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# Manual for the costing of public policy documents in the Republic of Moldova

Editura ARC

Chisinau, November 2023

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## Acknowledgements

This manual represents a joint effort by the team of Moldovan and international experts of the TA project "Support for structured policy dialogue, coordination of the implementation of the Association Agreement and enhancement of the legal approximation process for the Republic of Moldova" (EuropeAid/139112/DH/SER/MD). The Non-Key Experts Janez Šušteršič and Pavel Sârghi had the key roles in the drafting, in close cooperation with Aljoša Race, Non-Key Expert, Primož Vehar and Ilmārs Solims, Project Key Experts. Valuable professional inputs were provided also by Sergiu Galiţchi and Rodica Secrieru, Non-Key Experts. The team would like to express their particular gratitude to the State Chancellery, the Ministry of Finance and the Ministry of Foreign Affairs and European Integration for their assistance and observations during the preparation of the document. A draft version of the document was tested in a series of practical workshops involving the beneficiaries prior to publication. We thank the participants for their active engagement and for sharing their valuable insights and information.

**Funded by the European Union**

This publication was produced with the financial support of the European Union. Its content represents the sole responsibility of the "Support for structured policy dialogue, coordination of the implementation of the Association Agreement and enhancement of the legal approximation process" project, financed by the European Union. The content of the publication belongs to the authors and does not necessarily reflect the vision of the European Union.

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DESCRIEREA CIP A CAMEREI NAȚIONALE A CĂRȚII DIN REPUBLICA MOLDOVA

**Manual for the costing of public policy documents in the Republic of Moldova** / State Chancellery of the Republic of Moldova; [elaborare]: Janez Šušteršič [et al.]. – Chișinău : Arc, 2023 (Bons Offices). – 133 p. : fig., tab. color.
Referințe bibliogr. în subsol. – Funded by the European Union. – [200] ex.
ISBN 978-9975-0-0789-4.
338.5(478)
M 30

Editura Arc, 2023

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## TERMS USED

| Terms | Explanation |
|---|---|
| **AA – Association Agreement** | The Association Agreement between the European Union and the European Atomic Energy Community and their Member States |
| **ANSA** | National Food Safety Agency / Agenția Națională pentru Siguranța Alimentelor |
| **ASME** | Alliance of Small & Medium-sized Enterprises |
| **BIMS** | Border information management system |
| **C&B** | Costing and budgeting |
| **CBT** | Costing and budgeting table |
| **CPI** | Consumer Price Index |
| **CS** | Customs Service |
| **DPPCEI** | Structural Subdivision for Public Policy Coordination and European Union Integration |
| **DCFTA** | Deep and Comprehensive Free Trade Agreement – Title V of the Association Agreement |
| **EU** | European Union |
| **Financial division** | Structural subdivision for financial and administrative matters |
| **GD** | Government Decision |
| **GR&A** | Ground rules and assumptions |
| **MDL** | Moldovan leu |
| **MIA** | Ministry of Internal Affairs |
| **MoEDD** | Ministry of Economic Development and Digitalization |
| **MoH** | Ministry of Health |
| **MIRD** | Ministry of Infrastructure and Regional Development |
| **MLSP** | Ministry of Labour and Social Protection |
| **MoF** | Ministry of Finance |
| **MTBF** | Medium-term budgetary framework |
| **NDS** | National Development Strategy |
| **Policy division** | Structural subdivision for policy elaboration |
| **PPD** | Public Policy Document |
| **SC** | State Chancellery |
| **SC methodological set** | Ex-ante analysis and ex-post evaluation of public policies – a set of five guides developed and published by the State Chancellery<br>https://cancelaria.gov.md/ro/advanced-page-type/analiza-ex-ante-si-evaluarea-ex-post-politicilor-publice-ghiduri-metodologice |
| **Specialists** | Refers to individual members of the costing team |
| **STS** | State Tax Service |
| **VAT Directive** | Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax |
| **WBS** | Work Breakdown Structure |

## NORMATIVE ACTS

| Reference | Full title |
|---|---|
| GD 386/2020 | GD 386/2020 of 17.06.2020 on Planning, Elaboration, Approval, Implementation, Monitoring and Evaluation of Public Policy Documents |
| GD 1029/2013 | GD 1029/2013 of 19.12.2013 on Public Capital Investment |
| OMF 185/2015 | Order of the MoF 185/2015 of 3.11.2015 on Instructions for Management of Capital Investment Projects |
| OMF 208/2015 | Order of the MoF 208/2015 of 24.12.2015 on Budget Classification |
| OMF 209/2015 | Order of the MoF 209/2015 of 24.12.2015 on the Approval of the Methodological Set on the Elaboration, Approval and Modification of the Budget |

# INTRODUCTION

## What will the Manual be used for?

This Manual is intended to be used for the costing and budgeting (C&B) of public policy documents (PPD) in line with Government Decision (GD) 386/2020. Public policy documents are of two types, namely *strategies* and *programmes*. Programmes are based on strategies and must include an Action Plan, which consists of actions (measures)[1] which need to be implemented in order to achieve the programme's objectives. There is no requirement in the GD 386/2020 to cost the strategies, but programmes and their action plans must be costed nevertheless.

The Manual provides an overview of the practices, methods and procedures that may be directly used by civil servants in the costing and budgeting of the actions included in action plans. As will be explained, the costing process requires actions to be broken down into components that can be costed. Once the actions have been costed, summing up their estimated costs will produce estimates both for the total costs of the programme and for the programme's individual objectives.

The Manual can also be used for other types of planning document where costing and budgeting is required – for example, the action plans for implementing the Association Agreement or the annual work plans of government institutions, where the actions (in such documents) have not yet been costed as part of a related PPD. On the other hand, the Manual does not cover the cost-benefit and cost-effectiveness analyses which need to be prepared for capital investment projects.[2] It also does not discuss the costing of the policy options in concept documents, as these are normally presented at a more general level.

## Who should use the Manual?

The Manual should be used by all civil servants engaged in estimating costs, verifying funding availability, checking the validity of cost estimates, or managing the cost estimation process.

Institutionally, the primary responsibility for conducting C&B lies with the institution (line ministry) initiating and coordinating the preparation of a specific PPD. According to GD 386/2020, PPDs should be drawn up by the structural subdivisions[3] of the specialized central bodies of public administration, supported by the structural subdivision for public policy coordination and European Union Integration[4] (DPPCEI). While in PPD preparation the leading role will be naturally taken by the structural subdivisions for policy elaboration (namely the policy divisions), for C&B it will be also necessary to engage the ministry's financial-administrative structural subdivision (namely the financial division) and the structural subdivision for coordination of external assistance.

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[1] In this Manual, the terms "actions" and "measures" are used interchangeably unless otherwise specified.

[2] For guidance on capital investment projects, consult the GD 1029/2013 of 19.12.2013 on public capital investment and the MoF Order 185/2015 of 3.11.2015 on the instructions for management of capital investment projects.

[3] Government Decision nr. 595 dated 26.07.2017 approves the structure, including the naming of the functional units within a line ministry. While individual functional units are referred to as *structural subdivisions,* this Manual uses the more concise term *division.* Source: https://www.legis.md/cautare/getResults?doc_id=133087&lang=ro

[4] Introduced by GD 600/2022 of 24.08.2022, upgrading the role of the previous subdivisions for the analysis, monitoring, and evaluation of public policies, or DAMEP. The same GD also introduces a new structural subdivision for the coordination of external assistance.
Source: https://www.legis.md/cautare/getResults?doc_id=133018&lang=ro

For complex PPDs, which includes actions to be implemented by institutions other than the coordinating ministry (for example other line ministries or agencies), these institutions should perform the C&B of actions that fall under their own responsibility.

## About the Manual[5]

The Manual follows the Order of the Ministry of Finance (MoF) no. 209/2015 on the approval of the *Methodological set on the elaboration, approval and modification of the budget* (OMF 209/2015), as well as Volume 1 (tools and techniques) of the *Methodological guide for ex-ante analysis of impact of public policies*, and Chapter 4 and Annex 3 of the *Methodological guide for the intermediate and ex-post evaluation of public policies*, prepared by the State Chancellery (i.e. the SC's methodological set). It also takes into account the section on the costing of PPD of the SC's *Methodological guide on the integration of the provisions of the National Development Strategy (NDS) in planning documents and public policy documents at the national level*.

To these documents this Manual adds further clarifications, methodological instructions, examples, and general guidance for properly organising the costing and budgeting process. The Manual has been put together in such a way that it can be used independently, i.e. without prior study of the Government's other methodological tools.

We specifically note that the Manual **neither imposes nor mandates a novel set of activities** to be performed by civil servants. Rather, it provides support for the implementation of the existing requirements for the C&B of PPD, by providing policy divisions, finance divisions and DPPCEI within individual line ministries with uniform guidance and best practices for developing and maintaining reliable cost estimates throughout the life of a PPD. Additionally, though the process for budgeting PPD in the annual budgetary planning process is not analysed in the present Manual, we include some recommendations for ensuring the availability of budgetary and non-budgetary funding to costed PPD.

## The approach of the Manual

The Manual is based on three founding principles which are reflected throughout the guidance (**Figure 1**), namely:

**People** – specifically, designated specialists – are best suited for ensuring that the process runs smoothly in line with normative requirements. Cooperation with other institutions is encouraged, both within and outside one's own organisation, in order to ensure a holistic approach to the costing of an Action Plan.

The **Process** of C&B should be based on a robust and transparent methodology that takes into account all major costing items, allows reviewers

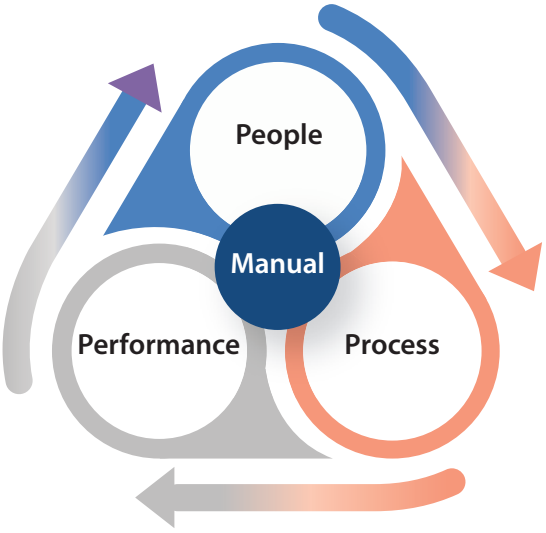



**Figure 1:** The Approach of the Manual

[5] This Manual provides certain examples and case studies which use names and data for illustrative purposes. Any similarity of these to actual data or persons is purely accidental.

to reach an understanding of how the analysis was performed, and allows for public accountability regarding how public resources are used by the government.

**Performance** implies the implementation of the process and the preparation of the costing analysis in line with normative requirements, and in a manner which allows for a comprehensive review by decision makers.

## Understanding costing

**Costing** is the process of forecasting of financial and non-financial resources required for the purposes of performing specific activities, carrying out projects, acquiring assets and any other action within the requirements and scope of a specific Action Plan.

In practice, cost estimates are expected to evolve as the project or action matures. It is recommended as good practice for the specialists to retain the calculations made when preparing cost estimates, and to provide for a range of estimates to take account of the uncertainty inherent in any costing. As the action develops over time the range should decrease as the degree of uncertainty decreases.

**Budgeting** is the process of identifying the sources of funding available to perform the activities and carry out the projects etc. It is based on the results of the costing analysis that is directly incorporated into the medium-term and annual budgetary planning process. Depending on the Action Plan as well as other social and economic priorities, available resources may include public budgets, grants and dedicated loans from development partners, as well as co-financing provided by the private sector (**Figure 2**).

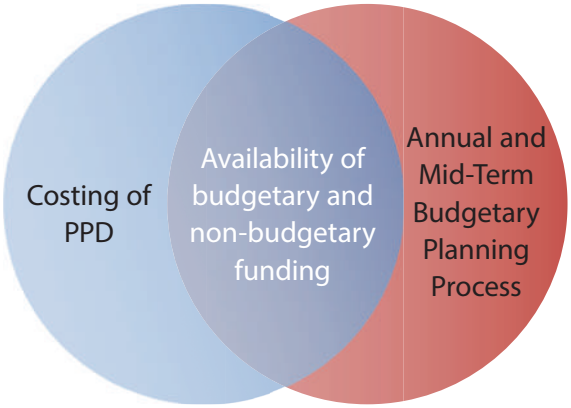



**Figure 2:** From costing to budgeting (simplified illustration)

Cost estimates, including information on available funding, are an integral part of an Action Plan. They should be prepared at the same time as the actions of the Action Plan are being designed. To estimate the costs, the initial formulation of the action will often need to be made more precise and broken down into components that can be costed. Also, when the estimated costs are compared with available funding, actions will sometimes need to be adjusted and reprioritized to fit within available budget envelopes. This is why the planning of actions cannot be considered complete until the costing and budgeting has been completed.

## The importance of costing

Costing is a critical element in the development of an Action Plan, playing a key role in helping decision makers assess financial and non-financial requirements, as well as serving as the basis for establishing and defending the budgetary allocation and affordability analysis.

The common applications of costing (**Figure 3**) for decision-makers include the following:

- **legislative or policy change:** Understanding the financial impact of the changes, as well as whether sufficient internal or external resources are available to implement and sustain them;

- **implementing a new service or programme:** Assessing whether a new initiative would incur new costs, whether there would be an impact on existing costs, and whether the additional benefit would justify the additional expenditure;
- **cost-recovery decisions:** Determining the costs involved in conducting particular types of activity can be used to establish the level of charges, as well as whether a full or partial recovery of costs is achieved;
- **capital investment decisions:** For projects involving the acquisition, construction or improvement of assets, costing assists in determining the long-term financial implications over the entire lifecycle of assets from the moment of set-up to time of disposal;

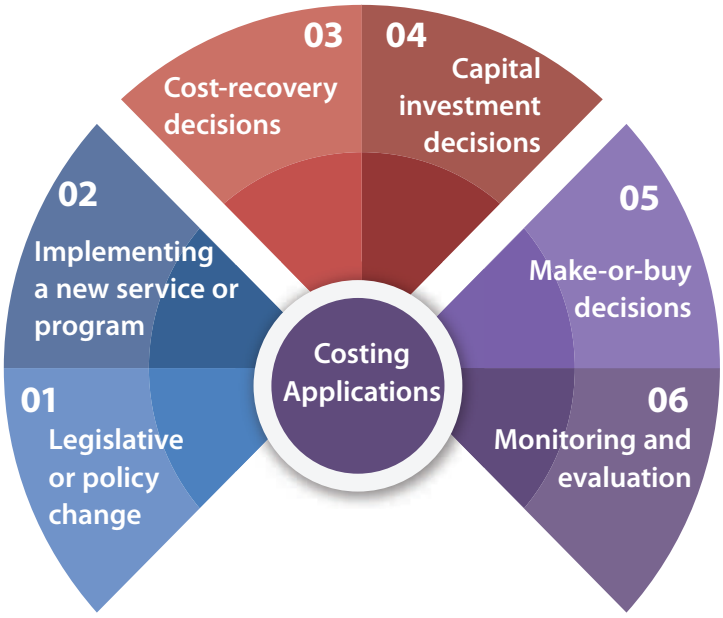



**Figure 3:** Common applications of costing

- **make-or-buy decisions:** Assessing the feasibility of the in-house development and implementation of a programme, or considering the possibility of acquiring certain functions from, or outsourcing them to, third parties;
- **monitoring and evaluation:** Costing serves as a suitable and reliable control tool that allows for the monitoring of performance during execution, and for assessing the success of a policy intervention or change.

## Key challenges and solutions associated with the costing of Action Plans

Costing is a complex exercise which requires an understanding of potential challenges that may occur in the process. A brief description of the most commonly observed challenges and proposed solutions is outlined below:

**Table 1:** Challenges and solutions associated with the costing of Action Plans

| **Limited time** | |
|---|---|
| Challenges | ▪ While ideally the costing team should be given sufficient time to perform the analysis, in practice this is often not the case.<br>▪ Members of the costing team may be involved in several assignments with conflicting terms of execution, which may impact the depth and quality of the analysis. |
| Solutions | ▪ Better planning of workload, including limiting the number of actions that are to be costed during a given period.<br>▪ Prior to commencement of the analysis, ensuring all agreed deadlines are realistic and can be met.<br>▪ Choosing workable methodology and focusing efforts on top-priority actions, actions with the greatest costs, and those where an additional funding request will need to be made. |

| | |
|---|---|
| **Limited skills and personnel for costing** | |
| Challenges | ▪ The number of staff members who can be engaged in costing may be small.<br>▪ Staff members may have little experience with costing, or insufficient skills. |
| Solutions | *During costing and budgeting*<br>▪ Engaging specialists from the finance division in the costing of PPD.<br>▪ Inviting specialists from line ministries who have recently implemented C&B to share their experience and offer advice to colleagues in other line ministries.<br>▪ Requesting advice from SC and MoF.<br><br>*To increase capacity over medium term*<br>▪ Investing in the skills of existing personnel as an alternative to hiring new specialists.<br>▪ Focusing on capacity building for individuals requiring minimum technical development, and gradually extending knowledge building within the institution as a whole.<br>▪ Inviting specialists from SC, MoF and other line ministries as trainers and knowledge providers for dedicated C&B training sessions. |
| **Insufficient understanding of PPD objectives** | |
| Challenges | ▪ Situations where the overall objectives of an Action Plan or specific action are not clearly defined, explained or communicated to the costing specialists often lead to unreliable estimates that are based on poor or unrealistic assumptions not backed by supporting documentation, and which lack a relationship to other connected or similar actions or Action Plans. |
| Solutions | ▪ Close cooperation between policy divisions, finance divisions and DPPCEI to reach a mutual understanding on the overall goals and aims of the Action Plan or specific actions. |
| **Lacking or limited data** | |
| Challenges | ▪ Situations can arise when, due to obsolete information systems or a lack of data integration, it is not possible to collect the type of data that is needed to perform costing.<br>▪ Given that data is often linked to certain statutory reporting requirements, some categories of information are not collected and despite best efforts cannot be retrieved. |
| Solutions | ▪ Consider updating the existing IT system to support data retention and integration.<br>▪ Establish a policy for estimators to retain and store data that was used for costing purposes and can therefore be retrieved during future estimations.<br>▪ Use accounting records and develop cost / programme accounting.<br>▪ Develop a centralized database of the data / assumptions used in the costing of similar measures in different Action Plans. |
| **Unrealistic expectations and cost estimates** | |
| Challenges | ▪ Every estimate has an inherent level of uncertainty. While proper data and procedures reduce uncertainty, to expect that cost estimates will be perfectly accurate will create misunderstandings and frustration.<br>▪ While an optimistic environment plays an important role in achieving policy change, an over-confident approach may result in unrealistic cost estimates.<br>▪ Over-estimation of costs or too-optimistic implementation planning may lead to unnecessarily high budget allocations which remain unspent and could be used for other purposes instead. |
| Solutions | ▪ Prior to commencement of the analysis, ensure the costing team has a good understanding of the purpose of the costing analysis and its limitations.<br>▪ Enhance the role of intermediate reviews and consultations.<br>▪ Document the assumptions and calculations used in cost estimation so that their realism can be assessed by reviewers.<br>▪ Discuss any major uncertainties, and estimate their likely financial impact. |

## Structure of the Manual

A comprehensive and transparent process for costing plays a fundamental role in ensuring that cost estimates are accurate, reflect the assumptions applied, and take account of any accompanying uncertainties. In addition, the resulting cost estimates should feed directly into the medium-term and annual budgetary planning process, with any funding gaps being properly addressed.

The proposed framework for the costing of actions is structured as four steps (**Figure 4**), with each step being important for ensuring that cost estimates are delivered in time, can support important decision-making, and can be integrated with the budgeting process.

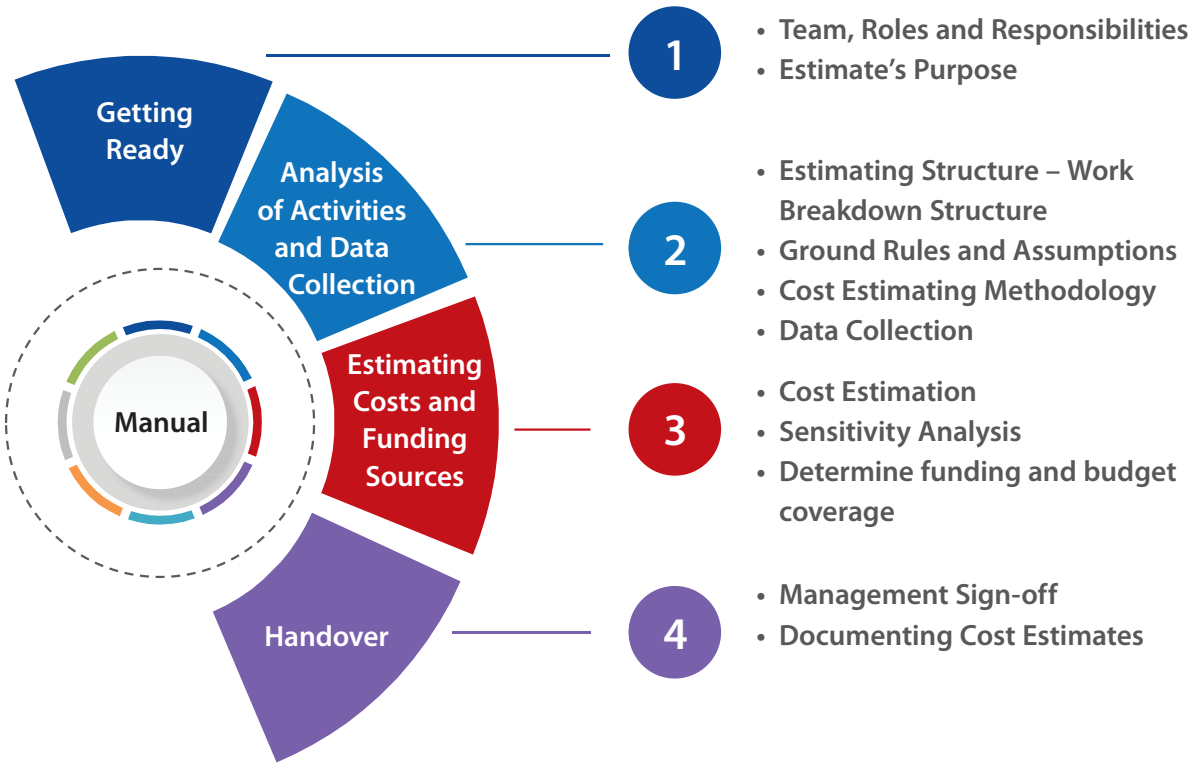



**Figure 4:** Structure of the Manual

# STEP 1. GETTING READY

## Overview of this step

Let's start by assuming that you have been just tasked with preparing an estimate of the costs involved in improving the IT infrastructure of Moldova's secondary education system (we refer to this as ***Example 1***). It is likely that several questions would immediately come to mind, including:

- What is IT infrastructure?
- What do we mean by "improvement"?
- What are the activities that will be required for this purpose?
- Who can assist in determining the type of costs that are likely to be incurred?

All these are reasonable questions. This Manual aims to provide guidance and practical insights to help you answer them. If nothing else, this example shows that a single individual is unlikely to have the answers to all the questions that may arise, and it is likely that inputs from several sources will be required.

Therefore, **deciding on the most appropriate team** that can provide relevant contributions is one of the first decisions to be made when starting the costing process. In this context, please consider that:

- in addition to individuals skilled in costing actions, you will need the involvement of the specialists who drafted the Action Plan and the particular measure you need to cost. This will ensure that the costing of individual actions is performed within the framework of the overall Action Plan, and that any misunderstandings during the costing process can be promptly addressed. Such team members are jointly referred to as ***estimators***.
- you may request the involvement of specialists who can assist the costing process by contributing their precise and valuable technical acumen and skills regarding matters that are unfamiliar to the estimators. Depending on the specific action, such individuals can be either part of the costing team itself or contribute to it when required. They are jointly referred to as ***supporters***.
- to ensure that the costing analysis is free from error and unintentional mistakes, further verification and validation will be required from someone who has not been involved in the computation itself. Such individuals are referred to as ***reviewers***.

