---|
| 1 | Enhance national capacity for the attainment of the health related MDGs and sustain the gains | Intensify and sustain Expanded Programme on Immunization (EPI) |

**Step 2 –** Identifying programs and sub-programs which, when implemented, will contribute to realization of the envisaged objectives:

| Sl. No. | Policy Objective | Strategy | Program | Sub-program |
|---|---|---|---|---|
| 1 | Enhance national capacity for the attainment of the health related SDGs and sustain the gains | Intensify and sustain Expanded Programme on Immunization (EPI) | Health services delivery | Primary and secondary health services |

**Step 3 –** Identifying operations/projects within a program/sub-program that have to be carried out in order to meet the policy objectives:

| Sl. No. | Program | Sub-program | Operation / Project |
|---|---|---|---|
| 1 | Health services delivery | Primary and secondary health services | Purchasing vaccines and equipment to administer vaccinations |
| | | | Ad campaign and schedule for vaccinations |
| | | | Assigning and mobilizing health care |

| Sl. No. | Program | Sub-program | Operation / Project |
|---|---|---|---|
| | | | professionals to administer vaccinations |

**Step 4 –** Determining the Inputs, Outputs and Outcome for the Operations

The logframe developed in line with above steps is provided below:

**Logframe –** for linking inputs, operations, output and outcome

| Sl. No. | Policy Objective | Strategy | Program | Sub-program | Outcome | Output | Performance Indicator for Output | Operation** | Input** |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Enhance national capacity for the attainment of the health related MDGs and sustain the gains | Intensify and sustain Expanded Programme on Immunization (EPI) | Health services delivery | Primary and secondary health services | Reduction in child death due to vaccine preventable diseases | Increase in the number of children vaccinated against measles | Number of children vaccinated against measles | Purchasing vaccines and equipment to administer vaccinations | Vaccines |
| | | | | | | | | | Syringes and alcohol swabs |
| | | | | | | | | Ad campaign and schedule for vaccinations | SMS Service Provider |
| | | | | | | | | Assigning and mobilizing health care professionals to administer vaccinations | Health care professionals to administer the vaccinations |

****n.b. – The operations and inputs defined above, against the performance indictor are purely illustrative and may not be exhaustive. Based on the history and experience of conducting similar operations, the MDA has to define the operations and inputs against each output indicator exhaustively such that all necessary requisites are comprehensively covered in the logframe and the same inputs are costed for thereafter.**

It is also assumed that the concerned MDA (for Health sector in this example) is buying the goods (vaccines, syringes and alcohol swabs) directly from the stipulated supplier / market and not receiving the same from another central agency, such that the cost of procuring these goods is a part of the budget of the concerned MDA itself. In cases where such goods and services are provided by other central agencies and the concerned MDA is only the implementing authority, the cost for procurement of the same should be borne by those central agencies providing the said goods and services and should not form a part of the costing exercise of the operations to be carried out by the concerned MDA (for Health sector in this example).

| Policy Objective | PI for Output | Measurement | Historical Trend | | | |
|---|---|---|---|---|---|---|
| | | | 2010 | 2011 | 2012 | 2013 |
| Enhance national capacity for the attainment of the health related MDGs and sustain the gains | 5,000 children vaccinated against measles | Number of Children vaccinated in each year | 900 | 1100 | 1400 | 1600 |

As the next step, the following 3 scenarios have been considered with respective targets against the baseline identified above:

| Policy Objective | | Enhance national capacity for the attainment of the health related MDGs and sustain the gains | | Performance Indicator for Output | | Number of children vaccinated against measles | |
|---|---|---|---|---|---|---|---|
| Measurement | | Number of Children vaccinated | | Scenario | | Low | |
| Historical Trend | | | | Targets | | | |
| $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$ | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| 500 | 600 | 600 | 600 | 500 | 600 | 600 | 600 |
| | | | | | | | |
| Policy Objective | | Enhance national capacity for the attainment of the health related MDGs and sustain the gains | | Performance Indicator | | Number of children vaccinated against measles | |
| Measurement | | Number of Children vaccinated | | Scenario | | Mid | |
| Historical Trend | | | | Targets | | | |
| $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$ | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| 500 | 600 | 600 | 600 | 600 | 750 | 850 | 1050 |
| | | | | | | | |
| Policy Objective | | Enhance national capacity for the attainment of the health related MDGs and sustain the gains | | Performance Indicator | | Number of children vaccinated against measles | |
| Measurement | | Number of Children vaccinated | | Scenario | | High | |
| Historical Trend | | | | Targets | | | |
| $Y_{-3}$ | $Y_{-2}$ | $Y_{-1}$ | $Y_0$ | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| 500 | 600 | 600 | 600 | 900 | 1050 | 1150 | 1400 |

**Step 5 –** Defining Costs and Identifying Cost Objects and Cost drivers

As per the illustration above the costing is to be provided for cost objects for the three interventions namely – Purchasing Vaccines and equipment to administer vaccinations, ad campaign and schedule for vaccinations and assignment and mobilizing health care professionals to administer vaccinations. The cost objects that need to be costed for the aforementioned operation are outlined below:

- Medical Supplies – Vaccines
- Medical Supplies – Syringes and alcohol swabs
- Publication, Campaigns and Programs – On-boarding services of an SMS Service Provider for running the Campaign to inform parents when vaccinations will be administered
- Daily Rated – Health care professionals to administer the vaccinations

**Step 6 –** Determining a suitable Costing Methodology for the costing of Input Costs

Immunization is a fairly repetitive operation and the rates of goods, services and utilities involved can be based on standard rates, indexed to inflation. Therefore as elaborated in Chapter 4, the costing is illustrated below:

| Cost Object | Description | Methodology for costing inputs | Assumptions |
|---|---|---|---|
| Medical Supplies | Vaccine | Cost estimates enquired through PPA for similar services | • The procurement will be in-line with the targets outlined for the mid-level outputs as defined in Step 4<br>• The cost of vaccine as per prevailing market rates is – GHS 2 |
| Medical Supplies | Syringe and Alcohol Swabs | Cost estimates enquired through PPA for similar services | • The procurement will be in-line with the targets outlined for the mid-level outputs as defined in Step 4<br>• The cost of syringe and alcohol swab as per prevailing market rates is GHS 1 |
| Publication, Campaigns and Programs | SMS Service Provider Cost | Quote / pro-forma invoice from SMS service provider | • Cost per SMS is GHS 0.5 |
| Daily Rated | Health Care Professional | Prevailing rates / approved government rates | • It is assumed that the vaccine will be administered in nearest Government Hospital / Health Centre wherein the total cost (overhead and ) of administering each vaccine is GHS 10 |

| Operation: Purchasing Vaccines and Equipment to administer Vaccinations | | | | |
|---|---|---|---|---|
| **Cost Object - Medical Supplies: Vaccine** | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| Target | 600 | 750 | 850 | 1050 |
| Quantity to be Procured (allowing 1% leakage) | 606 | 758 | 859 | 1061 |
| Inflation | 20% | 20% | 20% | 20% |
| Inflation Adjusted Price | 2.00 | 2.40 | 2.88 | 3.46 |
| Total Year-wise Cost for the Cost Object | **1212** | **1818** | **2472.48** | **3665.09** |
| **Cost Object - Medical Supplies: Syringe and Alcohol Swabs** | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| Target | 600 | 750 | 850 | 1050 |
| Quantity to be Procured (allowing 1% leakage) | 606 | 758 | 859 | 1061 |
| Inflation | 20% | 20% | 20% | 20% |
| Inflation Adjusted Price | 1 | 1.2 | 1.44 | 1.728 |
| Total Year-wise Cost for the Cost Object | **606.00** | **909.60** | **1236.96** | **1833.41** |

| Operation: Campaign to inform parents when vaccinations will be administered | | | | |
|---|---|---|---|---|
| **Cost Object - Publication, Campaigns and Programs: SMS Service Provider Cost** | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| Target (Assuming these as target)[2] | 10000 | 10000 | 10000 | 10000 |
| Price Per Text Message (in GHS) | 0.5 | 0.5 | 0.5 | 0.5 |
| Total Year-wise Cost for the Cost Object | **5000** | **5000** | **5000** | **5000** |

| Operation: Assigning and mobilizing health care professionals to administer vaccinations | | | | |
|---|---|---|---|---|
| **Cost Object - Daily Rated: Health Care Professional** | $Y_1$ | $Y_2$ | $Y_3$ | $Y_4$ |
| Target (Assuming these as target)[3] | 600 | 750 | 850 | 1050 |
| Cost of administering each Vaccine in Government Hospital / Health Center (in GHS) | 10 | 10 | 10 | 10 |
| Total Year-wise Cost for the Cost Object | **6000** | **7500** | **8500** | **10500** |

Given the above calculations the total costing sheet is populated as below:

[2] It is assumed that all parents informed through SMS campaign may not turn up for vaccinating their children. Hence, the targets for number of parents/families to whom SMS will be sent, shall have to be based on the previous experience of turnout ratio/percentage of parents as a response to a Government Campaign.

[3] It is assumed that all parents informed through SMS campaign may not turn up for vaccinating their children. Hence, the targets for number of parents/families to whom SMS will be sent, shall have to be based on the previous experience of turnout ratio/percentage of parents as a response to a Government Campaign.

| Operation | Cost (in GHS) $Y_1$ | Cost (in GHS) $Y_2$ | Cost (in GHS) $Y_3$ | Cost (in GHS) $Y_4$ | Total Operation Cost (in GHS) |
|---|---|---|---|---|---|
| Purchasing Vaccines and Equipment to administer Vaccinations | 1818.00 | 2727.60 | 3709.44 | 5498.50 | 13753.54 |
| Campaign to inform parents when vaccinations will be administered | 5000.00 | 5000.00 | 5000.00 | 5000.00 | 20000.00 |
| Assigning and mobilizing health care professionals to administer vaccinations | 6000.00 | 7500.00 | 8500.00 | 10500.00 | 32500.00 |
| **Grand Total (in GHS)** | **12818.00** | **15227.6** | **17209.44** | **20998.5** | **66253.54** |

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