Let's think again of ***Example 1*** and note that the action to be costed involves the *improvement* of the IT infrastructure. You would be right to assume that this requires the *enhancement* of the existing structure, but you can also understand it as *implementing a new set-up*.

This raises the importance of **establishing the purpose of the estimate** early in the process to reach clarity on what is costed and to avoid any misunderstandings down the line. As a result, you will be able to identify the exact actions to be costed, determine the data that should be collected, as well as asses the time required to perform the analysis.

In practice, you may choose to first select the team and afterwards work on defining the purpose of the costing exercise. This is most common for actions that have been costed in the past and there is a good enough understanding of the overall aims. Nevertheless, for complex or novel assignments, you may prefer to first invest time in establishing the purpose and afterwards determine the most appropriate individuals that can contribute to the analysis.

Please remember that **you can always perform further adjustments to team composition as the analysis progresses, depending on the specific features of the action costed**.

This section proceeds with providing additional guidance in respect to the two matters outlined above. We start by outlining the process of setting up the team and defining individual roles and responsibilities, and continue with recommendations on establishing the purpose of the estimate.

## 1.1 Setting up the Team and Assigning Roles and Responsibilities

People are at the heart of PPD delivery, including during the cost estimation phase. The costing team should consist of designated personnel (jointly termed *specialists*) that have experience in working on costing, ideally for similar actions that have been implemented in the past and/or which are still being carried out.

We recommend that the costing of actions is led and managed by the policy division of the ministry or other institution responsible for the overall design and coordination of the Action Plan. With C&B being an integral part of Action Plan preparation, this role reflects the close interconnection between the formulation of actions and their respective costing. For Action Plans prepared at the level of a single line ministry, the costing should be led by the policy division of the ministry, with the involvement of specialists from the finance division and the DPPCEI. The structural subdivision for coordination of external assistance should be involved in the estimation of available financing resources for the costed measures.

We recommend that a single costing team should be established for the overall Action Plan, to ensure consistency of methodology and the assumptions used in the cost estimation of the individual actions, to economize on the investment needed for learning and acquiring skills, and to ensure that any adjustment or re-prioritization of measures, if needed, is consistent with the overall purpose and structure of the Action Plan.

Cross-sectorial (i.e. horizontal) Action Plans, such as those associated with the implementation of the Association Agreement, have an additional layer of complexity, given that costing is also performed for measures proposed and implemented by institutions and line ministries other than the coordinating ministry. Accordingly, such Action Plans have a budgetary impact on more than one line ministry.

For horizontal Action Plans, we recommend that a single core costing team is established for the overall Action Plan. It should involve specialists from the various line ministries, to ensure the coordination and consistency of the cost estimates they provide for their measures.

Having a single costing team for a horizontal Action Plan has the following advantages:

- efficient coordination between line ministries on matters relating to the costing of individual measures;
- improved information sharing between various line ministries, and a possible decrease in the red tape associated with coordination and data collection;
- prompt decision-making, especially in situations where changes are required to the individual measures being costed, and in some cases to the overall Action Plan.

For this purpose, the costing of horizontal Action Plans would ideally be led and managed by a single designated individual from the lead line ministry that is coordinating the overall Action Plan.

Irrespective of whether it is a ministerial or horizontal Action Plan, specific inputs may be available at the level of other public authorities. Inputs and expertise may be needed from specialists familiar with the details of a particular measure or action who will not otherwise need to be members of the costing team. It is therefore perfectly acceptable (and encouraged) **to collaborate and seek inputs from other parties** where the nature of particular actions requires it.

In practice, four key categories of specialist are involved in a costing exercise (***Figure 5***).

**Estimators** are responsible for the **actual estimation** process in accordance with the scope, assumptions and limitations agreed by the costing team. Estimators commonly propose and document the cost estimation methodology, collect and process data, and report on progress to reviewers and managers. These specialists prepare the final deliverables once the reviewing process is finalised and a sign-off is received from the manager.


**Figure 5:** Setting-up roles and responsibilities within the costing team

We recommend that the costing team be composed of specialists from the financial and policy divisions. Such a set-up ensures that the costing of individual measures is undertaken within the framework of the overall Action Plan. It also minimises the risks of any potential misunderstanding about the scope of the action being costed, as well as allowing for any changes to the costing process, the action costed or, where necessary, the Action Plan itself.

**Supporters** comprise specialists from various line ministries and other government institutions who can provide specific assistance to the costing team. While such individuals may or may not formally be part of the costing team, they can provide necessary and specialised information, data or explanations to assist in the costing process. Let's recall the example that involves improving the IT infrastructure of the secondary education system, where such cooperation includes the provision of the technical details of the set-up to assist the estimators.

Where the preparation of the Action Plan is supported by external technical assistance or international organizations, their designated costing specialist should be integrated into the same costing team. Costing teams may also seek advice from the costing specialist at the State Chancellery.

**Reviewers** are responsible for the **review and verification** of the cost estimates. As part of their activities, they are responsible for verifying that:

- the work process was undertaken in line with the prescribed or agreed methodology; all relevant assumptions are clearly stipulated;
- the computations are accurate; and
- proper evidence of cost estimations is included.

Furthermore, in the event of any uncertainties or critical matters, reviewers should report such issues to costing team managers and agree on a suitable course correction. Reviewers are usually not part

of the actual cost estimation team, because of the need to ensure an independent and unbiased assessment process.

The initial review should be performed by the DPPCEI of the institution that is proposing the Action Plan. Once the draft Action Plan containing the costed measures is prepared, a subsequent review will be undertaken by the SC and MoF, as follows:


**Managers** take the **lead and full ownership** of the costing exercise and ensure that the required deliverables are provided in line with the agreed deadlines and prescribed requirements. The key responsibilities of managers include leading the costing team on a day-to-day basis, working together with the reviewers to assess the overall accuracy of the estimation and, where necessary, challenging any assumptions and managing any arising risks.

An important part of a manager's duties is to set up the costing team. When assigning specific tasks, managers should have an in-depth knowledge of the team members' capabilities. In the event of a mix of specialists whose level of experience varies, the major components of the estimation should be assigned to the most experienced team members, while the less experienced ones will provide support and work under their supervision.

Managers should also encourage and fully support direct communication among the estimators, reviewers and supporters during the costing process. In addition to decreasing the time necessary to obtain the required inputs, such direct communication allows the managers to focus on the key tasks required to lead and manage the costing process.

## 1.2 Defining the Estimate's Purpose

When defining the purpose of an estimate, costing teams determine the scope of the analysis and the level of detail required. A well-defined purpose creates a structural link between the goal of the costing analysis and the methodology to be used for that purpose, whereas a poorly constructed one introduces confusion and does not allow for an efficient breakdown of the particular actions that need to be analysed[6]. Furthermore, a well-defined purpose helps the estimators to:

- determine the amount of time needed to carry out the analysis;
- identify the components of the measures to be estimated;
- decide whether the involvement of other line ministries or specialists is required, and
- identify the type of data required for the estimation.

Let's return to the case involving education IT infrastructure and look at some examples of how the purpose of the action could be defined (***Example 1***).

[6] The approach to breaking down the action into several components or *work breakdown structure* is further detailed in Step 2.

| **Example 1**: | IT infrastructure for secondary education – defining the purpose of the action |
|---|---|
| **Example 1.1:**<br>Well-defined purpose | **Determine the costs associated with the <u>implementation</u> of a new IT infrastructure for Moldova's secondary education system**<br><br>This example showcases the strength of a well-defined purpose. The estimator can comfortably determine what is being costed (i.e. the implementation of a new IT system) as well as the key components that should be costed. This might include, among other things, the following types of cost: drafting of technical specifications, vendor selection, type of hardware and software required, disposal of existing infrastructure, training of the teaching staff, post-implementation maintenance, etc. |
| **Example 1.2:**<br>Poorly defined purpose | **Determine the costs associated with the <u>improvement</u> of the IT infrastructure of the secondary education system**<br><br>While at first sight the two examples may seem similar, there are some important differences.<br><br>In **Example 1.1,** the estimator has a clear understanding of the specific action that must be undertaken (i.e. implementation) and can therefore break the work down into its individual components.<br><br>In **Example 1.2,** the meaning of the term "improvement" may be unclear at first.<br><br>On the one hand, it may imply the implementation of a new IT infrastructure, but on the other it may be limited solely to modernising the existing infrastructure and performing some minor updates without the need to retrain the teaching staff. This makes it difficult to determine the scope of the analysis, as well as the level of detail required for costing purposes.<br><br>When the policy division leads the costing team such matters can be promptly addressed early on during the costing process. |
| **Example 1.3:**<br>Multi-scenario exercise | **Determine the most cost-efficient alternative from among the <u>three available vendors</u> of <u>hardware and software</u> for the purpose of implementing the IT infrastructure of the secondary education system**<br><br>While this example requires a costing analysis to be performed, note the key words underlined above. It clearly establishes that the analysis is focused solely on the acquisition costs of hardware and software, and limits the analysis to three particular vendors. This may imply that the specific action is still within the incipient phase and a detailed break-down of the measure is not required, or that the acquisition costs of hardware and software are likely to represent the most significant cost component. |

Understanding the estimate's purpose also ties in with the main beneficiaries of the deliverable, as well as with the intended use of the analysis. The most common application of cost analysis is to support the budgeting process by providing an estimate of the funding required to execute a programme. At the same time, the costing exercise may help decision makers to evaluate several alternatives for cost-efficiency purposes, either within or separately from a particular measure, or to evaluate the outcomes and impact of the Action Plan against its financial costs.

Many measures are implemented by the implementing institution's own personnel. Although the baseline budget normally covers the salaries of the personnel already employed, omitting these from the cost estimate would significantly underestimate the resources needed for the implementation of the Action Plan. Planning and costing the work inputs of your own personnel helps to avoid unrealistic planning in which too many actions with tight deadlines are set for implementation. Furthermore, the costs of one's own personnel may count as a national in-kind contribution toward projects co-financed by the EU and other donors.

In addition to the personnel working directly on the implementation of a measure, the additional services of support staff such as accountants, administrators, technicians and similar may also be needed. As the supporting personnel typically provide general services to the institution as a whole, it would be difficult to estimate precisely their required work on the costed action. For simplicity, their work inputs can be therefore omitted from the cost estimation. For a similar reason, the other operational costs of the implementing institution, such as utilities, maintenance and existing office space and equipment, which could not be easily tied directly to the costed actions (i.e. the indirect costs), may also be omitted from the cost estimates.

In accordance with OMF 209/2015, **this Manual encourages costing teams to estimate the full costs of the action,** i.e. to account for the costs of own personnel working on the implementation of the measure. Indirect costs, i.e. the costs of supporting personnel and general operational costs of the institution (see section 2.2.4.2), may be omitted from the estimation unless they comprise a significant portion of the total costs. Whenever the costing team decides to deviate from full costing, this should be clearly specified in the notes to the Costing and Budgeting Table (see Annex 1).

Finally, one aspect of defining the purpose of costing involves determining **the time horizon of the cost estimates**. OMF 209/2015 requires cost estimates to be prepared for the three-year period of the Medium-Term Budgetary Framework (i.e. the current year and the following three years), to facilitate consistency between the PPD costing and the preparation of the budgetary planning documents. When the actions extend beyond three years ahead, the cost estimate should be revisited annually and extended by an additional year. Needless to say, for measures planned to be implemented in less than three years, and for Action Plans with a time horizon shorter than three years, the cost estimates only need to be prepared for the planned period of implementation.

# STEP 2. ANALYSIS OF ACTIVITIES AND DATA COLLECTION

## Overview of this step

Let's assume that you have been tasked with estimating the costs required to build a new fire station in District A (***Example 2***). It is likely that several questions would immediately come to mind, including:

- How is a fire station built?
- What are the key individual activities that form part of the building process?
- What costs are commonly associated with building a fire station?
- What data do I require to be able to cost the activities, and are such data available?
- When was the last time a fire station was built, and do I have access to the associated costing data?

To answer these questions, let's assume for a moment that costing is like solving a puzzle, where usually the following process is followed:

understanding the visual representation of the overall puzzle;

identifying all pieces and creating the borders;

finding patterns that match, to create individual parts; and

completing the puzzle by putting together all the individual patterns.

We can apply this approach to the process of determining the costs required to build a fire station. Because **establishing the estimate's purpose** has been detailed in *Step 1* of this Manual, we will focus instead on the remaining aspects.

Let's first contrast the process of building a fire station with the organisation of some training exercises. The latter is likely to be a straightforward process for which previous cost data is probably available. Even when it is not there should be no significant challenges, since the costing of such items as the rent of premises, coffee breaks, printing materials etc. is a straightforward matter.

Meanwhile, building a fire station is a complex project. You are likely to face challenges in identifying costing data for the overall action, since fire stations are not built on a regular basis. Even if such data is available, it may not necessarily be


**Figure 6:** Determining the costs required to build a fire station (simplified illustration)

comparable and reliable if there have been long intervals between previous similar interventions. In addition, technology is constantly evolving, with new building materials and equipment becoming available, etc.

To deal with such limitations, you may find it useful to view the action as being comprised of smaller individual components which, when put together, form the overall action, a process commonly referred to as a **Work Breakdown Structure (WBS)**. So instead of costing a single complex action, you would proceed with determining the costs of its individual components; adding them all up will give the overall cost for building the fire station.

Another key benefit of setting up a WBS is that it provides the starting point for choosing the most appropriate method for estimating the costs of the activities being analysed. For example:

- you determine that the design cost is one of the individual components of the building process;
- you then establish that the design costs are similar, irrespective of the type of asset constructed, and they are proportional to the size of the building;
- finally, by leveraging the cost data from past projects, you can extrapolate the *ratio of design cost to building size* to the size of the fire station in question to arrive at the design cost.

Therefore choosing the **cost estimating method** at the beginning allows the estimators to narrow down the type of data to be collected, as well as to determine the extent of the data adjustments required to perform the analysis. It also enables the costing team to efficiently finalise small and easily costed components and focus on the complex ones.

At the same time, a situation may arise during data collection where you realise that the data required for a particular cost estimating method may not be available, or that it cannot be retrieved either in the required format or with the required degree of specificity.

In such cases it may be more appropriate with certain actions to first perform **data collection** and assess early in the process both the quantity and quality of data available, which in turn can help with making an informed decision about the most appropriate method of cost estimation.

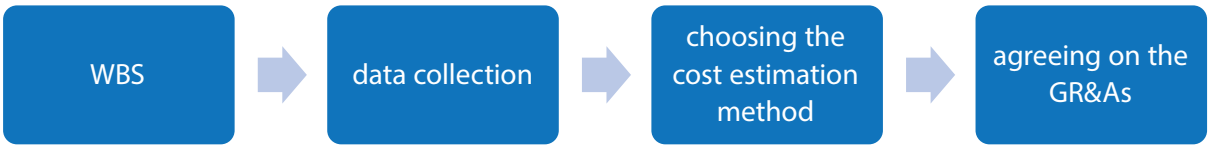
There is no rule as to the most appropriate or recommended approach. Also, because costed measures are likely to be broken down into several WBS components, **different approaches may be applicable to the individual components of the action**.

Costing teams should leverage their technical expertise, as well as their prior experience, to determine the most appropriate approach, for example:

- when similar actions were costed in the past, you may conclude that a similar cost estimating method may be used, and first proceed with data collection;
- when dealing with new actions or those that are likely to require complex analysis, you may choose to first assess the data availability, and only afterwards proceed with determining the cost estimation method to be used.

As part of the costing process, the costing team will usually agree on certain **ground rules and assumptions (GR&As)** that will generate an understanding of how the costing process is to be performed. Estimators may rely on such GR&As to narrow down the type of information to be collected, as well as to decide on the most appropriate and efficient cost estimation method.

The Manual proceeds with detailing all relevant considerations outlined above in the following order:




However, this is merely intended to provide you with an organised view of the content, and does not represent an endorsement of a particular chronological approach.

In the final stage, once the estimations are performed, you will **determine the final cost** for building the fire station in District A.

## 2.1 Developing the Estimating Structure – Work Breakdown Structure (WBS)

Let's continue with ***Example 2*** and see how the Work Breakdown Structure can be set up for the building of a fire station in District A.

Early in the process, the costing team recognizes that building the fire station is not a one-step action, but rather a set of individual activities that must be undertaken for this purpose. Furthermore, the team acknowledges that instead of costing one single but large action, it may instead opt to cost the individual activities for which data are likely to be available.

At this stage of the process, the estimators may prefer to first brainstorm the individual activities associated with building the fire station. One tool commonly used in practice is a virtual or physical board to keep track of and supplement the activities identified (**Figure 7**).

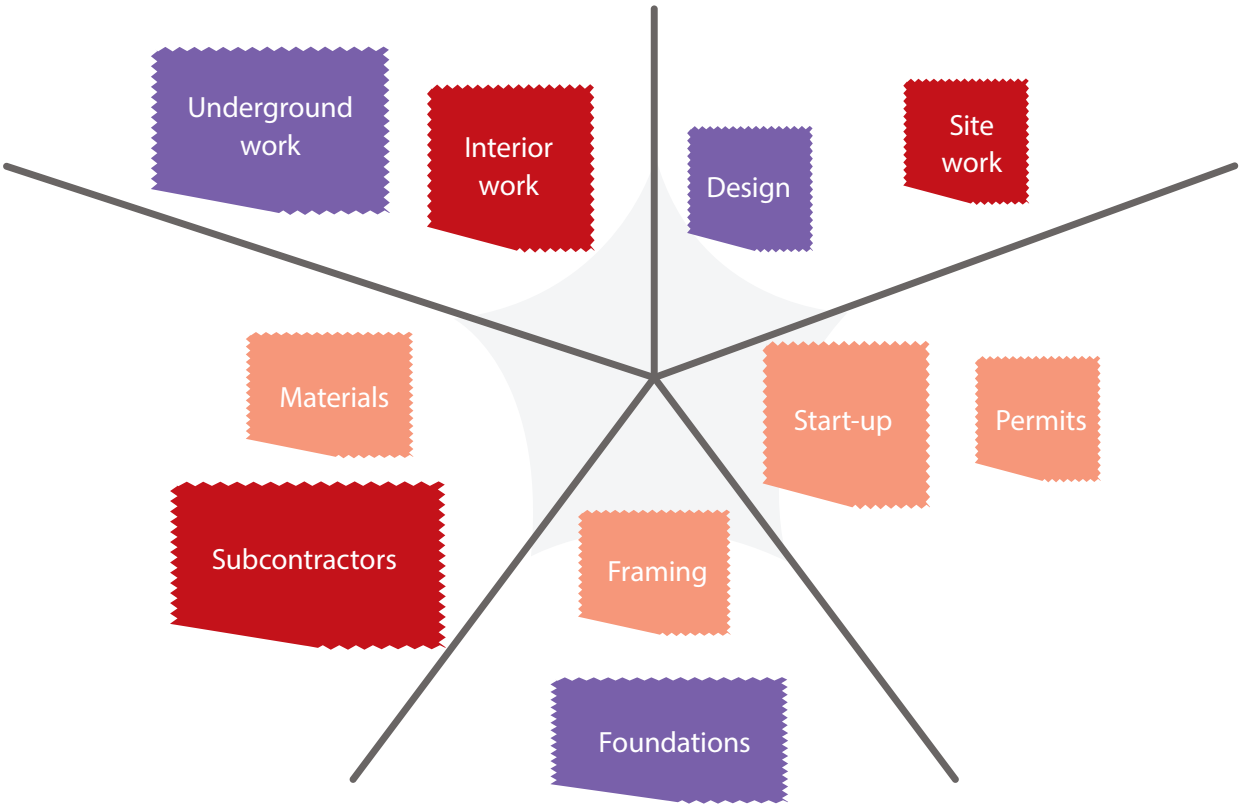



**Figure 7:** Example of a brainstorming approach to planning individual activities to be costed within a construction project

During this process, costing teams may rely on various supporters**.** For example, estimators may require the assistance of the Civil Protection and Exceptional Situations Service[7] to gain an understanding of the technical and operational requirements of a fire station.

Once finalised, the brainstorming approach would yield a list of the various activities that need to be undertaken for the action being costed. In most cases, such lists are unstructured and often provide no indication of the specific schedule of work that needs to be performed. In turn, this makes it difficult to properly budget the costed action, especially when it spans multiple years.

To organise the activities determined during the brainstorming process, the Manual recommends using a **Work Breakdown Structure**. A WBS is a useful project management tool that deconstructs a particular action into smaller discrete activities (or components) until the work is subdivided down to the lowest level of the WBS (commonly referred to as *decomposition*). Once decomposed, the individual components can be costed and summed together to obtain the overall estimate.

The number of levels in a WBS depends on the complexity of the particular action being costed, but they should provide for a level of detail that is sufficient for planning purposes as well as for managing the full scope of the estimation process.

In Action Plans, measures are sometimes presented at a highly aggregated level. For example, with the action titled "Transposition of an EU directive" the drafters of the Action Plan may simply mean the making of amendments to the national normative framework, or they may already have in mind the implementation of the directive (i.e. activities such as establishing new institutions, introducing new or amended policies, training civil servants, raising awareness among stakeholders, etc.). Such complex measures lack clarity of purpose (*see Section 1*), may extend beyond the time horizon of the Action Plan, and would require an overly extensive WBS structure, which would be difficult to cost.

To facilitate costing and budgeting, the overly complex and aggregated actions included in the Action Plan should be broken down into several separate actions that can be realistically implemented within the time frame of the Action Plan.

### 2.1.1 Development of a WBS

A WBS should be developed in the early stages of cost analysis to gain an understanding of the overall dimensions and scope of the actions to be carried out. It is recommended to break down the actions into lower-level activities (i.e. components), a process that should be agreed beforehand within the costing team.

As the name suggests, developing a WBS requires an analytical and well-organised thought process (**Figure 8**). It can be summarised as follows:

**Decompose the action.** Set up the structure by decomposing the action to be costed into lower-level activities (components).

**Determine the WBS Levels.** The activities are arranged into top-level components having corresponding lower-level components (commonly referred to as a "parent-child" relationship). The top level contains the key action phases, which are commonly identified as milestones, or interim or final deliverables, while the lower-level breakdowns reflect the individual outputs that must be achieved to finalise the action.

[7] In Romanian: „Serviciul Protecţiei Civile şi Situaţii Excepţionale", located within the Ministry of Internal Affairs of the Republic of Moldova.

**Schedule.** Determine the time period over which the activities are required or expected to be carried out. Depending on the specific activities costed, schedules can span both short periods and longer periods – i.e. months or years.

While uncertainty is present within any action, some schedules are susceptible to higher uncertainty levels, especially with activities that are influenced by factors beyond the control of the implementing institution. This should be properly communicated within the costing team and documented.

**Assign.** Roles and responsibilities are assigned to individual specialists in a manner that provides for clear-cut instructions on the costing activities to be performed for each WBS component.

**Document.** The WBS is documented and presented in a form that both allows its presentation to stakeholders and the mapping and easy identification of the individual components to be costed. During the costing process, estimators may consider mapping the individual activities in graphical form (**Figure 9**), while for overall documentation purposes it is recommended to present the activities in a table format (*please refer to the Case Studies included in this Manual for specific examples*).

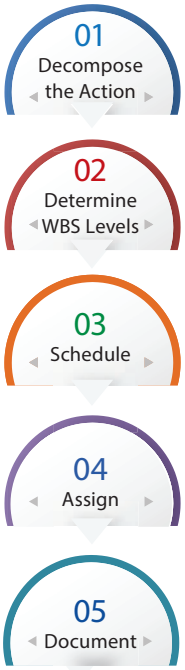



**Figure 8:** Steps in the development of a Work Breakdown Structure

**Example 2.1:** Building a fire station – developing the Work Breakdown Structure

The action of building the fire station can be broken down into smaller components:

- at the first level, estimators determine the three main phases of the project (i.e. start-up, construction and close-out);
- at the second level, each of the three main phases is further split into smaller components, depending on the specific phase (e.g. budget and design, foundations and underground works, occupancy certificate);
- finally, a third-level breakdown is established for the smaller processes that are to be performed during the construction phase (e.g. framing, exterior work, interior work, etc).

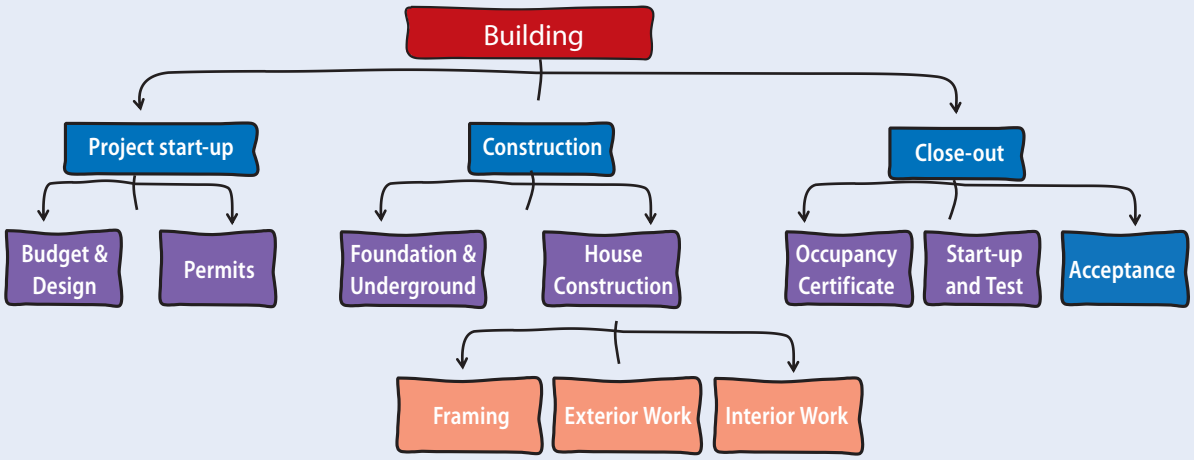



**Figure 9:** Example of a Work Breakdown Structure for planning individual activities to be costed within a construction project

### 2.1.2 Best practices in setting and working with a WBS

While each costed action may potentially require individual approaches to WBS development, effective structures have several things in common, as outlined below:

- **number of WBS levels -** there is no fixed number of WBS levels, but experience shows that a three-level breakdown usually provides estimators with the required level of detail. Some branches of the WBS may be subdivided into more than three levels, but care should be taken not to overburden the cost estimation process;
- **the 100% rule -** irrespective of the number of levels, the WBS should represent 100 percent of the work necessary to complete the project. In other words, the estimators should ensure that the WBS takes account of all the activities necessary to carry out the action being costed;
- **mutually exclusive -** ensure that each task is accounted for only once, even when its implementation spans several phases of the project. When individual tasks are included and costed more than once the 100% rule is violated, which results in miscalculations and an artificial increase in the financial value of the Action Plan;

When setting up the WBS, the costing team should ensure a proper balance between providing for sufficient level of detail regarding the individual components of a costed action and ensuring that the process is not overburdened by an excess of the activities to be costed. Experience shows that the costing of numerous small tasks is likely to require a disproportionate amount of time to analyse, while the costing of very large tasks increases the risk of omissions and potential calculation errors. Costing teams should focus their efforts on the key components and those that require significant analysis time. In Example 2.1, following this principle we decomposed only the costliest and most complex project phase (i.e. the actual construction) into three levels, while we decomposed the other simpler and less costly phases into just two levels.

## 2.2 Collecting and Preparing Data

**The definition of 'data' includes facts, figures, statistics, and items of (often numeric) information that are collected through observation or from secondary sources**.

Data is the foundation of the costing process. Estimators rely on data to compute the level of the financial resources required to carry out specific measures. Data collection should take both quantity and quality into account.

**Quantity**

**Access to a sufficiently large set of data enhances the reliability of the estimate, allowing the costing team to perform cost computations and assess whether the results are supported by historic data and experience.**

**Quality**

**The quality of data impacts the overall credibility of the analysis. Depending on the data quality, estimations can range from rough estimates to a highly defensible cost assessment.**

**It is perfectly acceptable for the results in the incipient stages of an analysis to be approximate**. However, as the costing matures it is expected that the data will be refined to allow for more precise cost estimations.

### 2.2.1 The process of data collection

Data collection **is not a one-time exercise**. The costing team should expect to collect data throughout the costing process and make continuous refinements and adjustments, depending on the overall purpose of the estimate, data availability, and quality of information.

Estimators should also recognise that data is rarely available on request, being likely to be spread across several institutions and requiring inputs from several parties and stakeholders. In such situations, estimators should work with the supporters to jointly determine the type of data available and the best way to acquire it, and to obtain guidance where necessary.

Individual WBS components may require different data collection approaches and present different levels of difficulty. As such, costing teams should not take a "one size fits all" approach, but adjust the data collection process to the individual components being costed.

The choice of a particular cost estimating methodology for a particular action prior to data collection may prove useful, especially in situations where costing for comparable actions has previously been performed.

**Example 3.1:** **Training of civil servants – data collection depending on the costing method**

- Estimators are required to cost the training activities for 170 civil servants.
- Estimators may proceed with collecting data for, and costing, all the individual WBS components such as speakers, rent, utilities, transportation, coffee breaks, handouts, translation, technical equipment, etc. Next, the estimators can add up the individual components to estimate the costs of the action. However, this is likely to require time and administrative resources, which may be limited.
- Estimators may alternatively identify comparable training activities of similar complexity undertaken in the past and determine the relevant cost indicators. It is possible that the average cost per participant will provide the most relevant information regarding the total costs to be incurred. Under this approach, the estimators can limit data collection to two indicators: the total costs incurred during previous actions and the number of participants:

| Financial Indicator / Data Collected | Comparable Action 1 | Comparable Action 2 | Comparable Action 3 |
|---|---|---|---|
| Total costs incurred (MDL) | 100,000 | 110,000 | 105,000 |
| Total number of participants | 150 | 155 | 160 |
| Total cost per participant (MDL) | 667 | 710 | 656 |
| **Average cost per participant (MDL)** | **678** | | |

- Estimators rely on the average cost per participant determined for three comparable actions to assess the total costs for the costed action:

$$\textit{Total Costs} = \frac{\textit{Average cost (MDL)}}{\textit{Particip.}} * \textit{No. of particip.} = 678 \frac{\textit{MDL}}{\textit{Particip.}} * 170\ \textit{particip.} = \textbf{MDL 115,260}$$

Given that for complex actions, data is likely to be collected, refined and adjusted throughout the costing process, it may be useful to see data collection in a chronological perspective.

## Incipient Stage

Estimators collect the initial pool of data – both actual and historical – that is readily available. The amount collected should strike a balance between containing a sufficient number of observations that can be refined in subsequent stages and not unduly increasing the administrative burden of the process. As described above, for certain measures prior experience with the costing of comparable measures may significantly reduce the amount of data collected and thereby simplify the overall costing process.

The data collected during this stage can also be used to establish the order of magnitude and provide rough cost estimates, especially when limited budget funding is available or particular cost limitations have been established. With ***Example 3.1***, estimators can assess that the preliminary costs for training activities are likely to be MDL 115,260.

Even during the incipient stage, costing teams may treat such preliminary costs as being final and save their effort for more difficult costing analyses involving other measures. For this approach to be valid, costing teams should confirm the following:

- the costs are already estimated with reasonable precision;
- refining the cost estimate would require substantial effort but bring little gain in terms of precision;
- the finance division confirms that the estimated costs fall within the available budget.

## Development Stage

Estimators continue the process of data collection, as well as refining the data already collected during the Incipient Stage, which will often have been gathered from a variety of sources and may take many different forms. This is likely to be the most labour-intensive stage, and it is not uncommon for estimators to change the approach to data collection, depending on the availability of historic data, the choice of a particular cost estimation method, new information becoming available, etc. An important step during this stage is to make particular data consistent with and comparable to other data used in the estimation (commonly referred to as *normalisation*).

**Example 3.2:** **Training of civil servants – ensuring comparability of data**

Estimators are required to cost training activities for 170 civil servants, where 50% of the participants will participate online.

- Estimators adjust the original estimate to reflect Covid-19 related restrictions and collect data to reflect (a) the lower number of in-person participants and (b) the additional costs for online participation.
- Estimators determine three activities where a comparable number of participants attended in person and online, and refine the calculations to separate the costs by in-person and online attendance:

| Financial Indicator / Data Collected | Comparable Action 1 | Comparable Action 2 | Comparable Action 3 |
|---|---|---|---|
| Total cost for in-person participants (MDL) | 38,500 | 44,250 | 45,820 |
| Total number of in-person participants | 70 | 75 | 79 |
| Total cost per in-person participant (MDL/person) | 550 | 590 | 580 |
| **Average cost per in-person participant (MDL/person)** | | **573** | |
| Cost of delivering the online component | 24,200 | 24,700 | 24,000 |
| Average cost for delivering the online component (MDL) | | **24,300** | |

Estimators compute the total costs for the costed action thus:

$$\textit{Total Costs} = \frac{\textit{Average cost (MDL)}}{\textit{In – person particip.}} * \textit{No. of in person particip.} + \text{Average costs for delivering the online component}$$

$$= 573 \frac{\textit{MDL}}{\textit{Particip.}} * 85\ \textit{particip.} + \textit{MDL 24,300} = \textbf{\textit{MDL}\ 73,005}$$

Example 3.2 provides the costing team with several insights:

- rough estimates from the incipient stage may significantly change in the later stages of the cost estimation process;
- the cost varies according to the number of individuals who participate in person (referred to in practice as variable costs, see section 2.2.4.4); while
- the costs for delivering the online component are mainly technical and are assumed to stay the same irrespective of the number of participants attending online, up to the technical limit of participation (referred to in practice as fixed or semi-fixed costs, see section 2.2.4.4).

### Mature stage

Estimators perform the final refinements and complete the data collection. This allows them to derive the estimated costs with a high degree of confidence. By this stage the estimators will have excluded data that is not deemed to be relevant, reliable or sufficiently specific, or which differs significantly from other observations (i.e. is an outlier).

## 2.2.2 Sources of data

One of the most difficult steps often faced by costing teams is the assignment of monetary values (prices) to the individual components required for the implementation of an action. There are several possible sources which could be used in the process of estimating the likely costs (or prices) of inputs.

The common sources of information for the costs of inputs include:

- **historic costs -** i.e. the costs of similar activities implemented or similar inputs used in the past. Historic costs can be obtained from financial documentation such as accounting data, financial reports, budget lines and budget execution reports, expenditure records, inventory lists, invoices, contracts, offers, travel reimbursement statements and similar;
- **financial planning data -** e.g. specific budget lines and programmes with planned spending in current and future years, the financial plans of public institutions, funds and enterprises, and planned budgets of local public authorities;
- **reference market prices -** compiled from potential outside service providers, for example, for IT services and software, expert services, rents, equipment and similar;
- **regulated costs -** for example salaries for a given rank of employees, travel and subsistence allowances, and any other *'cost normatives'* prescribed by the MoF;
- **average unit costs -** when they can be calculated with reasonable accuracy, for example, the average cost of training per participant;
- **description of the measure in the Action Plan -** e.g. the targeted value of social benefits and subsidies to the beneficiaries of the measure;
- **investment plan -** this will be prepared separately under the rules for public investment planning if the action requires substantial capital investment.

In addition to cost data, estimators often need to collect data and information that will help them to estimate the quantity of inputs that need to be costed. For example, they may receive the expected number of training participants from the policy division, or they may make their own assumption about the likely number of participants in the costed event on the basis of data collected for the number of participants during similar past events. With measures involving subsidies or social benefits, the number of beneficiaries may need to be estimated using statistical data about the target population (*see Case Study 4 for an example*).

Commonly used sources of non-cost information include:

- **statistical data,** such as that provided by the National Bureau of Statistics, the National Bank and other official providers of data, including administrative registries (for example, an employment registry, business registry or registry of social aid recipients, etc);
- **own collection of data and information,** for example through surveys, polls, interviews with experts, or focus groups; these methods are used to obtain a deeper understanding of a particular situation and the most important factors that will determine the overall cost; experts and practitioners may sometimes also provide their own informed estimates regarding the likely costs of some activities;
- **research** which involves the collection, organisation and analysis of information to increase the understanding of a topic or issue, such as books, costing studies, audit reports, research papers and reports.

Experience shows that it is quite common for data to come unstructured or in a format which may not be tailored to the specific needs of the costing team. Estimators should therefore be ready to engage in quality verifications, perform re-calculations, and (for more complex cases) adjust the data by removing the effects of various external and internal factors (commonly referred to as *data normalisation*). The amount of data manipulation would generally depend on how close the data is to the original sources, including whether adjustments have already been performed. Accordingly, when sourcing data it may be useful to distinguish between *primary data* and *secondary data*.

**Primary data** provide raw information and first-hand inputs **collected directly from the source**. For example, primary data may be collected by the implementing agency through surveys of the measure's beneficiaries, or interviews and focus groups involving stakeholders and experts. Other sources of primary data are well-maintained administrative registries, statistical surveys of the labour force and households, tax returns, detailed budget reports and enterprise balance sheets. Costing teams will often need to collect primary data themselves, for example from accounting records or other available documentation.

The key advantage of primary data is the availability of relatively recent and detailed information which does not require significant time-related adjustments. Furthermore, because it is often available in an unstructured form, it allows estimators to tailor it to the specific needs of the costing team. However, estimators should be aware that its raw nature means that a large amount of time (which may not always be available) may be needed to turn it into a workable format. Nevertheless, when properly organised, primary data provides the estimators with a valuable input for costing purposes.

**Secondary data**, as the name suggests, are **derived rather than collected** directly from original (i.e. primary) sources. For example, data such as the unemployment rate or the inflation rate are derived from primary data through the process of validation, cleaning and making methodologically sound calculations. Costing teams may use secondary data instead of collecting primary data directly from the source, especially in the incipient stage of data collection when a quick assessment of the order of magnitude is required.

Let's recall ***Example 3.2*** concerning the organisation of training activities. When collecting data on the costs of comparable training performed in the past, estimators may prefer to collect all the receipts paid for the training (i.e. primary data) and then compute the costs associated with key components, such as rent, meals, coffee breaks etc. Nevertheless, this data may not be available to estimators, or it could be costly and time-consuming to obtain. Instead, estimators may prefer to rely on accounting records or financial reports which may provide information at a higher level of aggregation, such as (in our example) the in-person event costs and the total cost of delivering the online component. While this may not generate an exact amount, it may provide a sufficiently reliable estimate to enable costing teams to proceed to a more complex analysis, as mentioned above.

Even so, it is not recommended to initiate data collection by thinking in terms of primary and secondary data. Rather, estimators should commence the costing exercise by first identifying the most relevant data for the costed action while remaining aware of its inherent limitations. Once all the data has been tailored to the specific needs of the estimators, the actual costing estimation can commence.

### 2.2.3 Data normalisation

As outlined above, it is common for estimators to collect data from a variety of sources, which means that data is often received in different formats. Furthermore, when leveraging historical actions, data for different time periods may be retrieved; this may decrease data comparability, especially if significant time has elapsed.

**Normalisation** refers to the process of adjusting collected data by removing the effects of internal or external influences, with the aim of improving data consistency. If performed correctly, estimators can rely on such data to make comparisons, to reach insights, and ultimately to cost actions. The process used for data normalisation will depend on the nature of the actions costed as well as on the data collected, and may include accounting for inflation, currency exchange rates and other measure-specific adjustments.

Specific examples of data normalisation are provided below, but estimators should be aware that different approaches may be applicable.

| **Example 4:** | **Transport costs – taking account of future price changes** |
|---|---|

In January 2020, estimators are tasked with determining the total (diesel) fuel cost for delivering mail in District A over an average distance of 200 km per working day during the period 2020 – 2022.

- Estimators determine the formula for computing the total diesel cost:

$$\textit{Total diesel cost 2020 – 2022 (MDL)} = \text{Distance travelled (km)} * \frac{\text{Diesel cost (MDL)}}{\text{km}}$$

- Estimators determine that the average consumption per 100 km is 15 litres and compute the **consumption per km** – i.e. 0.15 litres per km.

Distance travelled:

- Estimators determine that, on average, each year there are 250 working days;
- Estimators compute the distance to be travelled per year:

$$\frac{\textbf{Distance travelled (km)}}{\textbf{Year}} = \frac{\text{Distance (km)}}{\text{Day}} * \text{Average}\frac{\text{Working days}}{\text{Year}} = 200\frac{\text{Km}}{\text{Day}} * 250\frac{\text{Days}}{\text{Year}} = \textbf{50,000}\frac{\textbf{Km}}{\textbf{Year}}$$

Diesel cost:

- Estimators determine that during 2019 the average diesel price per litre was MDL 16.19, representing an annual increase of 1.25% over 2018, when the average diesel price was MDL 15.99;
- Estimators assume that the diesel price will continue to increase by the same annual rate, and compute the estimated value of the diesel cost per litre for each year analysed, given the estimated annual cost increase of 1.25%:

$$\frac{\textbf{\textit{Diesel cost (MDL)}}}{\textbf{\textit{Litre}}} = \textit{2019 Diesel cost (MDL)} * (1 + \textit{increase rate})^{\textit{time period}}$$

**2020** : 16.39; **2021** : 16.59; **2023** : 16.80

- Estimators compute the diesel cost per km for each year analysed:

$$\frac{\textbf{\textit{Diesel cost (MDL)}}}{\textbf{\textit{Km}}} = \frac{\text{Consumption (litres)}}{\text{Km}} * \frac{\text{Diesel cost (MDL)}}{\text{Litre}}$$

**2020** : 2.46; **2021** : 2.49; **2022** : 2.52

- Estimators determine the total diesel cost for the period 2020 – 2022:

$$\textbf{\textit{Total diesel cost (MDL)}} = \text{Distance travelled (km)} * \text{Estimated diesel cost } \frac{\text{(MDL)}}{\text{km}}$$

| Year | Distance travelled (km) | Estimated diesel cost (MDL/km) | Total costs (MDL) |
|---|---|---|---|
| 2020 | 50,000 | 2.46 | 123,000 |
| 2021 | 50,000 | 2.49 | 124,500 |
| 2022 | 50,000 | 2.52 | 126,000 |
| **Total** | | | **373,500** |

- When documenting the cost estimate, estimators should note that the key assumption of their calculation is that the diesel prices will increase by a fixed percentage. Nevertheless, in real life diesel prices are likely to fluctuate during the year. This increases the importance of performing an uncertainty analysis for such cases (*see Step 3 of this Manual*).
- Therefore, when costing activities involving commodities (e.g. oil, industrial metals, grains, food), the **use of historic data should be scrutinised,** given the large price fluctuations recorded for specialised commodity markets.

**Example 5:** **Cost of imported equipment – taking account of exchange rate fluctuations**

On 1 August 2021, estimators are tasked to cost the acquisition from a French supplier of specialised equipment required for building a water treatment plant.

- Estimators identify a similar purchase performed in July 2020 and, using accounting data, determine that the expenditures amounted to MDL 780 million. No information is available on the cost as denominated in the foreign currency.
- Estimators assess that the same equipment will be purchased in 2021 from the same supplier, and establish the Euro as the currency to be used for the analysis.
- Estimators consider the need to normalise the data by analysing the level of fluctuations in the EUR-to-MDL exchange rate and determine that it was 19.5097 in July 2020 and 21.3129 in July 2021.
- Estimators commence the analysis by determining the EUR value of the equipment purchased in 2020:

$$\textbf{\textit{Acquisition cost}} \textbf{ (2020)} = \frac{\textit{Acquisition cost (MDL)}}{\textit{Exchange rate in July 2020}} \sim \textbf{\textit{EUR 40 million}}$$

- Estimators then determine the expenditure denominated in MDL for the costed action, using the most recent average exchange rate:

$$\textbf{\textit{Acquisition cost}} \textbf{ (2021)} = \textit{Acquisition cost 2020 (EUR)} * \textit{Exchange rate in July 2021} \sim \textbf{\textit{MDL 852 million}}$$

- Estimators should note that when costing actions with a foreign currency component, care should be taken with regard to exchange rate fluctuations. As Example 5 shows, within 12 months the cost in Moldovan lei of acquiring the specialised equipment has increased from MDL 780 million (2020) to MDL 852 million (2021), a rise of approximately 9%.
- When estimating the cost of a purchase which will be made during the following year, at the time of costing the exchange rate at the time of purchase will naturally not be known. In such cases, use an official forecast of the average exchange rate for the following year.

**Example 6:** **Cost of social benefits – taking account of inflation**

- In 2019, the Government piloted a social initiative to support a group of 100 low-income families by awarding a one-time payment (i.e. social benefit) of MDL 5,000 for their day-to-day needs. Given its success, in June 2021, the costing team is tasked with determining the costs associated with expanding this initiative to 1,000 families, starting in 2022.
- Estimators commence the analysis by assessing the change in consumer prices between 2019 and 2022. In 2021, when the cost estimates are being done, the actual increase in consumer prices for the whole of 2021 is not yet known, and of course not for 2022 either. The estimators thus need to use the inflation forecasts contained in the government's latest available macroeconomic forecast. To estimate the increase in consumer prices from 2019 to 2022, they need to multiply the (estimated) annual consumer price indices (CPI) for the period:

$$\textit{CPI}^{8}\ \frac{\textbf{2022}}{\textbf{2019}} = \textit{CPI}\ 2020 * \frac{\textit{Est. CPI}\ 2021}{100} * \frac{\textit{Est. CPI}\ 2022}{100} = 103.77 * \frac{103.1}{100} * \frac{107}{100} = 114.50$$

- Estimators determine that the estimated increase in the CPI from 2019 to 2022 is 114.5, implying an inflation rate of 14.5%.
- Estimators normalise the data by adjusting the one-time payment granted in 2019 on the basis of the price change over the relevant period:

$$\textbf{\textit{One – time payment}}\ \textbf{(2022)} = \textit{One – time payment}\ (2019) * \frac{\textit{CPI}\ \frac{2022}{2019}}{100} = \textbf{\textit{MDL}}\ \textbf{5,725}$$

  where the CPI used is the CPI for 2022 versus the baseline year of 2019, as calculated above.
- Estimators next compute the costs associated with the expansion of the social initiative in 2022:

$$\textbf{\textit{Total action cost}}\ \textbf{(2022)} = \textit{One – time payment}\ (2022) * \textit{No. families} = \textbf{\textit{MDL}}\ \textbf{5,725,000}$$

- Whenever they are relying on historic data, estimators should analyse the need to adjust costs for inflation, given that items costing MDL 5,000 in 2019 are likely to be more expensive today. It is a permissible simplification to use the general inflation rate (CPI), as in the example, but one should be aware that price fluctuations for goods such as fuel, imported raw materials and energy may be very different from the changes in the general price level (as demonstrated in Example 4).
- In real-life social policy, the amount of income benefits is often based on the subsistence costs estimated by the ministry or designated institutes. The amount of the benefit may also vary according to the region in which the recipient resides, to reflect the regional price differences for basic goods.

## 2.2.4 Cost analysis

We emphasized in the introduction that the C&B process runs in parallel with the development and finalization of the Action Plan. This means that the costing team may be asked to provide alternative cost calculations for different specifications of the measure:

- in ***Example 3.1***, the policy division may be considering the option of providing less training events but having a higher number of participants in each one, or providing additional training sessions in online format only;

[8] If CPI forecasts are not published, they can be calculated from the forecasted inflation rate; for example, 2022 CPI = forecasted inflation rate in 2022 * 100. Note that the data for the average (year-on-year) inflation rate, and not for year-end inflation (December-to-December) must be used for this calculation.

- in *Example 4*, after consultations with environmentalist stakeholders, the policy division may decide to replace 20% of post office vehicles every year with new ones that consume 50% less fuel;
- in *Example 6*, the policy division may contemplate differentiating the level of benefits according to the relative cost of living for the region in which the recipient resides;
- in general, whenever it transpires that the available financial resources are insufficient to cover the estimated costs, the costing team may be asked to provide advice regarding adjustments to the activity being costed that would result in cost savings.

The examples listed above show that costing does not only involve cost estimation for an action that is already firmly specified, but it may also be needed to support the process of prioritizing and finalizing the measures and the Action Plan, by providing valuable feedback on the financial impact of different specifications of the measure.

Costing teams should be able to promptly compute the costs for different options. To be prepared for such requests, it is important to be aware of the nature and behaviour of the different cost items used in their calculations. In practice, estimators are likely to be faced with questions such as:

- Will the costs occur on a regular basis or only occasionally?
- Will the costs change during the action or will they be constant?
- How do the costs depend on the level of activity?
- Can the costs for individual WBS components be determined?

Let us consider an example of building and running a regional mid-sized general hospital in District A (*Example 7.1*).

**Example 7.1:** **Building and running a regional mid-sized general hospital – cost analysis**

- The hospital is built for an estimated 300 beds corresponding to the average number of 300 patients that are estimated to need hospitalisation.
- The area of the hospital is estimated at 40,000 square metres, which can accommodate an additional 100 patients if needed.
- The policy division has indicated to the estimators that they are still performing consultations as to whether the planned capacity of 300 patients (and an additional 100 in case of need) is sufficient, and how likely it is that the hospital would need an extension in foreseeable future.

The estimators collect and, where required, normalise data to derive relevant, reliable, and sufficiently specific cost data.

Using these criteria, they obtain the data outlined below:

| Cost Input/WBS Component | Type of Input | Input Value |
|---|---|---|
| Construction | Cost per bed – new building (MDL) | 1,000,000 |
| | Cost per bed – extension to existing infrastructure (MDL) | 400,000 |
| **Beds** | **Cost per bed (MDL)** | 10,000 |

It is easy to see that the construction of the planned building would cost 300,000,000 MDL (i.e. the cost per bed multiplied by the 300 beds representing the planned overall capacity). In addition, the data collected and presented in this table will also allow the costing team to quickly calculate the cost for a differently sized hospital or a possible later extension. Before finalising the Action Plan, the decision makers will need to decide on the size of the hospital to be built, also taking into account the financial implications of the different options that can now be promptly calculated by the estimators.

Given the above considerations, in practice estimators use various cost classification approaches to organise cost data into specific categories that facilitate the costing analysis. Some approaches are quite straightforward and are unlikely to require complex and time-consuming analysis. Other approaches are more complex and may require significant administrative resources.

It should not be assumed that complex cost classifications are preferable or yield more precise estimates. In fact, the higher the degree of complexity, the more potential adjustments must be performed. This increases the risk of computational errors.

Costing teams should select the **most appropriate** cost classification for the costed action or WBS component. It is perfectly acceptable to use straightforward approaches such as average cost, marginal cost or incremental costs if they allow for accurate costing without increasing the demands on administrative resources. At the same time, estimators should be comfortable with, and skilled in, conducting complex analyses when required.

#### *2.2.4.1 Classification based on cost objects*

When costing actions that involve specific outputs, estimators may consider performing the analysis by leveraging three particular cost indicators.

**Average (unit) cost** is the cost for each unit of output, calculated by dividing the total cost by the number of output units. Estimators can rely on the unit cost to determine the total amount of expenditure for a particular output level. Different sizing units may be used, depending on the specific action costed, such as: cost per square metre, cost per employee, cost per hour etc.

- In ***Example 7.1***, the average cost per bed is likely to be the most appropriate and relevant sizing unit since it provides a consistent indication of the amount of space required and the number of personnel to be maintained, based on the average number of patients estimated to be hospitalised during a given period.
- In ***Example 3.1***, the average cost per participants was used as the most appropriate indication of the total cost of training.

Estimators may prefer to use average cost because of its simplicity as well as its assumption that the structure of overall costs will be identical to similar actions costed in the past. Nevertheless, estimators should be aware that with time, fixed and semi-fixed costs tend to change or vary by comparison with variable costs, and as a result the average cost may be distorted. Before deciding to use a historic average cost, the estimator should consider whether such distortions may be relevant and adjust the average cost accordingly.

**Marginal cost** is the additional cost generated as a result of producing one more unit of output, and is computed by dividing the additional cost generated by the number of additional output units. This indicator is particularly useful when costing actions involving the expansion of existing capacities or output levels (for example, extending a hospital to accommodate additional beds and patients, or resizing training to include a larger number of participants).

**Incremental costs** are often confused with marginal costs, but they are not the same. While both refer to the costs of producing additional output, the incremental cost is the additional cost resulting at the overall action level, while the marginal cost is the additional cost computed at the level of the unit of output.

| **Example 7.2:** | **Building and running a regional mid-sized general hospital – costing of increased capacity** |
|---|---|

Estimators are tasked with assessing construction cost changes for a 20% increase in the number of beds (Scenario A) and a 50% increase (Scenario B).

Scenario A – The number of beds is increased by 20% (i.e. 60 more beds)

- Estimators analyse and determine that the current premises can accommodate a maximum of 400 beds.
- Estimators conclude that no additional construction costs will be incurred.
- Note that **other costs will be incurred,** such as the acquisition of new beds and potentially of additional medical personnel (see Case Study 6).

Scenario B – The number of beds is increased by 50% (i.e. 150 more beds)

- Given that 100 beds can be accommodated within the existing premises, estimators analyse the construction costs incurred for the remaining 50 beds. For this purpose, estim**ators rely on the construction cost per bed when the extension is built onto existing infrastructure:**

$$\textit{Incremental Cost (Opt. 2)} = \frac{\textit{Construction cost (MDL)}}{\textit{Bed}} * \textit{Additional beds}$$

$$= \frac{\text{MDL } 400{,}000}{\text{Bed}} * 50\ \textit{Beds} = \textit{MDL } 20{,}000{,}000$$

- In this example, the calculation gives us the incremental cost, i.e. the cost increase at the level of the action (extending the hospital) and not at the level of the output (additional hospital beds). This is because our cost-per-bed data includes all the construction costs, not just the direct cost of one hospital bed.

### *2.2.4.2 Classification of costs by traceability*

Another important distinction to be made is the one between direct and indirect costs.

**DIRECT COSTS**

**are expenditures directly related to the fulfilment of functions, provision of services, production of goods (i.e. the action being costed) which can be directly attributed and traced to the particular measure.**

**INDIRECT COSTS**

**are expenditures incurred by the implementing institution, such as a line ministry, in the course of undertaking its overall mandate, and which are therefore difficult to associate directly with the action being costed.**

Estimators should be aware that it is not always straightforward to attribute costs as direct or indirect. This is well illustrated by the example of personnel costs that are associated with the actions being costed. Specifically, the organisational structure of a public institution may not precisely coincide with the structure of its Action Plans or budgetary programmes. Personnel may be working on a single action, or they may be involved in the implementation of several different measures.

When personnel expenditures are associated with a single action or can easily be distributed over a small number of actions (for example, the cost of specialists in a policy division working at the same time on the implementation of just a few Action Plan measures), these should be considered as the direct costs of the actions. Costs associated with personnel working on general and supportive activities, such as financial, administrative and IT staff, junior staff, analysts and monitoring specialists, managers and decision-makers, should be considered as indirect costs.

The same consideration may be applied to the costs of equipment, premises and utilities. The cost of software and hardware which is specifically designed and dedicated for the higher education IT system, or the cost of premises required in order to provide training, are examples of the direct costs of particular measures. On the other hand, the cost of general-purpose equipment used by the implementing institution is an example of an indirect cost.

In ***Example 7.1***, dedicated personnel such as cardiologists, specialised nurses and technicians, as well as specialised equipment, would represent the direct costs of providing patients with cardiological treatment. Meanwhile, staff able to work in any department, the administrative personnel, as well as general purpose equipment such as X-ray machines, wheelchairs and blood analysis laboratories, would be considered as indirect costs.

This Manual requires indirect costs to be included in the cost estimate only when they constitute a significant portion of the total costs of the action. This is clearly the case when costing a new or extended hospital, where both the direct and indirect costs need to be taken into account. In ***Example 1***, the introduction of a new IT system will require the extensive training of the teaching, administrative and management personnel of the educational institutions. The cost of the time they devote to training should therefore be included in the cost estimate even though they will not be directly engaged in the design and implementation of the new IT system.

OMF 209/2015 provides examples of the different methods that can be used to allocate indirect costs to specific actions[9]. Whenever the costing team decides not to account for certain indirect costs, either for the sake of simplifying the estimation or because they are insignificant – for example, the costs for utilities (water, energy, office premises) or the general support staff – this should be clearly stated in the notes to the Costing and Budgeting Table (see *Annex 1*).

### *2.2.4.3 Classification of costs by recurrence*

During the costing process, estimators should analyse whether the action being costed and/or individual WBS components are likely to occur on a regular basis or only during a particular period. The failure to distinguish between these types of cost may result in overestimation of the cost of the actions if irregular costs are accounted for multiple times in the cost estimate.

**Recurring costs** are expenditures that occur periodically as the action progresses. Costing teams can anticipate such costs at the moment of performing the costing exercise and can duly take account of them when establishing the overall cost of the action. Estimators should keep in mind that different intervals may be applicable to different WBS components. While in ***Example 7.1***, electricity, water and other utility costs will be incurred on a monthly basis, building maintenance costs will be incurred every three years. All these costs can be considered as recurring.

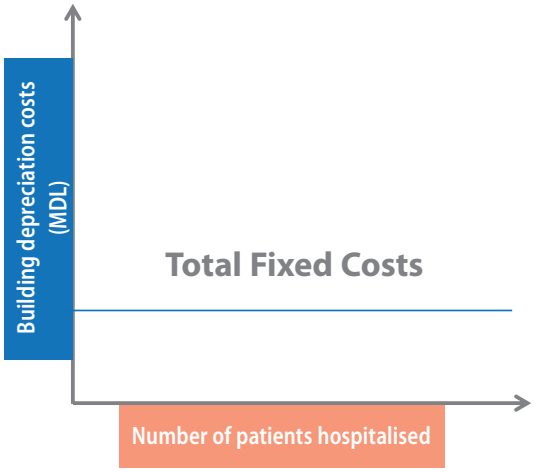
**Non-recurring costs** are expenditures associated with costed actions that take place during a predefined period. Capital investment projects are a good example of such costs, given that the building or improving of a capital asset is likely to be a one-time exercise. The drafting of a law to transpose an EU directive into the national legislation is another example of a non-recurring cost.

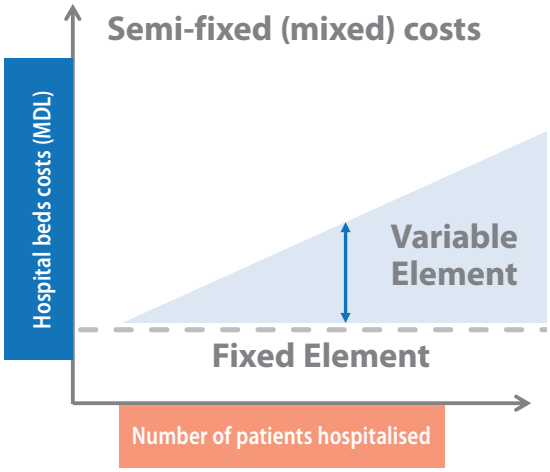
Estimators should note that non-recurring costs do not necessarily have a short duration. In ***Example 7.1***, the finalisation of construction activities is likely to require several months, but once the building is finalised no further construction costs would be anticipated.

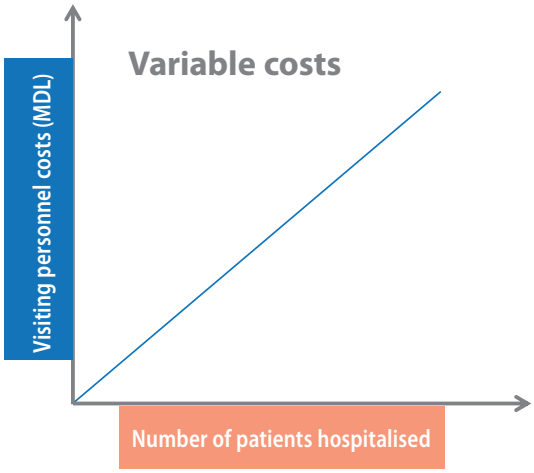
[9] OMF 209/2015, pg. 698

### *2.2.4.4 Classification of costs depending on activity level*

During the costing process, estimators are likely to face the question of whether the costs are expected to vary during the period covered by the estimation. This is especially the case for long-duration actions where changes in the volume of action may affect the costs that will be incurred. To properly take account of such fluctuations, one of the most useful approaches is to break down the costs into fixed, variable and mixed costs.




**Fixed costs** are expenditures that do not vary with the volume of the given action. Such costs will be incurred irrespective of whether the costed action will be performed in full or only partly, and are likely to remain constant within a short-to-medium timeframe. In ***Example 7.1***, the costs incurred in terms of the depreciation and maintenance of the hospital are fixed costs, because they will remain constant irrespective of the number of patients receiving treatment.

**Semi-fixed (or mixed) costs** are fixed for a set level of production or consumption and become variable after this production level is exceeded. In ***Example 7.1***, the hospital beds can be considered as mixed costs since a certain number of new hospital beds can be accommodated in the existing building with no additional construction costs, whereas accommodating more than 100 beds will entail additional construction costs that are proportional to the number of additional beds. Personnel expenses for full-time medical employees are also treated as semi-fixed costs, given the need to ensure a permanent minimum staffing level. Even so, as the number of patients grows, more employees will be required, thus increasing the costs.

**Variable costs** are expenditures that vary with the volume of outputs, activities and services provided. Such costs are dependent on whether and to what extent the action being costed is implemented. In ***Example 7.1***, pharmaceutical products and cleaning materials are variable costs because fluctuations in the number of hospital patients will increase or decrease the amount of inventory and associated costs.

Estimators should pay close attention to the proper treatment of personnel costs. The salary costs for administrative personnel are unlikely to fluctuate with the number of patients in the hospital and can be considered as fixed costs. On the other hand, the costs associated with the visiting personnel[10] are likely to

[10] "Visiting medical personnel" refers to medical practitioners other than employees who provide medical services in a hospital on contractual basis. Such personnel are contracted on an as-needed basis, depending on the number of patients that are hospitalised or receiving medical services.

vary, since a larger number of patients may require extra medical staff and vice versa. The costs for full-time medical personnel are semi-fixed costs for the reasons outlined above, and should not be considered as fully variable.

### 2.2.5 Cost normatives

In certain situations, estimators may find it useful to use cost normatives that specify coefficients which describe the relationship between the variables used in cost estimation. Such coefficients simplify the costing process, since they enable the estimation of some cost items without the need to go through an extensive data collection process. They also increase the consistency of costing for similar actions for which the same normatives are used. Useful normatives may be obtained by consulting technical specialists familiar with the costed action, such as supporters of the costing team, or simply by using regulated expenses such as per-diems, public-sector salaries, or training costs per participant. Regulations may refer not only to costs, but also to technical specifications and human resources. In ***Example 7.1***, any regulations regarding patient/doctor and doctor/nurse ratios, as well as requirements regarding the energy efficiency of new buildings, will need to be respected and taken into account in cost estimates. OMF 209/2015 provides categories of normatives that can be used by costing teams[11].

Additional examples of normatives, based on the examples provided in this Manual, are presented below. Nevertheless, costing teams should **note that such normatives are purely for the purpose of illustration and have not been approved centrally**:

| | |
|---|---|
| **Example 2** – Building of a fire station in District A | ▪ The ratio of firefighters to population: 1:4,000<br>▪ The cost of equipment per firefighter: MDL 15,000 |
| **Example 7.1** – Building and running a regional mid-size general hospital | ▪ The ratio of ambulances to number of beds: 1:50.<br>▪ Visiting medical personnel have a full-time equivalent of 4 working months per year. |

### 2.2.6 Cost factors

During the process of Action Plan preparation and the costing of related measures, due consideration should be given to the internal and external factors that may influence the Action Plan and hence the costing process. Situations may accordingly arise when changes have to be made to the Action Plan, which in turn impacts the costing analysis. This further highlights the importance of having policy divisions leading the costing process, as well as that of including individuals from this division in the costing team.

There are several factors that may have an impact on cost, and their analysis is important to allow costing teams to assess early the potential cost variations, especially for long-duration actions. Five key categories of cost factor are outlined below, although their actual occurrence and potential impact on costs will depend on the nature of the Action Plan and that of the costed measures:

| | |
|---|---|
| ***Cost factor categories:*** | 1. Demographic changes |
| | 2. Social changes |
| | 3. Government policies |
| | 4. New technologies |
| | 5. External environment |

[11] OMF 209/2015, paragraph 698.

**Demographic changes** comprise shifts in the overall population in terms of factors such as age, race, gender, migration, birth rates and death rates. Public policy development is significantly influenced by demographic changes in terms of employment, education, income and other similar factors.

- In ***Example 7.2,*** changes in the overall population number and the age structure in particular regions affect the estimated number of patients. This will in turn guide the decision regarding the number of beds that should be made available.
- In ***Example 6***, changes in income levels inform the decision concerning the extension of the programme to subsidize low-income families.

**Social changes** in their broadest sense are changes in social relations that transform cultural and social institutions. Such changes occur over time and often have profound and long-term consequences for a society. Examples of such changes include:

- Shifts in public perception on the importance of resource conservation have led to energy-efficient lighting systems being selected in Moldova's districts, to reduce annual energy costs. In ***Example 4***, increased environmental awareness may lead to the modernisation of the post office vehicle fleet.
- Increased awareness toward minority rights and the advancement of opportunities have resulted in the development of specific actions aimed at increasing employment opportunities for such groups.

**Government policy** represents governmental commitment towards certain political activities, plans and intentions in areas of public interest. Such policies may be applicable at the central and/or local levels and have a significant impact on society. Examples of such changes include:

- In ***Example 1***, the policy of modernising the secondary education system led to the implementation of new IT infrastructure.
- The policy aimed at decreasing the number of road accidents has led to the acquisition of high-performance speed detection devices.

**New technologies** are associated with technical and scientific innovation that generates improved products and services. Technological advancement impacts every facet of society regarding the way we shop, receive news, provide and receive government services, and make more efficient use of available resources.

- In ***Example 7.1***, new advancements in medical technology have enabled the use of multifunctional clinical devices. While this increases the cost of acquiring equipment, it yields savings in energy and overall utility costs.
- New developments in e-ticketing systems have led to the acquisition of specialised software to organise and manage the workload of the Agency for Public Services in connection with the provision of public services.

**External environment** refers to all outside factors or influences that impact the Government's policy and activities, as well as society at large. In public policy development, it commonly refers to the commitments and obligations undertaken by the government under bilateral or multilateral engagements.

- The commitment towards ensuring a healthy environment undertaken under the Association Agreement with the EU is leading to the construction of a national infrastructure for the collection, sorting and recycling of waste.
- Regional agreements on combating contraband tobacco products have led to the acquisition of specialised software to be used by customs authorities during the verification process.

### 2.2.7 Documenting collected data

While all relevant data would ideally be located in centralised and publicly accessible repositories, this is wishful thinking; instead, the data is distributed across a wide range of media and different government institutions. This increases the importance of ensuring the proper storage and retention of information at the level of the ministry responsible for the costing of the Action Plan, so that it can be used for future costing exercises.

Furthermore, when dealing with complex cases, we recommend organising the many different types of data/cost items by specific cost groupings that have been established during the data collection process. The key benefit of such an approach is that when grappling with the various options for an action, costing teams can promptly assess the associated differences in cost, which will ultimately assist decision-making.

## 2.3 Choosing the Cost Estimation Methodology

To estimate the costs to be incurred for the actions analysed, estimators need to determine the most appropriate method (or possibly methods) that will leverage the collected data needed for performing computations. Because an action may have multiple WBS components, it is acceptable to employ several different methods for a given action. Nevertheless, estimators should take care to avoid increasing the administrative workload needed when managing multiple cost estimating methods.

There are several recognised and widely used methods for costing actions. Each method entails a different level of accuracy and detail, as well as having its own strengths and weaknesses. There is no default method, and the application of a particular method will rely on the type of action being costed, as well as the availability and quality of the data collected.

The two methods most frequently used are the *bottom-up* and *top-down* methods, which can be applied to the costing of most actions.

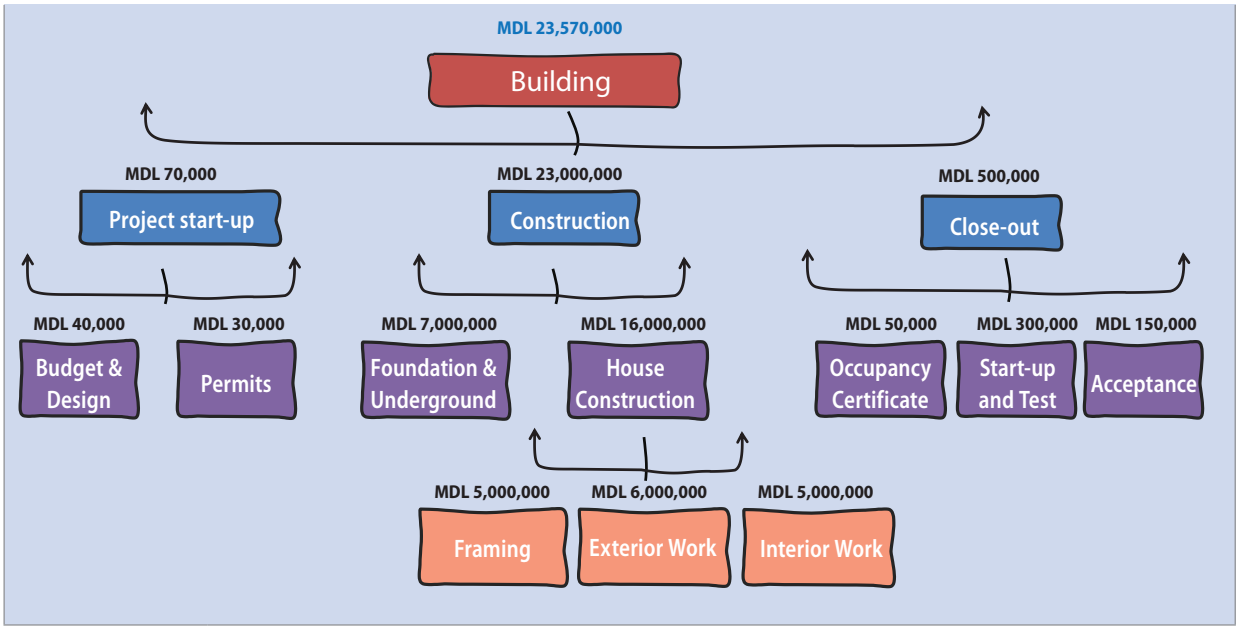
### 2.3.1 Bottom-up cost estimating method

With bottom-up costing, also referred to as the *engineering method,* estimators base the overall cost estimate on a detailed analysis of resource requirements and their respective costs. This method relies on breaking down the actions into individual WBS components, which are subsequently costed. The total cost for the costed action is determined by summing up the costs for the WBS components. **Case Studies 1** and **6** provide examples of bottom-up cost estimating methodology.

| **Example 2.2:** | **Building a fire station – bottom-up costing method** |
|---|---|

Recall Example 2, where the costing team is tasked with determining the expenditure required for building a new fire station in District A:

- Estimators break down the construction action into individual WBS components.
- Estimators collect data and determine the costs for each individual WBS component. For example, the budgeting and design costs are considered to be similar to those incurred on similar-sized buildings, while the construction costs are based on the price per square metre.
- Estimators sum up the costs determined at the individual WBS levels to derive the final estimate.




## 2.3.2 Top-down cost estimating methods

Top-down cost estimating methods are used when detailed item-by-item cost estimation is not needed for the purpose of costing. They are used in situations where detailed information regarding the planned actions is not available, or when costing teams are faced with the need to simplify and economize on the costing process. The three most common approaches are *analogy costing, parametric costing,* and *expert judgment.*

**Analogy costing:** this approach estimates the costs of the newly-planned action on the basis of analogy (i.e. comparison) with similar actions implemented in the past. Where relevant, adjustments should be made to ensure comparability between the costed action and the one used for analogy purposes. In ***Example 3.1*** we used costing by analogy to estimate the cost of training, while ***Case Study 3*** provides a further example of the analogy cost estimating method.

**Parametric costing:** this approach involves identifying the **'cost drivers'**, i.e. the main parameters which drive the costs of an action. It establishes a relationship between these parameters and the costs (based on past cost data or expert judgement), and applies the relationship between parameters and costs to the action being costed. In ***Example 3.1,*** once we established the analogy with similar trainings provided in the past, the cost of training was estimated using the assumption that the number of participants was the main cost driver. The key parameter (cost per participant) was estimated from historic data on comparable past trainings and applied to the expected number of participants in the costed training. ***Case Study 4*** provides another example of costing based on key parameters (cost drivers) combined with expert judgement.

| **Example 8:** | **Establishing a new patent office – top-down costing method** |
|---|---|

The costing team is tasked with costing the running of a modern patent office for an estimated 50 civil servants.

- Estimators determine that the number of employees is the main cost driver, because this drives most of other costs such as office space, equipment, salaries, and staff training.
- Estimators identify three similar premises that have been built in the past and which are currently operating with a comparable number of employees.

- Estimators determine the amount of total cost associated with running the three premises identified for the total number of civil servants. Using these data, estimators compute the average cost per employee.

| Data | Comparable Action A | Comparable Action B | Comparable Action C |
|---|---|---|---|
| Total institutional cost (MDL) | 1,200,000 | 1,050,000 | 1,320,000 |
| Total number of employees | 55 | 60 | 45 |
| **Total cost per employee (MDL)** | 21,818 | 17,500 | 29,333 |
| **Average cost per employee (MDL)** | **22,884** | | |

- Given the estimate for the patent office of 50 employees, estimators compute the total running costs:

***Total cost*** = Average cost per employee * No. of employees = **MDL 1,144,183**

It should be noted that the parametric approach yields only an imprecise estimate, but one which may still satisfactorily serve the purpose of action costing.[12] In addition, parametric costing can also be used for estimating individual cost items, e.g. by adding a fixed top-up percentage for the cost of office equipment and supplies to the salary costs of new employees.

**Expert judgement:** As a last resort, there is an option of using expert judgement as an input for costing. Several experts – including of course those working in the implementing institution – could each be asked for their rule-of-thumb estimate of the likely costs of the new action, and a sensible middle ground of their opinions could then be used as a cost estimate for the action. Clearly, this is the most inexact approach, and it should only be used when other methods cannot be applied. But it may be used as a supplementary approach, e.g. when presenting rough cost estimates to experts for a sensibility check.

Needless to say, in the costing of a single action plan ***a combination of the four methods*** (the bottom-up method and the three variants of top-down costing) can be applied, depending on the nature of the actions, the precision of the planning and the availability of information.

## 2.4 Establishing Ground Rules and Assumptions (GR&As)

### 2.4.1 The need for GR&As

Practice has shown that certain actions are difficult to cost when limited information is available. This raises the need for suppositions that will make it possible to perform the analysis. Such suppositions are commonly grouped into two categories:

- **Ground Rules** comprise certain statements, understandings or standards that have been agreed on prior to commencing the estimation. This type of supposition directs the estimation team and becomes a mandatory element in the performance of the analysis.
- **Assumptions** are established in the absence of, or uncertainty about, data and comprise a set of judgments about the past, present or future that are considered to be true for the purpose of the analysis.

The need to establish GR&As may be readily apparent as soon as the costing analysis commences, or it may emerge during the incipient stage of collecting data and considering the methods that could

[12] One could easily think of ways in which such estimates could be refined. For example, the cost of salaries could be corrected for the expected difference between the qualification levels of the staff of the new establishment compared to those working in the benchmark institution; the cost of staff trainings could be corrected for expected existing knowledge and experience; and the cost of equipment could be corrected for any specialized items such as metrology equipment, etc. Some costs, such as management and supervisory board costs, could also be treated as fixed, i.e. as independent of the number of employees. However, such refinements could prove as time-consuming and tedious as the bottom-up method.

be used for the estimation. Experienced estimators will often be able to see what GR&As are needed as soon as they have familiarized themselves with the action to be costed, whereas less experienced estimators will need to establish GR&As as the analysis progresses and more clarity is gained about data availability and the applicable methods. The same need, regardless of experience, may be apparent when a very complex action is to be costed.

### 2.4.2 Establishing GR&As

In the examples introduced in this Manual, GR&As were established and applied to make the computations tractable, but without drawing specific attention to them. The best way to understand the function of GR&As, and what they could be, is to recall some of the examples and explain the GR&As used in them.

- In ***Example 6*** we used the official inflation forecast to estimate the future level of CPI.
- In ***Example 5*** we noted that the official exchange rate forecast should be used for converting future costs quoted in a foreign currency to an MDL value.

Using official forecasts is an example of a Ground Rule that helps estimators to deal with the uncertainty of future price and currency movements. This is also an example of a Ground Rule that is best established for the costing of the entire Action Plan, prior to any costing analysis.

Another Ground Rule that is best applied globally – i.e. to the entire Action Plan – is the decision to use official cost normatives for expenses, such as salaries, travel and per diem allowances *(see section 2.2.5)*. The guideline of this Manual stipulating that the costs of existing personnel should be accounted for, whereas indirect costs should be estimated only when they are likely to comprise a significant portion of the total costs, is another example of a global Ground Rule.

Global Ground Rules greatly improve the comparability of costs across individual actions. When the normatives and forecasts used in costing are the same as those used in the budgeting process, such Ground Rules also support the integration of estimated costs into the budgeting process *(see section 3.4)*. The utility of establishing global Ground Rules is another reason that this Manual recommends setting up a single costing team for the entire Action Plan.

Having presented the usefulness of global Ground Rules, we now turn to examples where specific Ground Rules were established solely for the purpose of costing a specific measure:

- in ***Example 6***, the decision that the regional differences in the cost of living will not be taken into account when calculating the amount of the benefit granted to vulnerable households is a Ground Rule that simplifies the calculation;
- in ***Example 1.3***, a Ground Rule was applied whereby costing should be limited to comparing the offers from three vendors rather than costing all the elements of designing and implementing the education system's new IT infrastructure;
- when discussing cost normatives in section 2.2.5, we noted that technical normatives such as those related to the energy efficiency of buildings, as well as service delivery standards such as patient/doctor or student/teacher ratios, need to be respected whenever they are relevant to the costed measure. While the principle of respecting technical and service delivery norms may be set as a global Ground Rule, the choice of applicable normatives needs to be specific to the costed measure.

Measure-specific Ground Rules are usually established once clarity is reached (through discussions with the policy division) about the details of the planned action (e.g. the policy division does not intend to differentiate the level of benefits), or the exact purpose of the costing (e.g. only a vendor comparison is needed).

In contrast to Ground Rules, assumptions are almost always specific to the costed measure, or even to a single component of the action's WBS:

- in ***Example 4***, where we were concerned about the future movements of fuel prices rather than about the general price level – and being aware that fuel prices may have a dynamic of their own which differs from that of changes in the general price level – for simplicity we assumed that fuel prices will increase by the same rate as in the past;
- in ***Example 3.1***, we assumed that the costs of training will be comparable to analogous training provided in the past, and to simplify the computation process we also assumed that the average cost per participant is the main cost driver;
- in ***Example 7.1***, to simplify the computations we assumed that the unit costs (the total cost per hospital bed) are the main cost driver;
- similarly, in ***Example 8,*** we assumed that the unit costs per employee are representative of the total costs of setting up a new patent office.

Such assumptions imply more than meets the eye. Using analogies in costing, especially when relying on just one representative unit cost item, assumes not only comparability in the content of the actions being compared, but also comparability in the nature and behaviour of the different types of cost *(see section 2.2.4)*.

The validity of the assumptions made in costing could be verified by collecting and analysing additional data and cases, but the point of making assumptions is precisely that such time-consuming analysis can be avoided without incurring a detrimental loss in the precision of the cost estimate.

Assumptions are largely dependent on the expert judgement and experience of the costing team. The making of assumptions therefore involves expert judgements in any of the costing methods.

As these examples show, Ground Rules and assumptions simplify the costing process, but may reduce the precision of the final estimate. **A sound balance must therefore be struck between simplification and the reliability of cost estimates**. The costing teams should be aware that the cost estimates will be used by decision-makers to prioritize the actions envisaged for the Action Plan, and to adjust the scope and structure of the Action Plan in the context of the means available. In cases where the available funding is not sufficient, cost estimates will be used to request additional budgetary allocations or support from the development partners. This means that when deciding how to allocate their efforts across different measures, the costing teams need to consider that the analysis should:

- focus on costing the most complex measures and those anticipated to require the most significant financial resources;
- focus on those measures for which additional funding is likely to be required;
- focus on those measures that are of strategic importance for the entire Action Plan, and will contribute the most to achieving the Action Plan's objectives and expected impact;
- identify the uncertainties that may cause the actual costs of the action to deviate from the estimate; the potential financial impact of those uncertainties that are likely to affect a major portion of the total costs should be estimated *(see section 3.2)*.

# STEP 3. ESTIMATING COSTS AND FUNDING SOURCES

## Overview of this step

Once the collected data has been analysed and has (where necessary) been subjected to data normalisation procedures, you will proceed to estimating the costs that will be incurred. During your day-to-day activities you are likely to analyse various types of action which may require individual approaches that are dependent on the data collected, the cost estimating method chosen, and other specific features.

Even with the best estimates, you should be aware that situations may arise when the actual costs will turn out to be significantly above or below the original estimates. They may be due to extraordinary or unforeseen events that were not considered when performing the cost estimate. They may also be the result of a single cost factor or a combination of cost factors influencing the estimated costs. For example, a sudden increase in the number of patent applications may result in additional employees being required (***Example 8***), while a sudden increase in the population of District A may generate a requirement for additional firefighters and fire trucks.

Consequently, for certain actions you should perform an analysis of these various scenarios in a process commonly referred to as *cost sensitivity analysis*. In this process, you compute the additional costs that would be incurred if any of the uncertainties materialize, and compare them to the base cost estimate. If the percentage change significantly differs from the agreed limits, a more in-depth analysis may have to be performed. This might also entail making changes to the overall Action Plan.

Once the final costs are determined, the costing team will have to analyse whether sufficient funding is available to cover the actions. For smaller, short-term period measures funding is likely to be available within the annual baseline of the line ministry. For other types of action, the costs will often be higher than the realistically available funding identified at the time of costing. In such cases, managers should work together with the policy division of the line ministry to address and close the gap between the estimated costs and the available funding.

## 3.1 Estimating the Costs

In Step 2 we explained everything that needs to be prepared in order to finally be able to come up with a cost estimate (analysing the action to be costed [the WBS], collecting and analysing data, deciding the most appropriate cost estimation method, and establishing a set of GR&As to make the calculation tractable).

Now it is the time to pick up the pen – or rather, open a spreadsheet – and do the maths.

It is important to **keep track of the calculations made** as you go along. This will make it easier for you to go back and prepare alternative estimates if any changes in the design of the measure are

contemplated by decision makers, or to enable a sensitivity analysis to be performed. Keeping track of your calculations and the data collected in an organized form will also help you and other estimators to cost other Action Plans, because you will be able to use your records as a source of historic data and as a learning resource for costing analysis.

The approach taken to doing the calculation will depend on the method of estimation chosen, which in turn depends on data availability, the nature of the action, the GR&As established, and the desired level of precision.

Let's return to ***Example 8*** on determining the costs associated with running a modern patent office. As you will recall, the parametric approach was chosen as the most appropriate cost estimating method, with the costs being determined on the basis of the average cost per employee multiplied by the estimated number of employees. As you can see, when a parametric approach is used, in most cases the cost estimation is likely to be a straightforward exercise since it relies on a limited number of cost inputs that may vary during the period analysed.

A more complex analysis will be required for costing the building and operation of a fire station (i.e. ***Example 2***), where each particular WBS component (i.e. individual action) will have to be analysed and costed separately using a bottom-up approach. You will also have to asses if and how individual activities vary not only throughout the period analysed, but also during a particular year. For example, you might determine that the construction costs will be incurred solely during the first year of activity, while the employment costs will recur on an annual basis but may vary according to the size of District A's population.

In order to determine the costs to be incurred, an analysis should be performed regarding whether they are expected to occur on a regular basis, as well as whether the costs will change with the level of activity.

**Cost Recurrence:** estimators should determine whether the costs will occur periodically as the activities of the action progress (i.e. they are recurring) or are incurred during a predefined period (i.e. they are non-recurring). Such an assessment is required in order to ensure on the one hand that the costs are reflected correctly during the period in which they are incurred, and on the other hand to avoid counting them multiple times.

It should be borne in mind that non-recurring expenses may occur more than once and in multiple years. In ***Example 7.1*** (the building of a mid-size hospital), both construction and ambulance-related costs are non-recurring expenses over a two-year period. Nevertheless, once the activities are performed, no further costs are expected to be incurred.

**Change in activity level:** estimators should pay close attention to how costs vary as an action's activity levels change. As outlined in Step 2, a common approach is to assess which elements of cost are constant (i.e. are fixed) throughout the period, or vary as the action decreases or increases (i.e. are variable), or whether they stay constant until a certain level is reached but change when that level is exceeded (i.e. the costs are semi-fixed).

It should be borne in mind that the activity level should be assessed for each individual cost input. In ***Example 7.1***, the personnel costs will vary in accordance with the number of patients, while the costs for maintaining IT infrastructure will change in accordance with the number of full-time personnel to be employed.

**Example 2.3:** **Building a fire station – analysis of cost recurrence and variability**

Recall **Example 2** and assume that in addition to costing the construction action, the costing team is required to determine the financial resources required to operate the fire station during the 2-year post-construction period. The fire station is built to serve the population in District A, which is estimated to have 200,000 residents, but its physical premises can accommodate sufficient additional equipment and personnel for up to 300,000 residents. Because of the time required for the foreign manufacturers to process and deliver any orders placed, the acquisition of fire trucks will take two years. In addition, the shortage of available firefighters means that their recruitment is expected to take two years to complete.

The following has been determined on the basis of the data collected and the WBS (*all costs annual in MDL*):

| Cost Input / WBS Component | Cost Recurrence and Variability | Data Collected | |
|---|---|---|---|
| | | Type of Input | Input Value |
| Construction | ▪ Non-recurring costs to be incurred only in 2022;<br>▪ Fixed costs. | Construction area (square metres) | 1,000 |
| | | Cost per square metre | 23,570 |
| | | Maximum population that can be serviced | 300,000 |
| Fire trucks | ▪ Recurring in 2023 – 2024;<br>▪ Semi-fixed costs since a minimum number of vehicles must be maintained, while additional vehicles may be required if the population of District A increases. | Number of vehicles | 2023: 3 vehicles<br>2024: 4 additional vehicles |
| | | Maximum population that can be serviced | 300,000 |
| | | Cost per vehicle | 1,000,000 |
| | | Number of extra vehicles needed for each 40,000-person increase in population | 1 |
| Firefighters | ▪ Recurring in 2023 – 2024;<br>▪ Semi-fixed costs since a minimum number of firefighters must be maintained, while additional firefighters may be required if the population of District A increases. | Number of employees | 2023: 20 employees<br>2024: 30 additional employees |
| | | Maximum population that can be serviced | 200,000 |
| | | Cost per employee | 180,000 |
| | | Number of additional personnel for each 10,000-person increase in population | 1 |
| Firefighting equipment | ▪ Non-recurring costs that will be incurred in 2023-2024;<br>▪ Variable costs that vary with the number of firefighters employed. | Cost per equipment for 1 firefighter | 15,000 |
| Utilities | ▪ Recurring in 2023 – 2024;<br>▪ Semi-fixed cost since a minimum amount of utility costs will be incurred irrespective of the number of employees. | Cost per fire station employee | 20,000 |
| | | Minimum cost | 500,000 |
| Cleaning materials | ▪ Recurring in 2023 – 2024;<br>▪ Variable costs since the costs will vary with the number of individuals to be employed in 2023 and 2024. | Cost per fire station employee | 10,000 |

Estimators determine the total annual cost for each WBS component, by multiplying the cost per input with the respective number of inputs for each respective year

| Cost Input/ WBS Component | Cost per input (MDL) | 2022 | | 2023 | | 2024 | |
|---|---|---|---|---|---|---|---|
| | | No. of inputs | Cost | No. of inputs | Cost | No. of inputs | Cost |
| Construction | 23,570 | 1,000 | 23,570,000 | – | – | – | – |
| Fire trucks | 1,000,000 | – | – | 3 | 3,000,000 | 4 | 4,000,000 |
| Firefighters | 180,000 | – | – | 20 | 3,600,000 | 50 | 9,000,000 |
| Firefighting equipment | 15,000 | – | – | 20 | 300,000 | 50 | 750,000 |
| Utilities | 20,000 (minimum 500,000) | – | – | Minimum cost | 500,000 | 50 | 1,000,000 |
| Cleaning materials | 10,000 | – | – | 20 | 200,000 | 50 | 500,000 |
| **Total Annual Cost** | | | **23,570,000** | | **7,600,000** | | **15,250,000** |
| **Total Action Cost** | | | | | | | **46,420,000** |

## 3.2 Assessing the Sensitivity of Costs to Uncertainty

Costing teams should recognise that uncertainty is an integral part of any action, and that extraordinary or unforeseen events may have an impact on the actual costs of the action. Furthermore, if they occur, cost factors beyond the control of the estimators may also result in actual costs deviating from the cost estimate. Because of such uncertainties, even when cost estimates are prepared in the best possible way, the actual costs may still ultimately turn out differently. What is important is not to predict all uncertainties (which would be impossible), but to estimate how much they could affect the actual costs of the action.

In many situations the financial impact of unforeseen events may be immaterial and should not significantly concern costing teams. In other situations, the change in cost levels that could result from unforeseen events may be significant, and as a result changes to the particular measure or the overall Action Plan may be needed during the implementation to mitigate the impact of the unforeseen events on the costs. Therefore, estimators should, to the extent they are able, identify the key material events or factors that may impact costs during implementation and perform computations to assess the extent of their impact.

While various approaches may be used to perform an analysis of the sensitivity of cost estimates to uncertainties, this Manual – in line with OMF 209/2015 provisions – proposes to estimate the materiality of uncertainties by developing cost scenarios for unaccounted-for events. They may be presented as high-, medium- and low-cost scenarios, or as optimistic and pessimistic scenarios in terms of their budgetary impact.

### 3.2.1 Assessing the possible change in level of costs

A sensitivity analysis starts by identifying the particular events or factors (collectively termed *uncertainty factors*) which may have an impact on the action cost. For example, the actual costs of building and operating a fire station (***Example 2***) may deviate from the cost estimate for many reasons, such as additional construction costs due to unexpectedly difficult terrain, increased prices for firefighting equipment, unforeseen increases in the firefighters' salaries, or an increase in the population that the fire station serves. The costing team will be able to identify such factors by considering the GR&As behind the cost estimate and how they might differ in practice.

There is no need to construct a scenario for each uncertainty factor identified that might affect the costs. Instead, the costing team should consider which factors are both reasonably likely to occur and can be expected to have a large impact on costs. In practice, scenarios for assessing possible cost deviations will usually be developed for only one or two of the most important uncertainty factors.

For example:

- In ***Case Study 3*** (conducting an awareness campaign regarding the DCFTA requirement for small businesses), the costing team assumes that the Alliance of Small & Medium-sized Enterprises (ASME) will organize and finance awareness events for 150 participants. However, the costing team considers this assumption to be uncertain, and that with the number of participants being an important cost driver for the action, a failure to deliver by ASME could have a significant financial impact as the Ministry of Economic Development and Digitalization (MoEDD) would then need to organize additional events. Therefore they develop two additional cost scenarios by changing the assumption regarding the number of participants trained by ASME, to estimate how much this would increase the cost. In the medium-cost scenario, the ASME will organize events for 100 participants, while its failure to organise any event is the high-cost or "pessimistic" scenario.
- In ***Case Study 3***, the costing team also assumes that the overall participation in the workshops and roundtables organised by the MoEDD may be lower than the 300 participants assumed in the base estimate, and assess how this could reduce the cost of the action. They decide to develop three scenarios. They first establish that any participation level exceeding 250 participants has no impact on the cost estimate, while a participation of less than 200 participants will result in the highest cost decrease (low-cost scenario). In the intermediate medium-cost scenario, an attendance of 200-250 participants will have a lesser budgetary impact. Note that in this case the low-cost scenario is optimistic only from the point of view of budgetary expenditures, but not in terms of achieving the objectives of the action.
- In ***Case Study 6*** (building and running a regional hospital), the costing team considers that the hospital could need to accommodate more than the assumed number of patients, and that with the number of patients being an important cost driver of the action, this could have a significant financial impact. Therefore they develop two additional cost scenarios by changing the assumption about the number of patients to see how this would increase the cost. A 20% increase in patient numbers is assumed in the medium-cost scenario, while an increase of 50% will result in the highest impact on the budget (i.e. the high-cost or "pessimistic" scenario).

### 3.2.2 Determining the level and likelihood of cost volatility

The range of estimated costs under all scenarios informs the costing team and the decision makers about the possible ***volatility of costs***, in the sense that the actual costs may fall anywhere within the estimated range. For example, if in the low-cost (optimistic) scenario the cost of the action is

estimated at 1,000,000 MDL, whereas in the high-cost (pessimistic) scenario the cost is estimated at 1,300,000 MDL, then the estimated volatility of costs is 300,000 MDL or 30%.

It is also important to assess how likely the scenarios are to take place, meaning **the likelihood that a particular uncertainty factor will occur**. There are no particular rules for determining the likelihood of uncertainties affecting the costs during the implementation of a costed action. Rather, this should be determined based on a thorough analysis of the GR&As, as well as on prior experience both within a particular line ministry and at the governmental level. In addition, estimators may rely on the information and judgement provided by supporters and experts to estimate the likelihood of such occurrences.

### 3.2.3 Evaluating the results

Estimators evaluate the results of the sensitivity analysis by analysing the percentage change between the costs estimated by the costing team (i.e. the base estimate) and the financial impact computed under the sensitivity analysis.

The OMF provides numerical criteria for the sensitivity of costs estimates on the basis of the cost deviations in year Base +3, which is in line with the planning horizon of the MTBF. In practice, many Action Plan measures may have an implementation timespan shorter than 3 years, or the impact of uncertainty factors on costs may be higher in years other than Base +3.

To avoid such complications, this Manual recommends comparing the total costs under the sensitivity scenarios with the base estimate of the total costs of the action for the entire implementation period. The following criteria may then be applied to evaluate the sensitivity of the cost estimates:

**estimates are accurate if the variation in estimated total costs in scenarios other than the base scenario falls within the +/- 5% range;**

**estimates are stable if the variation in estimated total costs in scenarios other than the base scenario falls within the +/- 15% range;**

**estimates are unstable if the estimated total costs in scenarios other than the base scenario fall outside the +/- 15% range.**

**Example 2.4: Building a fire station – assessing the sensitivity of costs to uncertainties**

Estimators analyse recent demographic factors in District A and perform a sensitivity analysis to determine the impact on costs in the event that the district's population size exceeds the overall population estimated as needing to be serviced by factors of 10%, 20% and 30%. Given the limitations on procuring additional equipment and recruiting additional firefighters, it is assumed that the required additional capacity will be reached only in year 3. Estimators perform the analysis by assessing the additional cost inputs that may be required under the following three scenarios:

- ***Low cost increase scenario*** – population increase of 10% or 20,000 individuals;
- ***Medium cost increase scenario*** – population increase of 20% or 40,000 individuals;
- ***High cost increase scenario*** – population increase of 30% or 60,000 individuals.

On the basis of expert judgements and a brief analysis of past population data, the costing team agrees that the low and medium scenarios are reasonably likely to occur, while they consider the high-cost scenario as being an unlikely (but still possible) worst case.

| Cost Input / WBS Component | Capacity Assessment | Cost per Input (MDL) | Low | | Medium | | High | |
|---|---|---|---|---|---|---|---|---|
| | | | Additional Inputs | Financial Impact | Additional Inputs | Financial Impact | Additional Inputs | Financial Impact |
| Construction | Max. population that can be serviced – 300,000 | 23,570 | Sufficient with existing capacity | – | Sufficient with existing capacity | – | Sufficient with existing capacity | – |
| Fire trucks | Max. population that can be serviced – 300,000 | 1,000,000 | Sufficient with existing capacity | – | 1 | 1,000,000 | 1 | 1,000,000 |
| Firefighters | Max. population that can be serviced – 200,000 | 180,000 | 2 | 360,000 | 4 | 720,000 | 6 | 1,080,000 |
| Firefighting equipment | Effective number of firefighters | 15,000 | 2 | 30,000 | 4 | 60,000 | 6 | 90,000 |
| Utilities | Effective number of firefighters | 20,000 | 2 | 40,000 | 4 | 80,000 | 6 | 120,000 |
| Cleaning materials | Effective number of firefighters | 10,000 | 2 | 20,000 | 4 | 40,000 | 6 | 60,000 |
| **Total Additional Costs** | | | | **450,000** | | **1,900,000** | | **2,350,000** |

Further to the analysis, the following summary table is compiled:

| Uncertainty | Base Estimate (MDL) | Low | | Medium | | High | |
|---|---|---|---|---|---|---|---|
| | | Financial Impact | Percentage change | Financial Impact | Percentage change | Financial Impact | Percentage change |
| Increase in population in District A | 46,420,000 | 450,000 | **1%** | 1,900,000 | **4%** | 2,350,000 | **5%** |

From the analysis performed, the estimators determine that in all scenarios the impact on costs falls within the 5% limit. As a result, the costing team concludes that the estimates are accurate. Note that the difference between the highest cost increase scenario (the pessimistic one) and the base scenario, which has the lowest cost, also indicates the volatility level of the costs.

## 3.3 Structuring the cost estimate for budgeting purposes

It is important to be aware that all actions being costed, provided they are approved by the decision-makers, will be accounted for in the annual budgeting process. All the costs estimated during the costing process will impact public expenditures and should be properly reflected in the relevant budgetary planning documents. This makes it necessary to ensure that irrespective of the format in which the cost data was initially collected and organised, ultimately **the final cost estimate should be provided in a format which facilitates the annual budgeting planning process**.

This Manual provides a template for communicating the final cost estimate, i.e. the Costing and Budgeting Table (CBT; see Annex 1). The cost categories used in the CBT match the economic classification of budget expenditures used by the government for planning the annual budget and the MTBF[13].

| Key Cost Category | Description |
|---|---|
| **Personnel** | Costs of remunerations and compensations for employees, including social security and health insurance contributions. For budgeting purposes, the CBT requires the personnel costs to be separated between the existing employees and the new employees required for implementing the action. Note that this category includes only the costs of employed staff (regardless of the duration and hours of the employment contract). Payments to elements of the workforce engaged through service contracts, such as experts, technicians or cleaners, are to be accounted for under the "goods and services" category. |
| **Goods and Services** | Costs of products and services required for the activities of public institutions (for example, utilities, office supplies, expert services, transportation, rents, maintenance etc.). The costs of goods that comprise fixed assets are accounted for under the "capital investments" category. |
| **Social benefits** | Costs of social assurance and social assistance benefits provided in money or in kind to qualifying beneficiaries. Benefits paid by public entities to their employees are also included in this category (for example, indemnities following the termination of employment contracts, allowances for family members of diplomatic staff). |
| **Subsidies** | Costs of payments in the form of state aid to economic enterprises, both individual entrepreneurs and incorporated enterprises. When the subsidy is paid in the form of capital provided to the enterprise, thereby acquiring or increasing the state's ownership share, it should be accounted for under the "capital investments" category. |
| **Capital Investments** | Expenditures intended for the construction of fixed assets[14] incurred to construct, acquire, repair and upgrade (through renovation, restoration or reconstruction) physical assets such as property, plants, buildings, public infrastructure, technology, or durable goods such as IT equipment. As noted, the acquisition of ownership shares is also included in this category. |

The economic classification of the budget includes some additional groups of expenditure which for simplicity are not separately presented in the CBT, as they can be accounted for within the categories provided, specifically:

- **grants** provided by the budget to public institutions, international organizations and other beneficiaries, and **transfers** provided by the budget to local public authorities, health and social insurance funds, should be included in the CBT cost category that best captures their purpose. For example, in Case Study 2, grants are provided to public laboratories for employing additional employees and are therefore accounted for under "new personnel" in the CBT;
- **interest payments** on loans dedicated to the financing of the costed measure should, in the event they are due within the costed period of implementation, should be recorded under "goods and services", as interest is the cost paid for financial services. Any **loan repayments** due during the costed period should be recorded under "capital investments", as they comprise a transfer of financial assets;
- **other expenditures** should be included in the CBT cost category that most closely matches their intended purpose.

[13] Order of the MoF 208/2015 of 24.12.2015 on Budget Classification, with annexes and subsequent amendments.
[14] This definition follows OMF 209/2015. In the economic budget classification, transactions that constitute capital investments are recorded under the headings "Non-financial Assets" and "Financial Assets".

When such expenditures are included in the costing estimates, it is recommended to explain this in the notes to the CBT.

## 3.4 Identifying Funding Sources and Budget Coverage

Once the costs are estimated, the costing team should determine the budget coverage of the costed actions and assess whether additional funding should be obtained.

### 3.4.1 Identifying available funding sources

Estimators consult the resources allocated from the baseline budget of the line ministry (or ministries) that are part of the action plan, as well as the funding already committed from external sources prior to costing, such as committed donor grants, agreed project loans, or signed public-private partnership agreements.

Estimators should ensure that **only resources that can realistically be expected to be available** should be included. For this purpose, the following guidance should be considered:

- budgetary funding should only be included when the resources for implementation are planned in the annual budget or the MTBF document. The availability of budgetary funds should be checked and confirmed with the financial division and the MoF;
- other public financial funding should only be included when the resources for implementation are planned in the relevant and approved financial planning document, e.g. the local community budget or the financial plan of an extra-budgetary public fund or institution;
- donor funding should only be included when it will be provided from an ongoing assistance programme or approved and committed grants. Exceptions can be made for funding which is close to approval (i.e. 'in the pipeline'), but in such cases it should not be planned in as a funding source for the first year of implementation. The availability of donor funding should be checked and confirmed with the structural subdivision for coordination of external assistance and the MoF;
- the same logic that applies to donor funding applies to loan financing;
- the same level of caution should of course be exercised when planning for private co-financing, when this is included in the funding sources.

External financing for the implementation of measures and the Action Plan may be channelled through the state budget or provided as direct payment towards some measures:

- loans from development partners are always paid into the state budget and then allocated to actions supported by the loan. In ***Example 7.1***, an international financial institution could provide a loan to finance the construction of the hospital. In such cases, any debt servicing cost that will be incurred during the estimated period should be included as one of the costs of the action. Note that any foreign loans must be approved by the MoF and ratified by the Parliament. As such loans increase the budget deficit and may require national co-financing, the approval of these loans can only be granted within the available fiscal space and in line with the Government's policy priorities;
- grants from development partners may be paid into the state budget and then distributed by national authorities to fund eligible actions. In ***Example 1***, the costs of the secondary education IT infrastructure could be covered by the sectorial budget support for education reform. However, a donor organization or a technical assistance project often directly pays some of the expenses of the action, for example the fees of experts who are supporting a ministry in the drafting of a piece of legislation, training, a study tour by the ministry's personnel, or the purchase of specialized equipment. In ***Example 3***, the training for public officials could be organized and

paid for by a dedicated technical assistance project. In ***Example 7.1***, a donor organization or individual could purchase and donate a particularly expensive item of medical equipment;

- private sector co-financing may constitute a budget revenue created by the measure when secured through compulsory means such as user charges and fees. In ***Example 8***, the costs of running the patent office could be partly recovered from patent application fees collected from the private sector. But it is also possible that under public-private partnership arrangements, the private partner will directly pay some of the expenses. In ***Case Study 3***, the ASME is expected to organize training for a certain number of participants and to cover the costs directly from their own budget.

Foreign-financed projects are earmarked in the budget. They may be identified (traced) among the sources of funding (revenues from external sources have the resource classification code 2XXX, where XXX designates the development partner), as well as on the expenditure side of the budget (in the programme budget classification, activities financed from external sources have the specific activity code 7XXXX). At the end of the budget year, any unspent cash balances from external funds are transferred to the next year's budget.

When costing measures, only expenses paid from the budget should be accounted for, including loans and grants provided to the budget by development partners and special-purpose ("earmarked") fees, and charges paid into the budget by the private sector. In cases when development or private sector partners cover some costs directly, i.e. off-budget, the expected direct funding from the development partners or the private sector should not be included in the CBT but explained in the notes.

In ***Case Study 3***, the costing team assumes that the ASME will organize and finance trainings on DCFTA requirements for 150 participants. As these trainings would be organized independently by the ASME without any involvement from the ministry, the related costs and funding are not included in the cost estimate but are mentioned among the GR&As.

To summarize, the CBT requires the costing team to structure the information about funding sources under the following categories:

| Source category | Description |
|---|---|
| **Funding available from existing MTBF / budget allocations** | Resources already allocated to the relevant budget subprogramme of the implementing institution in the approved annual budget or the MTBF. The subprogramme code must be stated. |
| **Allocations from other existing budget programmes** | Resources reallocated for the implementation of the measure from other subprogrammes of the implementing institution. The code of the subprogramme from which the resources will be reallocated must be stated. |
| **Donor grants to the budget** | Grants provided by development partners and other donors to the budget and dedicated for the implementation of the measure. When donors cover some of the costs directly, these are not included in the CBT but should be explained in the notes. |
| **Dedicated loans** | Loans provided by the development partners or other lenders to the budget and dedicated for the implementation of the measure. |
| **Other public funding** | Resources provided by local budgets, health and social insurance funds or other extra-budgetary public institutions. |
| **Participation by the private sector** | Resources provided for the implementation of the measure by private partners. When private partners cover some of the costs directly, these are not included in the CBT but should be explained in the notes. |

| Source category | Description |
|---|---|
| **Budget revenues created by the measure / action** | Additional revenue collected as a direct consequence of the measure and dedicated (earmarked) for covering the costs of the measure. Examples include service fees, user charges, concession payments to the budget, etc. |
| **Adjustment of the action / measure** | The amount of costs to be saved by adjusting the scope of the measure or the intensity level of its activities. |

### 3.4.2 Identifying additional potential sources of funding

If the existing funding is not sufficient to cover the costs of a particular action or of the entire Action Plan, **the resulting funding gap should be addressed**. This may include the following **remedies**:

- reallocating available funds from lower-priority budget programmes of the line ministry to those with a higher priority, i.e. to the actions where a funding gap exists;
- increasing the cost efficiency of existing budget programmes of the line ministry, and using the savings to reduce the funding gap;
- adjusting the action plan to better match the available resources, e.g. by removing some less important actions, reducing the scope and extent of some actions (i.e. their planned outputs), and rescheduling the implementation timeline;
- seeking (additional) non-budgetary sources of funding such as international development assistance or project loans, as well as private sector co-financing;
- requesting additional budgetary allocations above the baseline budget, in line with the MTBF and budget preparation procedures defined by OMF 209/2015.

At the stage of policy planning, i.e. the C&B of a PPD, some funding gaps may be permissible when a credible plan for securing additional funds is presented. However, such potential financing cannot be part of the budgetary planning documents. This means that policy proposals with an outstanding funding gap will not be included in the MTBF and the annual budget until the required additional funding is firmly secured.

#### Revising the actions to align costs with available funding.

The costing team should perform an analysis to determine the most appropriate approach for securing additional funding to close the funding gap. Nevertheless, situations may arise where this may not be possible.

When sufficient additional funding for the planned action cannot be secured, the scope and extent of the action need to be adjusted to the available means. Costing teams should consider that the available funding must be sufficient to cover all the fixed costs and a portion of the variable ones. This will ensure that a minimum level of meaningful activities can be implemented even if full funding is not available at the time that the action plan is being costed. Following this approach, actions where available funds are not sufficient even for such minimum levels of activity should not be included in the action plan.

#### Requesting an additional budgetary allocation above the baseline budget.

Submitting a request for additional budgetary financing should be considered as the last resort for funding priority actions, i.e. when no other way of closing the funding gap is available. In practice, line ministries are expected in the first instance to provide additional funding for their priority projects and

actions from their own budgets, or by seeking external financial assistance. When foreign assistance requires national co-financing, it is included in the budget only after the donor contribution has been secured, and when sufficient fiscal space and adequate absorption capacity exist.

Requests for additional budgetary funding can only be made in accordance with the procedures for preparing the MTBF and the annual budget, as set out by OMF 209/2015. We briefly summarize these procedures below:

**The annual preparation cycle of the MTBF** starts in February, when the MoF prepares the preliminary expenditure ceilings for the next three years. These preliminary spending ceilings are determined by the baseline of existing policies, i.e. recurrent spending programmes and ongoing capital investment projects. They determine the baseline budget of the ministries and other central public authorities.

During February, the preliminary ceilings are reviewed by the Sectorial Working Groups established for each of the budget (policy) sectors. The Sectorial Working Groups may propose increasing the ceilings in order to provide financing for new policy initiatives or to expand existing policies. Any such proposals must be in line with the priorities of the Government Activity Programme, the National Development Strategy, the National Development Plan, and the strategic PPD of the respective policy sector. They must be supported by realistic and reliable cost estimates and a justification as to why they cannot be sufficiently financed from the baseline (preliminary) expenditure ceiling. New policy initiatives proposed in the context of the MTBF also need to be subjected to a multidimensional analysis based on the SC methodology set for ex-ante analysis.

The proposals for new policy initiatives are reviewed by the Working Group on Policy and Expenditure Priorities. This strategic working group comprises the MoF, the SC and the MoEDD. OMF 209/2015 provides a number of selection criteria for proposed new policy initiatives, including the evaluation of the costs of the proposals, their cost efficiency, the possibility of reallocations from existing budget programmes, and the availability of non-budgetary sources of finance. Other criteria include their contribution to the policy objectives and priorities of the proposing public authority, the time needed for it to achieve its impact, its sustainability, and the implementation capacity. The evaluation relating to costs and resources is performed by the MoF sectorial budget specialist, while the evaluation relating to the priorities is performed by the SC.

**The annual budget is prepared on the basis of the MTBF ceilings**. The coordinating institutions of the Sectorial Working Group assure the allocation of the budget between the budget institutions in the sector and between the budget programmes. The budget programme proposals must include a linkage with national and sectorial strategies as well as with the objectives of the public authority, and an explanation of the budgetary implications. These include the assumptions underlying the cost estimations; performance indicators; implementation capacity; and any important external factors and data issues.

The budget proposals are examined by the MoF branch divisions. They focus on the past execution and performance of programmes, the realism of the assumptions underlying the incomes and expenditures, and the compliance of the budget proposals with the priorities of the MTBF and sectorial spending strategies. Any unresolved issues are addressed in budget consultations between the MoF and budget users or, as a last resort, by the government.

Line ministries and other institutions coordinating the preparation and costing of Action Plans should take into account that in accordance with established procedures, requests for additional

budget funding can only be made through the Sectorial Working Groups during the February review of preliminary expenditure ceilings of the MTBF. The options for requesting additional funding during the preparation of the annual budget are strictly limited. Any funding requests must be substantiated by realistic and well-documented cost estimates, as well as by a convincing rationale for why they cannot be financed from the baseline budget allocations or by support provided by development partners.

# STEP 4. HANDOVER

The costing project is finalised by the costing team manager's signing-off of the estimate and its documentation.

The purpose of the **sign-off process** is to ensure that the line ministry proposing the action plan formally acknowledges ownership of the analysis, and that it has ensured its accuracy. For this, the line ministry must have full confidence that the financial resources required for the actions analysed have been determined on the basis of a well-thought-through process and the leveraging of acceptable computational techniques. It also needs to be fully confident that the cost estimates are reliable, free of errors, and have sufficient funding coverage.

The costing teams should also ensure that the cost estimates are **documented** in a manner that allows the estimated costs to be properly reflected in the medium-term budgetary framework (MTBF).

The Manual recommends using the Costing and Budgeting Table *(see the template in **Annex 1**)*. The CBT is based on the SC methodology set for ex-ante analysis, enhanced by the additional information needed to interpret the cost estimate and facilitate the budgeting process. The CBT helps the costing team to provide information in respect of the following:

**Program classification,** which details the codes of the sub-programs from which the measure will be financed.

**Impact on public expenditure,** which breaks down the estimated costs into five key economic categories – i.e. personnel costs; goods and services, social benefits, subsidies, and capital investments.

**Available funding,** which is used by the costing team to provide details regarding whether the estimated costs are financed from the MTBF/budget allocations, or from committed funding from other sources.

**Funding gap** in the event that additional financial resources are required in terms of their value (MDL) and as a percentage of the total estimated costs, with details on how the gap will be closed.

**Potential additional funding sources.** The costing team will provide details regarding the potentially available sources for closing the funding gap for which there is a high degree of certainty that they will be secured.

**Other information** in respect of the main assumptions made during the analysis, the calculations performed and the data and information used, plus any uncertainties relating to the cost estimates, including information about the results of the sensitivity analysis.

# Annex 1

## Costing and Budgeting Table (the CBT)

| | |
|---|---|
| **Name of action / measure:** | [Insert the title of the action / measure which is being costed] |
| **If part of a PPD, name of PPD and code of action / measure:** | [Insert code of the action/measure from the relevant Public Policy document] |
| **Responsible institution:** | [Insert the name of the CPA responsible for the action/measure] |

| FINANCIAL ESTIMATION | CURRENT YEAR | YEAR +1 | YEAR +2 | YEAR +3 | TOTAL |
|---|---|---|---|---|---|
| **1. IMPACT ON PUBLIC EXPENDITURE (BY ECONOMIC CATEGORY)** | | | | | |
| Existing personnel | | | | | |
| New personnel | | | | | |
| Goods and services | | | | | |
| Social benefits | | | | | |
| Subsidies | | | | | |
| Capital investments | | | | | |
| **2. AVAILABLE FUNDING** | | | | | |
| **2A. Funding available from existing MTBF/budget allocations** | | | | | |
| *Subprogramme code* | | | | | |
| Existing personnel | | | | | |
| New personnel | | | | | |
| Goods and services | | | | | |
| Social benefits | | | | | |
| Subsidies | | | | | |
| Capital investments | | | | | |
| **2B. Allocations from other existing budget programmes** | | | | | |
| *Code of the subprogramme from which the resources will be reallocated* | | | | | |
| Existing personnel | | | | | |
| New personnel | | | | | |
| Goods and services | | | | | |
| Social benefits | | | | | |

| FINANCIAL ESTIMATION | CURRENT YEAR | YEAR +1 | YEAR +2 | YEAR +3 | TOTAL |
|---|---|---|---|---|---|
| Subsidies | | | | | |
| Capital expenditures | | | | | |
| **2C. Committed funding from external sources** | | | | | |
| Donor grants to the budget | | | | | |
| Dedicated loans | | | | | |
| Other public funding available | | | | | |
| Participation by the private sector | | | | | |
| Budget revenues created by the action/measure (only if earmarked for implementation) | | | | | |
| **3. DIFFERENCE BETWEEN AVAILABLE FUNDING AND ESTIMATED COSTS (2-1)** | | | | | |
| Funding gap as percentage of total cost (3/1) | | | | | |
| **4. POTENTIALLY AVAILABLE ADDITIONAL MEANS TO COVER THE FUNDING GAP** | | | | | |
| Donor grants to the budget | | | | | |
| Dedicated loans | | | | | |
| Other public funding available | | | | | |
| Participation by the private sector | | | | | |
| Budget revenues created by the action/measure (only if earmarked for implementation) | | | | | |
| Adjustment of the action/measure to increase cost efficiency | | | | | |
| **5. REMAINING DIFFERENCE BETWEEN AVAILABLE FUNDING AND ESTIMATED COSTS (3+4)** | | | | | |

| EXPLANATION |
|---|
| **1. Main calculations made and data used in the estimation of costs, including ground rules and assumptions made in the estimation of costs and funding sources** |
| [Specify sources of data used in the costing. Explain the method of calculation used to estimate the cost of action/measure. Explain the ground rules and assumptions made in the process of costing. Specify whether indirect costs were included in the cost estimation. When budgetary grants, inter-budgetary transfers or debt servicing costs are included in the cost estimate, explain this here. Provide information on activities/measures which will be paid directly (i.e. off-budget) by development partners or by private sector partners. When available funding is not sufficient, explain the actions that will be taken to secure additional resources.] |
| **2. Sensitivity of cost estimates** |
| [Specify key uncertainties that may affect the costs and explain scenarios developed to estimate their financial impact. If the financial impact under any scenario is outside the +/- 15% range of the cost estimate, specify the adjustments which were made or will be made to reduce the financial impact of such uncertainty.] |

# Case Studies

## Case Study 1 Transposition of the EU directive on the common system of value added tax into the national legislation

### 1. The Purpose of the Estimate

**To determine the costs associated with the transposition of the EU directive on the common system of VAT**

### 2. Activity Description

As a result of the need to transpose Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax (the VAT Directive), in 2023 the Ministry of Finance is being tasked, as the competent institution, with determining the costs of drafting the changes to the national normative framework. As part of the transposition process, it is also required to determine the costs associated with the implementation of the directive, specifically: carrying out awareness campaigns at the business level to ensure compliance with the new requirements, and organising training activities for the civil servants who will implement the new legislation.

Similarly to previous experience, the transposition will primarily be carried out by the policy division of the Ministry of Finance, together with other supporters such as civil servants from the Ministry of Economic Development and Digitalization (MoEDD), the State Tax Service (STS), and the Customs Service (CS). Given the significant volume of changes, as well as the considerable experience of other EU countries in implementing the VAT Directive, a team of external experts will be subcontracted directly by the Ministry of Finance to assist during the entire transposition process.

### 3. Work Breakdown Structure (WBS)

| WBS Level | | | | WBS Component | WBS Code | Start month | End month (including) |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | | |
| **Transposition of VAT Directive** | | | | | | **01/2024** | **12/2025** |
| √ | | | | **Preparatory Work** | **1** | | |
| | √ | | | Set-up and functioning of the working group | 1.1 | 01/2024 | 08/2025 |
| | √ | | | Analysis of the directive and GAP analysis | 1.2 | 01/2024 | 02/2024 |
| √ | | | | **Amendments of Normative Framework** | **2** | | |
| | √ | | | Drafting of amendments to the Fiscal Code | 2.1 | 02/2024 | 12/2024 |
| | √ | | | Drafting of bylaws | 2.2 | 01/2025 | 06/2025 |
| | √ | | | Regulatory impact analysis | 2.3 | 02/2024 | 06/2025 |
| | √ | | | Public consultations | 2.4 | 01/2024 | 06/2025 |
| √ | | | | **Approval** | **3** | | |
| | √ | | | Approval by the Government of the amendments to the Fiscal Code | 3.1 | 08/2024 | 09/2024 |

| WBS Level | | | | WBS Component | WBS Code | Start month | End month (including) |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | | |
| | √ | | | Approval by the Parliament | 3.2 | 10/2024 | 12/2024 |
| | √ | | | Approval by the Government of the bylaws | 3.3 | 03/2025 | 08/2025 |
| √ | | | | **Implementation** | **4** | | |
| | √ | | | Carrying out awareness campaigns at business level | 4.1 | 01/2025 | 10/2025 |
| | √ | | | Organising training activities for civil servants | 4.2 | 08/2025 | 12/2025 |

## 4. Ground Rules and Assumptions

- The transposition measure will primarily be carried out by civil servants from the Ministry of Finance and other government institutions, with input from external experts contracted directly by the line ministry.
- The average salary costs are estimated on the basis of Law 270/2018 on the single salary system in the budget sector.
- The time spent by the civil servants and external experts on previous transposition actions may be taken as indicative of the time that will be spent on the analysed action.
- Awareness campaigns (WBS 4.1) will consist of roundtables with the business community and will be carried out by subcontracting a third-party service provider to provide premises and accommodation for the events. The costs are determined on the basis of expenses incurred at similar events in the past with a comparable number of participants. The cost data for the conducting of public events was validated against the norms contained in Government Decision No.1151/2002 for the approval of the Regulation on the cost norms for the conducting of various events for institutions financed from the national budget.
- Training activities for civil servants (WBS 4.2) will be carried out at the premises of the Ministry of Finance. The number of civil servants participating in training activities is estimated to be 50 individuals, primarily main consultants at the level of the subordinate institution.
- It is assumed that one month contains 20 working days on average, and that a working day equals 8 hours.

## 5. Cost Factors

No significant framework cost factors are identified. The main cost drivers of this action will be the time required to transpose and approve the normative changes; the number of participants; and the duration of the awareness and training activities.

## 6. Cost Estimating Methodology

- The bottom-up method was selected for determining all the costs for the civil servants who will be involved in the transposition process, including awareness and training campaigns, as well as the costs associated with the expert work. For each component, the cost was determined to be the product between the daily cost of the work performed by the civil servants and the estimated number of working days required to complete the work.
- The top-down (analogy) method was selected for determining all the other associated external costs, based on previous experience with carrying out awareness and training activities.

## 7. Data Collection

The costing team proceeds with data collection and gathers information from various supporters.

The policy division announces that similarly to other actions involving the transposition of EU directives, a working group comprised of civil servants from various government institutions should be established. Using prior experience as a guide, the following team composition is determined.

| Specialist | Institution | Functional Division | Position | Role and Responsibilities |
|---|---|---|---|---|
| Specialist 1 | Ministry of Finance | Management | Secretary of State | Responsible for the overall transposition activity; approves the final wording of the normative changes; key contact point during discussions with the Parliament's standing committees. |
| Specialist 2 | | Policy Division | Main Consultant (Central Level) | Preparation of draft normative framework; organises and acts as the main liaison within the working group; reviews and performs changes following input received from other stakeholders; provides support during discussions with the Parliament's standing committees. |
| Specialist 3 | Ministry of Economic Development and Digitalization | Policy Division | Chief of Division (Central Level) | Support with assessing the economic impact of the directive's transposition; providing expert answers to questions raised by stakeholders. |
| Specialist 4 | State Tax Service | Methodological Division | Chief of Section (Subordinated Institution) | Support with respect to identifying the gaps in local tax legislation that need to be harmonised with the EU VAT directive. |
| Specialist 5 | Customs Service | Methodological Division | Chief of Division (Subordinated Institution) | Support with respect to identifying the gaps in local customs legislation that need to be harmonised with the EU VAT directive. |
| Specialist 6 | State Chancellery | Expertise Directorate for compatibility with European legislation | Main Consultant | Support in assessing the compliance of proposed changes to the normative framework of the EU VAT Directive. |
| Specialist 7 | | Legal Compliance Division | Main Consultant | Verification of, and ensuring the compliance of, the draft normative framework versus the specific requirements concerning the adoption of legislation. |

Using the results from the discussions with the financial division, the costing team gathers salary data[15] for civil servants, as well as indicative information on the service fees commonly charged by third-party experts. In addition, estimators gather data on the costs for accommodation and premises charged by third-party service providers, based on events organised in the past.

The costing team approaches the human resources departments of STS and CS to enquire about the training needs. It is established that 50 civil servants, mostly main consultants, will need to be trained on the implementation of the directive.

[15] For the purpose of the case studies included in this Costing Manual, and unless otherwise stipulated, all employee-related remuneration is expressed as gross amounts.

| Position | Cost Grouping | Monthly Salary Cost (MDL) | Daily Salary Cost (MDL) | Service Fee - Workday(MDL) | Service Fee (MDL) |
|---|---|---|---|---|---|
| Secretary of State | Existing personnel | 22,000 | 1,100 | | |
| Main Consultant (central level) | Existing personnel | 10,000 | 500 | | |
| Main Consultant (subordinate institution) | Existing personnel | 9,000 | 450 | | |
| Chief of Division (central level) | Existing personnel | 17,000 | 850 | | |
| Chief of Division (subordinate institution) | Existing personnel | 16,000 | 800 | | |
| Chief of Section (subordinate institution) | Existing personnel | 13,000 | 650 | | |
| Experts | Goods and Services | | | 4,000 | |
| Premises and accommodation costs | Goods and Services | | | | 150,000 |

## 8. Documenting Collected Data

| Action Performed | Action Description |
|---|---|
| Purpose of data collection | Determining the costs required for the transposition of the EU directive on the common system of VAT into the national legislation |
| Period of data collection | 03/2023 – 05/2023 |
| Sources of data collected | ▪ Regulated costs – salaries of civil servants working within the public administration;<br>▪ Historic costs – service fees for external experts involved on previous transposition actions;<br>▪ Own collection of data and information: time spent by civil servants and experts on previous transposition actions; training needs of civil servants for implementation;<br>▪ Reference market prices – service fees for premises and accommodation services in connection with comparable previous activities. |
| Type of data collected | ▪ Personnel – salaries of civil servants working for the public administration;<br>▪ Goods and services:<br>– service fees paid to experts on previous transposition actions;<br>– premises and accommodation costs paid in connection with comparable activities in the past. |
| Period for which data collected | 10/2022 – 12/2022 |
| Data normalisation procedures | No data normalisation required. |
| Data location | ▪ The data collected is available, and can be accessed on the network drive of the Ministry of Finance. |

## 9. Cost analysis

| Cost Input / Categories | | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|---|
| Existing personnel | Civil servants | √ | | √ | | √ | | |
| Goods and Services | Experts | √ | | √ | | √ | | |
| | Premises | √ | | | √ | √ | | |

## 10. Cost Estimation

The costing team proceeds with estimating the financial resources associated with the transposition of the VAT Directive by determining:

- internal costs, which consist of the salaries of the civil servants working on the transposition of the directive, including on campaign awareness and training activities, and the salaries of the civil servants participating in the training;
- external costs, which consist of the third-party costs incurred by the Ministry of Finance that are associated with expert assistance, as well as expenses to be invoiced by third-party service providers for premises and accommodation during the awareness campaign activities;
- the allocation of costs between budgetary periods, because some activities have a duration that extends beyond a single budgetary period;
- total action costs, comprising the sum of the internal and the external costs.

The costing team considers the following four steps to determine the costs of the measure and to allocate them between budgetary periods:

| Step | Approach |
|---|---|
| 1. Determine the number of days to be spent by the members of the working group in transposing the VAT Directive for each activity (WBS)<br><br>Determine the number of days that civil servants will spend on taking part in training | Computed on the basis of the number of days spent by civil servants on comparable activities.<br><br>Computed on the basis of the assessments of training needs by STS and CS human resources departments. |
| 2. Determine the costs for each activity | ▪ Internal costs are computed as the product of the number of days worked by civil servants multiplied by the corresponding salary cost.<br>▪ External costs are determined on the basis of the daily rate for experts, as well as on the cost of premises and accommodation provided by third-party service providers. |
| 3. Allocate costs between different budgetary periods for each activity, expressed as a percentage | ▪ If an activity is performed entirely during a single budgetary period, all costs are allocated to that respective period.<br>▪ If an activity is carried out during more than one budgetary period, the costs are allocated on the basis of prior experience. |
| 4. Determine the costs for each budgetary period and activity | Computed on the basis of the costs determined for each activity (step 2) and the allocated percentage (step 3), |

## 10.1. Estimation of internal costs

### Step 1: Determine the number of days to be spent by the members of the working group and training participants, per each activity (WBS)

| Specialist | Institution | Functional Division | Position | Time spent per activity (WBS Code) | | | | | | | | | | | Total Days |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | |
| Specialist 1 | Ministry of Finance | Management | Secretary of State | 2 | 0.5 | 3 | 5 | 1 | 0.5 | 2 | 3 | 3 | - | - | 20 |
| Specialist 2 | Ministry of Finance | Policy Division | Main Consultant (Central Level) | 7 | 3 | 20 | 30 | 10 | 2 | 12 | 5 | 15 | 1 | 3 | 108 |
| Specialist 3 | Ministry of Economic Development and Digitalization | Policy Division | Chief of Division (Central Level) | 4 | 1 | 5 | 3 | 1 | 0.5 | 3 | 0 | 3 | 0 | 0 | 20.5 |
| Specialist 4 | State Tax Service | Methodological Division | Chief of Section (Subordinate Institution) | 7 | 1 | 10 | 9 | 1 | 0.2 | 5 | - | 6 | 1 | 3 | 43.2 |
| Specialist 5 | Customs Service | Methodological Division | Chief of Division (Subordinate Institution) | 5 | 1 | 10 | 9 | 1 | 0.2 | 5 | - | 6 | 1 | 3 | 41.2 |
| Specialist 6 | State Chancellery | Expertise Directorate for compatibility with European legislation | Main Consultant (Central Level) | 6 | 0.5 | 2 | 3 | - | 0.1 | 1 | - | 1 | - | - | 13.6 |
| Specialist 7 | State Chancellery | Legal Compliance Division | Main Consultant (Central Level) | - | - | - | - | 0.1 | - | 5 | - | 6 | - | - | 11.1 |
| Training participants (50 officials) | State Tax Service/Customs Service | | Main Consultant (Subordinate Institution) | - | - | - | - | - | - | - | - | - | - | 100 | 100 |
| **Total** | | | | **31** | **7** | **50** | **59** | **14.1** | **3.5** | **33** | **8** | **40** | **3** | **109** | **357.6** |

**Step 2: Determine the costs for each activity** (multiply estimated days by daily salary)

| Specialist | Salary costs per activity (WBS Code) | | | | | | | | | | | Personnel Costs, MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | |
| Specialist 1 | 2,200 | 550 | 3,300 | 5,500 | 1,100 | 550 | 2,200 | 3,300 | 3,300 | - | - | 22,000 |
| Specialist 2 | 3,500 | 1,500 | 10,000 | 15,000 | 5,000 | 1,000 | 6,000 | 2,500 | 7,500 | 500 | 1,500 | 54,000 |
| Specialist 3 | 3,400 | 850 | 4,250 | 2,550 | 850 | 425 | 2,550 | - | 2,550 | - | - | 17,425 |
| Specialist 4 | 4,550 | 650 | 6,500 | 5,850 | 650 | 130 | 3,250 | - | 3,900 | 650 | 1,950 | 28,080 |
| Specialist 5 | 4,000 | 800 | 8,000 | 7,200 | 800 | 160 | 4,000 | - | 4,800 | 800 | 2,400 | 32,960 |
| Specialist 6 | 3,000 | 250 | 1,000 | 1,500 | - | 50 | 500 | - | 500 | - | - | 6,800 |
| Specialist 7 | - | - | - | - | 50 | - | 2,500 | - | 3,000 | - | - | 5,550 |
| Training participants (50 officials) | - | - | - | - | - | - | - | - | - | - | 45,000 | 45,000 |
| **Total** | **20,650** | **4,600** | **33,050** | **37,600** | **8,450** | **2,315** | **21,000** | **5,800** | **25,550** | **1,950** | **50,850** | **211,815** |

### Step 3: For each activity, allocate costs between different budgetary periods

| Year | Allocation (%) per year and per activity (WBS Code) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 |
| 2023 (Current Year) | - | - | - | - | - | - | - | - | - | - | - |
| 2024 | 50% | 100% | 100% | 0% | 75% | 60% | 100% | 100% | 0% | 0% | 0% |
| 2025 | 50% | 0% | 0% | 100% | 25% | 40% | 0% | 0% | 100% | 100% | 100% |
| 2026 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

### Step 4: Determine the costs for each budgetary period and for each activity (multiply total costs of activity by the share of costs incurred in a given year)

| Year | Salary costs per year, per activity (WBS Code) | | | | | | | | | | | Personnel Costs, MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | |
| 2023 (Current Year) | - | - | - | - | - | - | - | - | - | - | - | - |
| 2024 | 10,325 | 4,600 | 33,050 | - | 6,338 | 1,389 | 21,000 | 5,800 | - | - | - | 82,502 |
| 2025 | 10,325 | - | - | 37,600 | 2,113 | 926 | - | - | 25,550 | 1,950 | 50,850 | 129,314 |
| 2026 | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total** | **20,650** | **4,600** | **33,050** | **37,600** | **8,450** | **2,315** | **21,000** | **5,800** | **25,550** | **1,950** | **50,850** | **211,815** |

## 10.2. Estimation of external costs

### Step 1: Determine the number of days to be spent by the experts on each activity (WBS)

| Specialist | Time allocation per activity (WBS Code) | | | | | | | | | | | Total Days |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | |
| Experts commissioned directly by the Ministry of Finance (days) | - | - | 20 | 20 | 10 | - | - | - | - | 5 | 5 | 60 |
| **Total** | **-** | **-** | **20** | **20** | **10** | **-** | **-** | **-** | **-** | **5** | **5** | **60** |

### Step 2: Determine the costs for each activity

| Specialist | Third-party costs per activity (WBS Code) | | | | | | | | | | | Total Costs, MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | |
| Experts commissioned directly by the Ministry of Finance (days) | - | - | 80,000 | 80,000 | 40,000 | 0 | 0 | 0 | 0 | 20,000 | 20,000 | 240,000 |
| Services contracted from third parties (MDL) | - | - | - | - | - | - | - | - | - | 150,000 | 0 | 150,000 |
| **Total** | **-** | **-** | **80,000** | **80,000** | **40,000** | **-** | **-** | **-** | **-** | **170,000** | **20,000** | **390,000** |

## Step 3: For each activity, allocate costs between different budgetary periods

| Year | Allocation key (%) per year and per activity (WBS Code) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 |
| 2023 (Current Year) | - | - | - | - | - | - | - | - | - | - | - |
| 2024 | 50% | 100% | 100% | 0% | 75% | 60% | 100% | 100% | 0% | 0% | 0% |
| 2025 | 50% | 0% | 0% | 100% | 25% | 40% | 0% | 0% | 100% | 100% | 100% |
| 2026 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

## Step 4: Determine the costs for each budgetary period and for each activity

| Year | Costs per year for each activity (WBS Code) | | | | | | | | | | | Total Costs, MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | |
| 2023 (Current Year) | - | - | - | - | - | - | - | - | - | - | - | - |
| 2024 | - | - | 80,000 | - | 30,000 | - | - | - | - | - | - | 110,000 |
| 2025 | - | - | - | 80,000 | 10,000 | - | - | - | - | 170,000 | 20,000 | 280,000 |
| 2026 | - | - | - | - | - | - | - | - | - | - | - | 0 |
| **Total** | **-** | **-** | **80,000** | **80,000** | **40,000** | **-** | **-** | **-** | **-** | **170,000** | **20,000** | **390,000** |

### 10.3. Estimation of total internal and external costs

| Cost Input / WBS Component | Cost Grouping | Value, MDL |
|---|---|---|
| **Transposing the EU directive on the common system of VAT into the national legislation** | | |
| Set-up and functioning of the working group (WBS 1.1) | Existing personnel | 20,650 |
| Analysis of the directive and GAP analysis (WBS 1.2) | Existing personnel | 4,600 |
| Drafting of amendments to the Fiscal Code (WBS 2.1) | Existing personnel | 33,050 |
| | Goods and services (experts) | 80,000 |
| Drafting of bylaws (WBS 2.2) | Existing personnel | 37,600 |
| | Goods and services (experts) | 80,000 |
| Regulatory impact analysis (WBS 2.3) | Existing personnel | 8,450 |
| | Goods and services (experts) | 40,000 |
| Public consultations (WBS 2.4) | Existing personnel | 2,315 |
| Approval by the Government of the amendments to the Fiscal Code (WBS 3.1) | Existing personnel | 21,000 |
| Approval by the Parliament (WBS 3.2) | Existing personnel | 5,800 |
| Approval by the Government of the bylaws (WBS 3.2) | Existing personnel | 25,550 |
| Carrying out awareness campaigns at the level of businesses (WBS 4.1) | Existing personnel | 1,950 |
| | Goods and services (experts, premises and accommodation) | 170,000 |
| Organising training activities for civil servants (WBS 4.2) | Existing personnel | 50,850 |
| | Goods and services (experts) | 20,000 |
| **Total Action Cost** | | **601,815** |

## 11. Sensitivity Analysis

Given the previous experience with the transposition of EU directives, the costing team is confident that the work breakdown structure provides a fair reflection of the activities to be carried out, and does not assess that any major uncertainty factors could significantly impact the cost estimation. As a result, all the costs are deemed to be stable, and no separate sensitivity analysis is performed.

## 12. Funding and Budget Coverage

From the input provided by the financial division and policy division, the following conclusions are reached:

- Sufficient financial resources exist within the baseline to:
  - fully cover all internal (salary) costs of the civil servants responsible for the transposition of the VAT Directive (WBS 1.1–3.3), as well as the carrying out of the implementation activities and participation in training (WBS 4.1 and 4.2);
  - fully cover external (expert) costs for assistance in making amendments to the normative framework (WBS 2.2), as well as for training activities (WBS 4.2);
  - partially cover external (expert) costs for awareness activities (WBS 4.1) in the amount of 50% of the expenses.

- No financial resources are available to cover the external (expert) costs for assistance with preparing the Regulatory Impact Analysis (RIA).

The Ministry of Finance (MF) will apply for a donor grant to cover the funding gap that was determined after the costing analysis.

## 13. Documenting Cost Estimates (the CBT)

| | |
|---|---|
| Name of action / measure | Transposition of the EU directive on the common system of VAT into the national legislation |
| If part of a PPD, name of PPD and code of action / measure | [To be inserted by the Ministry of Finance] |
| Responsible institution | Ministry of Finance |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **1. Impact on public expenditure (by economic category)** | **0** | **192,502** | **409,314** | **0** | **601,815** |
| Existing personnel | 0 | 82,502 | 129,314 | 0 | 211,815 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 110,000 | 280,000 | 0 | 390,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2. Available funding** | **0** | **162,502** | **314,314** | **0** | **476,815** |
| **2A. Funding available from existing MTBF/budget allocations** | 0 | 162,502 | 314,314 | 0 | 476,815 |
| *[Subprogramme code]* | | | | | |
| Existing personnel | 0 | 82,502 | 129,314 | 0 | 211,815 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 80,000 | 185,000 | 0 | 265,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2B. Allocations from other existing budget programmes** | 0 | 0 | 0 | 0 | 0 |
| *[Code of the subprogramme from which the resources will be reallocated]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 0 | 0 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **2C. Committed funding from external sources** | 0 | 0 | 0 | 0 | 0 |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| **3. Difference between available funding and estimated costs (2-1)** | **0** | **-30,000** | **-95,000** | **0** | **-125,000** |
| Funding gap as a percentage of total cost (3/1) | 0.0% | -15.6% | -23.2% | 0.0% | -20.8% |
| **4. Potentially available additional means to cover the funding gap** | **0** | **30,000** | **95,000** | **0** | **125,000** |
| Donor grants to the budget | 0 | 30,000 | 95,000 | 0 | 125,000 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| Adjustment of the action/measure to increase cost efficiency | 0 | 0 | 0 | 0 | 0 |
| **5. Remaining difference between available funding and estimated costs (3+4)** | **0** | **0** | **0** | **0** | **0** |

**EXPLANATION**

**1. Main calculations made and data used in the estimation of costs, including ground rules and assumptions made in the estimation of costs and funding sources**

- The transposition measure will primarily be carried out by civil servants from the Ministry of Finance and other government institutions, including inputs from external experts contracted directly by the MoF.
- The average salary costs are estimated on the basis of Law 270/2018 on the single salary system in the budget sector.
- The time spent by the civil servants, as well as by external experts, on previous transposition actions may be taken as indicative of the time that will be spent on the action analysed.
- Awareness campaigns will consist of roundtables with the business community, and will be carried out by subcontracting a third-party service provider to provide premises and accommodation for the events. The costs are determined on the basis of expenses incurred at similar events in the past that involved a comparable number of participants. The cost data for the carrying out of public events was validated on the basis of the norms contained in Government Decision 1151/2002 for the approval of the Regulation on the cost norms for the conducting of various events for institutions financed from the national public budget.

- Training activities for civil servants will be carried out at the premises of the Ministry of Finance. The number of civil servants participating in training activities is estimated at 50 individuals, primarily main consultants at the institutional level.
- It is assumed that one month has 20 working days on average, and that one working day comprises 8 hours.
- Indirect costs are considered insignificant and were not estimated.
- The estimated funding gap is expected to be covered by donor grants to be requested by the MoF.

**2. Sensitivity of cost estimates**

Given the previous experience with transposition of EU directives, the costing team is confident that the estimate provides a fair reflection of the activities to be carried out and does not assess any cost factors that could significantly impact the costs. As a result, the cost estimate is deemed to be stable, and no separate sensitivity analysis is required.

# Case Study 2 Strengthening the National Food Safety Agency

## 1. Purpose of the Estimate

**Determine the costs associated with strengthening the National Food Safety Agency (ANSA)**

## 2. Activity Description

An extensive body of EU law regulates food safety requirements in the areas of production, processing and trade. In Moldova, food safety is entrusted to ANSA (Agentia Națională pentru Siguranta Alimentelor), which has 23 territorial subdivisions and 7 border inspection posts.

The proposed measure addresses the requirements of the Resolution on the Implementation of the Association Agreement with the Republic of Moldova adopted by the European Parliament in May 2022. The resolution called on Moldova to:

- modernise the national laboratories responsible for sanitary and phytosanitary analysis;
- expand and strengthen the network of laboratories; and
- tackle the shortage of qualified laboratory specialists and inspectors, and improve their training.

In July 2022, the estimation team is tasked with determining the costs that will be incurred for the measure, which is expected to commence in March 2023.

## 3. Work Breakdown Structure (WBS)

| WBS Level | | | | WBS Component | WBS Code | Start month | End month (including) |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | | |
| **Strengthening ANSA** | | | | | | **03/2023** | **12/2025** |
| √ | | | | **Modernization of public laboratories** | **1** | **03/2023** | **09/2025** |
| | √ | | | Modernization of two public laboratories | 1.1 | 03/2023 | 09/2025 |
| √ | | | | **Strengthening the network of laboratories** | **2** | **06/2023** | **12/2025** |
| | √ | | | Employment of additional laboratory specialists in public institutions | 2.1 | 06/2023 | 12/2023 |
| | √ | | | Induction training for new laboratory specialists | 2.2 | 07/2023 | 02/2024 |
| | √ | | | Additional payments for the services of the public laboratories | 2.3 | 01/2024 | 12/2025 |
| | √ | | | Additional payments for the services of the contracted laboratories | 2.4 | 03/2024 | 12/2025 |
| √ | | | | **Strengthening inspections** | **3** | **06/2023** | **01/2025** |
| | √ | | | Employment of additional inspectors | 3.1 | 06/2023 | 12/2024 |
| | √ | | | Induction training for new inspectors | 3.2 | 06/2023 | 01/2025 |

## 4. Cost Factors

No significant framework cost factors are identified.

## 5. Data Collection

The costing team proceeds with its data collection and gathers information from various supporters.

From discussions with the policy division regarding the approach to be taken for implementing the measure, the costing team obtains the following details about the measure's activities and targets:

- Modernisation of the national laboratories responsible for sanitary and phytosanitary analysis needs to be performed for two laboratories over the next three years.
- The expansion and strengthening of the network of laboratories will not be achieved by the construction of new laboratories, but by commissioning additional services from existing laboratories (both public and contracted) already servicing ANSA.
- The number of laboratory specialists working in public laboratories needs to increase by 20% compared to the number of public laboratory personnel in 2022. In order to support the employment of additional personnel, a special transfer from the national budget to the public laboratories will be performed in 2023 to enable new employees to be hired already during this year. Starting in 2024, the salaries of the employees will be financed by the public laboratories' own revenues, supported by an increase in the budgetary payments for their services.
- To improve the balance between the public institutions founded by ANSA and contracted providers, the payments to public-institution laboratories will gradually increase by 20% over the next three years compared to the 2022 budget, whereas the payments to contracted laboratories will increase by 40% over the same period.
- Because the hiring of new employees of public laboratories will be financed from the national budget in 2023, no additional payments (besides those already planned) will be made to them in that year. Additional payments will commence in 2024 with a 15% increase compared with the planned budget for 2022, and will continue in 2025 with a 20% increase compared with the 2022 baseline.
- Payments to the contracted laboratories will increase gradually by 5% (2023), 15% (2024) and 40% (2025) compared with the planned budget for 2022.
- The number of inspectors working at ANSA should be increased to ensure that the number of inspections in 2024 and 2025 meets the targets set in relation to ANSA's performance in 2021. Specifically:
  - in 2024 the number of inspections planned and performed must reach the target for planned inspections previously set for 2021;
  - in 2025 the total number of checks (planned and unannounced) must further increase by 20% compared with the total number of planned and unannounced inspections in 2021.
- As an indication regarding the number of additional inspectors needed to meet the targets, the policy division informs the costing team that during the recent study visit to the Slovenian Food Safety Agency, it was learned that in Slovenia a single agency inspector performs an average of 160 checks per year.

From discussions with the financial division and an analysis of budget data, the costing team gathers the following financial data on ANSA's operations:

- The total annual budget of ANSA in 2022 is MDL 255,030,700.
- Payments for laboratory services from the national budget in 2022 are planned to be MDL 7,398,700 for public institutions and MDL 2,567,500 for contracted laboratories.

- The funding provided from the national budget for the sub-programme "Developing the capacities of laboratories in the field of food safety and animal health of CRDV[16] (Chisinau, Cahul, Donduseni)", comprised MDL 17,000,000 in 2020 and MDL 9,956,300 MDL in 2021.
- The average monthly salary in 2022 of a laboratory specialist is MDL 10,000, MDL 8,500 for an inspector and MDL 10,500 for a senior inspector.

Being unable to arrange a meeting with ANSA to enquire about further details, the costing team gathers the following information from ANSA's website, reports on inspections, and the annual financial reports of public laboratories:

- The total staff of the agency currently includes over 1,400 persons, of whom most are specialists with civil servant status.
- In 2021, ANSA inspectors performed 10,901 planned inspections, which was 10% short of the total number of planned inspections (i.e. 12,112), partly due to the shortage of inspectors or lapses by them.
- In addition to the planned inspections, 3,636 unannounced checks were also carried out in 2021.
- The network of laboratories providing services to ANSA currently includes 3 public institutions and 16 contracted laboratories. In the public institutions, ANSA exercises founder's rights, but they are mainly financed by the income received for their services.
- In total, 181 employees work in public laboratories in the Republic of Moldova. The public laboratories are the Central Phytosanitary Laboratory with 39 employees, the Central Testing Laboratory of Alcoholic/Non-Alcoholic Beverages and Canned Products with 42 employees, and the Republican Centre for Veterinary Diagnostics with 100 employees. The annual reports do not describe the structure of the staff, with the exception of the Central Testing Laboratory of Alcoholic/Non-Alcoholic Beverages and Canned Products, which states that 29 out of its 42 employees are laboratory specialists.

## 6. Ground Rules and Assumptions

Regarding the modernization of laboratories (WBS 1.1):

- The CRDV modernisation costs for incurred in Chisinau, Cahul and Donduseni in 2020 and 2021 can be taken as indicative of the costs to be incurred for the modernisation of the two public laboratories responsible for sanitary and phytosanitary analysis. Because the modernisation activities will be carried out over three years, the following allocation of costs between different budgetary periods is envisaged: 20% (2023), 50% (2024), and 30% (2025).

Regarding the employment and training of laboratory specialists in public laboratories (WBS 2.1, 2.2):

- Given the limited amount of information on the number of laboratory specialists in public institutions, it is assumed that the share of laboratory specialists in relation to the total number of employees in the Central Testing Laboratory of Alcoholic/Non-Alcoholic Beverages and Canned Products (for which data exists) can be taken as indicative of the share of laboratory specialists in all public laboratories in the Republic of Moldova.
- New laboratory specialists will be employed from mid-2023 at the main consultant grade and will be located within the existing premises. Given that new hiring will likely take place in some months during the second half of 2023, for cost estimation purposes it is assumed that the new employees will work for an average of three months in 2023. The induction training will be delivered by their senior peers at the cost of the respective public laboratories, and will not represent a cost to the budget.

[16] CRDV - Centrul Republican de Diagnostic Veterinar - Republican Centre for Veterinary Diagnostics

Regarding employment and training of ANSA inspectors (WBS 3.1, 3.2):

- New inspectors will be employed from mid-2023 and throughout 2024 and will be located at existing premises. Because the new hiring will likely take place intermittently, for cost estimation purposes it is assumed that those employed in 2023 will work for an average of three months during 2023, and that those employed in 2024 will work for an average of six months during that same year.
- The induction training for new inspectors will be delivered according to the following schedule: 2023 (one training session), 2024 (two training sessions), 2025 (one training session). Each training session will have a duration of 3 days and will be delivered by two senior inspectors. The planned timing of training sessions implies the following allocation of costs for the respective budgetary periods: 25% (2023), 50% (2024), 25% (2025).
- The Slovenian practice can be taken as a benchmark for the purpose of determining the number of inspectors that need to be employed to reach the targets set for the annual number of inspections.
- It is assumed that one month has 20 working days on average, and that one working day comprises 8 hours.

## 7. Cost Estimating Methodology

| Cost Input / WBS Component | Cost Estimation Method | Description |
|---|---|---|
| Modernization of two public laboratories (WBS 1.1) | Analogy | Based on historic costs associated with modernisation of CRDVs in Chisinau, Cahul and Donduseni. |
| Employment of additional specialists in public laboratories (WBS 2.1) | Bottom-up | Based on the number of new laboratory specialists in the public institutions and the average salary costs. Only for 2023, when these expenses will be covered by a budgetary transfer. |
| Induction training for new specialists (WBS 2.2) | – | Since public laboratories are financed from their own resources, no payments from the public budget are needed to cover these expenses. |
| Additional payments for the services of public laboratories (WBS 2.3) | Bottom-up | Based on the planned payments from the national budget for 2022 and the target increases to strengthen the network of public laboratories. |
| Additional payments for the services of contracted laboratories (WBS 2.4) | Bottom-up | Based on the planned payments for 2022 from the national budget and the target increases to strengthen the network of contracted laboratories. |
| Employment of additional inspectors (WBS 3.1) | Bottom-up | Based on the target number of inspections, the benchmark is the average number of inspections carried out by an inspector in Slovenia and the salary costs of inspectors working at ANSA. |
| Induction training for new inspectors (WBS 3.2) | Bottom-up | Based on the salary costs for senior ANSA inspectors. |

## 8. Documenting Collected Data

| Action Performed | Action Description |
|---|---|
| Purpose of data collection | Determine the costs required to strengthen the National Food Safety Agency |
| Period of data collection | 07/2022 – 12/2022 |
| Sources of data collected | ▪ Budget data:<br>– allocations for the modernisation of public laboratories (i.e. CRDV Chisinau, Cahul and Donduseni) in 2020 and 2021;<br>– budget of ANSA allocated for services provided by public and private laboratories in 2022.<br>▪ Data from institutional reports:<br>– inspections planned and performed by ANSA in 2021;<br>– employment in public laboratories in 2021.<br>▪ Own collection of data and information: average number of inspections per year performed by an inspector of the Slovenian Food Safety Agency.<br>▪ Regulated costs – salaries of laboratory specialists, as well as of inspectors and senior inspectors employed by ANSA; |
| Type of data collected | ▪ Personnel – salaries of laboratory specialists, as well as of inspectors and senior inspectors employed by ANSA;<br>▪ Capital investments - modernisation costs of public laboratories (i.e. CRDV Chisinau, Cahul and Donduseni) in 2020 and 2021.<br>▪ Goods and services – planned increases of payments from the national budget to public and contracted laboratories.<br>▪ Budgetary transfer – transfer to public laboratories for new employment in 2023 (to be estimated). |
| Period for which data collected | 10/2022 – 12/2022 |
| Data normalisation procedures | No data normalisation performed. |
| Data Location | ▪ The data collected is available and can be accessed on the network drive of the Ministry of Agriculture and Food Industry. |

## 9. Cost analysis

| Cost Input / Categories | | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|---|
| Existing Personnel | Senior inspectors | √ | | √ | | √ | | |
| New personnel | Laboratory specialists | √ | | √ | | | | √ |
| New personnel | Inspectors | √ | | √ | | | | √ |
| Goods and Services | Payment to public and contracted laboratories | √ | | √ | | | | √ |
| Capital investments | Modernisation of two laboratories | √ | | | √ | √ | | |

# 10. Cost Estimation

The costing team proceeds to determine the financial resources required for strengthening the National Food Safety Agency. For this purpose, estimators first compute the costs for each individual activity (WBS component), and then determine the final costs for the overall action.

## 10.1. Modernization of two public laboratories (WBS 1.1)

The costing team estimates the costs associated with the modernisation of the public laboratories by reference (i.e. using analogy) to the costs incurred from the national budget for the modernisation of CRDV Chisinau, Cahul and Donduseni in 2020 and 2021.

| Cost Category | Total Costs (MDL) |
|---|---|
| Cost of modernization of CRDV in Chisinau, Cahul and Donduseni in 2020 | 17,000,000 |
| Cost of modernization of CRDV in Chisinau, Cahul and Donduseni in 2021 | 9,956,300 |
| Average cost of modernization of CRDV in Chisinau, Cahul and Donduseni (per lab) | 8,985,433 |
| **Total cost for modernization of 2 labs (analysed activity)** | **17,970,867** |

## 10.2. Employment of additional specialists in public laboratories (WBS 2.1)

The costing team estimates the costs associated with the employment of additional specialists, taking into account the assumed target of a 20% increase in headcount. Given that no information is available on the number of specialists in the laboratories, estimators first determine the total number of employees (specialists and non-specialists) and then, using the data available for the Central Testing Laboratory of Alcoholic/Non-Alcoholic Beverages and Canned Products Laboratory, compute the number of specialists.

| Cost Category | Value |
|---|---|
| Current number of laboratory specialists: | |
| – current total employment in laboratories - public institutions | 181 |
| – share of all employees represented by specialists, based on data for the Central Testing Laboratory of Alcoholic/Non-Alcoholic Beverages and Canned Products Laboratory | 69% |
| – estimated current number of specialists in all public laboratories | 125 |
| Targeted number of additional specialists to be employed in 2023 (based on the 20% target increase) | 25 |
| Monthly salary of one laboratory specialist, MDL | 10,000 |
| Costs in 2023 - assumed average employment for 3 months, MDL | 750,000 |
| Costs in 2024 and 2025 (employees paid from revenues of laboratories), MDL | 0 |
| **Total cost for employing new specialists in public laboratories, MDL** | **750,000** |

## 10.3. Induction training for new laboratory specialists (WBS 2.2)

Since public laboratories are financed from their own resources, no payments from the public budget will be required to cover these expenses.

## 10.4. Additional payments for services of public laboratories (WBS 2.3)

The costing team estimates the costs associated with additional payments from the national budget to public laboratories for specialised services in the context of the planned increase in payments in 2024 and 2025.

| Cost Category | Value |
|---|---|
| Planned payments from the national budget to public laboratories in 2022, MDL | 7,398,700 |
| Additional payments in 2023, MDL | 0 |
| Additional payments in 2024 – the targeted increase of 15% in comparison to 2022, MDL | 1,109,805 |
| Additional payments in 2025 – the targeted increase of 20% in comparison to 2022, MDL | 1,479,740 |
| **Total cost of increased payments to public laboratories, MDL** | **2,589,545** |

## 10.5. Additional payments for services of contracted laboratories (WBS 2.4)

The costing team estimates the costs associated with additional payments from the national budget to contracted laboratories for specialised services in the context of the assumed increase in payments in 2023, 2024 and 2025.

| Cost Category | Value |
|---|---|
| Planned payments from the national budget to contracted laboratories in 2022, MDL | 2,567,500 |
| Additional payments in 2023 – the targeted increase of 5% in comparison to 2022, MDL | 128,375 |
| Additional payments in 2024 – the targeted increase of 20% in comparison to 2022, MDL | 385,125 |
| Additional payments in 2025 – the targeted increase of 40% in comparison to 2022, MDL | 1,027,000 |
| **Total costs of increased payments to contractual laboratories, MDL** | **1,540,500** |

## 10.6. Employment of additional inspectors (WBS 3.1)

The costing team estimates the costs associated with the employment of additional inspectors, taking into account the proposed increase in the number of inspections for 2024 and 2025, as well as the assumption that the average number of inspections per inspector in Slovenia can be taken as a benchmark for the purposes of cost estimation.

| Cost Category | Value |
|---|---|
| Number of planned inspections performed by ANSA in 2021 | 10,901 |
| Total number of inspections planned by ANSA for 2021 | 12,112 |
| Additional number of inspections to be performed in 2024 to reach the target number of inspections that were planned for 2021 | 1,211 |
| Number of additional inspectors to be hired in 2023 to perform the target number of additional inspections in 2024[17] | 8 |
| Total number of planned and unannounced inspections in 2021 | 14,537 |
| Target number of additional inspections for 2025 (20% of the total number of planned and unannounced inspections in 2021) | 2,907 |

[17] Computed by dividing the target number of additional inspections (1,211) by the average number of 160 inspections performed by one inspector in a year, corresponding to the benchmark data of the Slovenian agency.

| Cost Category | Value |
|---|---|
| Additional inspectors needing to be hired in 2024 to perform the target number of additional inspections in 2025 | 18 |
| Monthly salary of one inspector, MDL | 8,500 |
| Costs to be incurred in 2023 for 8 new inspectors (assumed average employment of 3 months), MDL | 204,000 |
| Costs to be incurred in 2024 for 18 new inspectors (assumed average employment of 6 months), MDL | 918,000 |
| Costs to be incurred in 2024 for 8 inspectors hired in 2023 (12 months employment), MDL | 816,000 |
| Additional costs in 2025 for inspectors employed in 2023 and 2024 for the entire 12-month period, MDL | 2,652,000 |
| **Total cost of new inspectors employed in 2023 and 2024, MDL** | **4,590,000** |

## 10.7. Induction training for new inspectors (WBS 3.2)

The costing team estimates the costs associated with the induction of new inspectors, based on the assumption that four training sessions will be delivered by 2 senior inspectors employed by ANSA, with each training having an overall duration of 3 days. The cost of the salaries paid to the newly hired inspectors while in training is not included here, as the full cost of their salaries was already accounted for above (in 10.6).

| Cost Category | Value |
|---|---|
| Monthly salary of senior inspector, MDL | 10,500 |
| Daily rate, MDL | 525 |
| Cost of instructors for one training/3 days, MDL | 3,150 |
| **Total cost of induction training for new inspectors, MDL** | **12,600** |

## 10.8. Total action costs

Based on the estimations conducted, the costing team determines the costs for the overall action.

| Cost Input/WBS Component | Cost Grouping | Value, MDL |
|---|---|---|
| **Strengthening ANSA** | | |
| Modernization of two public laboratories (WBS 1.1) | Capital investments | 17,970,867 |
| Employment of additional specialists in public laboratories (WBS 2.1) | New personnel[18] | 750,000 |
| Induction training for new specialists (WBS 2.2) | - | 0 |
| Additional payments for services of public laboratories (WBS 2.3) | Goods and services | 2,589,545 |
| Additional payments for services of contracted laboratories (WBS 2.4) | Goods and services | 1,540,500 |
| Employment of additional inspectors (WBS 3.1) | New personnel | 4,590,000 |
| Induction training for new inspectors (WBS 3.2) | Existing personnel | 12,600 |
| **Total Action Cost** | | **27,453,512** |

[18] Covered by a budgetary transfer to public laboratories, but since the purpose of this transfer is to cover the salaries of newly employed specialists, we have classified it as costs of new personnel *(see section 3.3)*.

## 11. Sensitivity Analysis

While considering the assumptions made in costing, the costing team establishes that the estimates for the costs relating to new inspectors and laboratory specialists, as well as for the payments for services provided by the laboratories, are based on reliable information and clear targets, and are therefore free from significant uncertainties.

On the other hand, the costing team is aware that capital investment costs were estimated using only a rough analogy with past modernizations, and that they also comprise two thirds of the total action costs. The costing team therefore decides to estimate two uncertainty scenarios: a 20% increase in capital investment costs (low-cost increase scenario) and a 50% increase (high-cost increase scenario). The percentages are determined after consultation with experts about the likely increase of modernization costs compared with 2020–2021 (i.e. modernization of the analogous laboratories) until 2023-2025 (i.e. the implementation of the modernization under the costed action).

The following calculations are performed by the costing team:

| Cost category | Base estimate | Low-cost increase scenario | High-cost increase scenario |
|---|---|---|---|
| Capital investments | 17,970,867 | 21,565,040 | 26,956,300 |
| Total cost of action | 27,453,512 | 31,047,685 | 36,438,945 |
| Additional costs | | 3,594,173 | 8,985,433 |
| **Compared to the base** | | **13.1%** | **32.7%** |

The costing team recognizes that the financial impact of uncertainty under the high-cost increase scenario falls outside the 15% deviation limit of the OMF. They conclude that the cost estimate is highly dependent on the modernization costs and is unstable, having a volatility of almost 33%.

## 12. Funding and Budget Coverage

From the input provided by the financial division and the policy division, the following conclusions are reached:

- Sufficient financial resources exist within the baseline to:
  - fully cover all the salary costs of existing personnel – i.e. senior inspectors delivering induction training;
  - fully cover all the salary costs of new personnel (i.e. laboratory specialists) via budget transfers to public laboratories;
  - fully cover the payments for services to public laboratories;
  - partially cover (20%) the capital investment for the modernisation of the two public laboratories, with the remaining 80% being covered via a World Bank loan.
- No financial resources exist within the baseline to cover:
  - the payments for services to contracted laboratories. The costs will be covered by allocations from the budget for agricultural subsidies;
  - the salary costs of new personnel – i.e. senior inspectors. The costs may potentially be covered by the districts in which the new inspectors will be working.

## 13. Documenting Cost Estimates (the CBT)

| | |
|---|---|
| Name of action / measure | Strengthening the National Food Safety Agency (ANSA) |
| If part of a PPD, name of PPD and code of action / measure | [To be inserted by the Ministry of Agriculture and Food Industry] |
| Responsible institution | Ministry of Agriculture and Food Industry |

| FINANCIAL ESTIMATION (MDL) | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|
| **1. Impact on public expenditure (by economic category)** | **0** | **4,679,698** | **12,220,663** | **10,553,150** | **27,453,512** |
| Existing personnel | 0 | 3,150 | 6,300 | 3,150 | 12,600 |
| New personnel | 0 | 954,000 | 1,734,000 | 2,652,000 | 5,340,000 |
| Goods and services | 0 | 128,375 | 1,494,930 | 2,506,740 | 4,130,045 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 3,594,173 | 8,985,433 | 5,391,260 | 17,970,867 |
| **2. Available funding** | **0** | **4,475,698** | **10,486,663** | **7,901,150** | **22,863,512** |
| **2A. Funding available from existing MTBF/budget allocations** | 0 | 1,471,985 | 2,913,192 | 2,561,142 | 6,946,318 |
| *[Subprogramme code]* | | | | | |
| Existing personnel | 0 | 3,150 | 6,300 | 3,150 | 12,600 |
| New personnel | 0 | 750,000 | 0 | 0 | 750,000 |
| Goods and services | 0 | 0 | 1,109,805 | 1,479,740 | 2,589,545 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 718,835 | 1,797,087 | 1,078,252 | 3,594,173 |
| **2B. Allocations from other existing budget programmes** | 0 | 128,375 | 385,125 | 1,027,000 | 1,540,500 |
| *[Code of the subprogramme from which the resources will be reallocated]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 128,375 | 385,125 | 1,027,000 | 1,540,500 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2C. Committed funding from external sources** | 0 | 2,875,339 | 7,188,347 | 4,313,008 | 14,376,693 |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 2,875,339 | 7,188,347 | 4,313,008 | 14,376,693 |

| FINANCIAL ESTIMATION (MDL) | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| **3. Difference between available funding and estimated costs (2-1)** | **0** | **-204,000** | **-1,734,000** | **-2,652,000** | **-4,590,000** |
| Funding gap as percentage of total cost (3/1) | 0.0% | -4.4% | -14.2% | -25.1% | -16.7% |
| **4. Potentially available additional means to cover the funding gap** | **0** | **204,000** | **1,734,000** | **2,652,000** | **4,590,000** |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 204,000 | 1,734,000 | 2,652,000 | 4,590,000 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| Adjustment of the action/measure to increase cost efficiency | 0 | 0 | 0 | 0 | 0 |
| **5. Remaining difference between available funding and estimated costs (3+4)** | **0** | **0** | **0** | **0** | **0** |

## EXPLANATION

**1. Main calculations made and data used in the estimation of costs, including ground rules and assumptions made in the estimation of costs and funding sources**

- The costs for the modernization of CRDV in Chisinau, Cahul and Donduseni in 2020 and 2021 can be taken as indicative of the costs that will be incurred for the modernisation of two public laboratories responsible for sanitary and phytosanitary analysis. Because modernisation activities will be carried out for a period of three years, the following allocation of costs for the successive budgetary periods is envisaged: 20% (2023), 50% (2024), 30% (2025).
- Given the limited amount of information regarding the number of laboratory specialists in public institutions, it is assumed that the share of laboratory specialists as a proportion of the total number of employees in the Central Testing Laboratory of Alcoholic/Non-Alcoholic Beverages and Canned Products (for which data exists) can be taken as indicative of their share in all the public laboratories in the Republic of Moldova.
- New laboratory specialists will be employed in mid-2023 at the main consultant level, and will be located within existing premises. Given that new hiring will likely take place intermittently during 2023, for cost estimation purposes it is assumed that on average new employees will work for an average of three months during 2023. The induction training will be delivered by their senior peers at the cost of the respective public laboratories.
- New inspectors will be employed in mid-2023 and throughout 2024 and will be located within existing premises. Given that new hiring will likely take place intermittently during 2023 and 2024, for cost estimation purposes it is assumed that on average new employees will work for three months during 2023 and six months during 2024.

- The data on inspector productivity in Slovenia was taken as a benchmark for purposes of determining the number of new inspectors needed to reach the ANSA inspection targets.
- In 2023, the category "New personnel" includes the budgetary transfer to public laboratories for covering the costs of newly employed laboratory specialists.
- It is assumed that one month has an average of 20 working days, and that one working day comprises 8 hours.
- Indirect costs are considered insignificant and were not estimated.
- Funding for 80% of the capital investment costs will be provided by a World Bank loan. The ministry will try to secure financing for the cost of the new inspectors from the districts where they will be operating.
- Detailed cost computations are available in the costing and budgeting table.

**2. Sensitivity of cost estimates**

The estimates of personnel and goods and services are based on reliable information, and are not associated with significant uncertainties. The capital investment costs were estimated using only a rough analogy with past modernizations, and also comprise two thirds of the total action costs. The costing team therefore estimated two uncertainty scenarios: an increase in capital investment costs of 20% (low-cost increase scenario) and of 50% (high-cost increase scenario). In the high-cost scenario, the total costs of the action could increase by 33%.

# Case Study 3 Carrying out a campaign to raise awareness of the opportunities and requirements arising for small enterprises associated with the AA/DCFTA

## 1. Purpose of the Estimate

**Determine the costs associated with carrying out the awareness campaign**

## 2. Activity Description

The Association Agreement between the European Union and the Republic of Moldova (AA) is a signed and ratified treaty that establishes a political and economic association between the two parties. It also establishes a Deep and Comprehensive Free Trade Area (DCFTA) between the EU and Moldova, including the removal of import duties for most goods traded between the EU and Moldova and broad mutual access to the trade in services for both partners. The AA/DCFTA provides a series of opportunities to Moldova's businesses, while also stipulating a series of requirements that arise for the latter.

In January 2023, as part of the successful implementation of the AA/DCFTA, the Ministry of Economic Development and Digitalization (MoEDD, which is the competent institution) is tasked with organising and carrying out a national-level campaign to raise awareness of the various opportunities and requirements that arise for small enterprises. As a result, the line ministry establishes a costing team with the aim of determining the costs that will be incurred during the campaign.

## 3. Work Breakdown Structure (WBS)

| WBS Level | | | | WBS Components | WBS Code | Schedule |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | |
| √ | | | | **Carrying out the awareness campaign** | **1** | **03/2023 – 11/2023** |
| | √ | | | Personnel engagement | 1.1 | 03/2023 – 10/2023 |
| | √ | | | Content creation | 1.2 | 03/2023 – 04/2023 |
| | √ | | | Promotion | 1.3 | 08/2023 – 11/2023 |
| | | √ | | *Media advertising* | *1.3.1* | *08/2023 – 11/2023* |
| | | √ | | *Workshops and roundtables* | *1.3.2* | *09/2023 – 10/2023* |

## 4. Cost Estimating Method

**Analogy Costing** - the State Chancellery informs the costing team that a similar awareness campaign was carried out by the Ministry of Finance / State Tax Service during January-March 2022 regarding the annual deadline for taxpayers to submit their tax returns. The costing team deems this activity to be an analogous action for the purpose of determining the costs for the measure being analysed.

## 5. Ground Rules & Assumptions

- Content creation costs are assumed to be the same in the analysed action and the analogous one.
- Personnel costs and total media advertising costs in the analogous action are proportional to the time during which they were incurred – i.e. on a monthly basis.
- Workshops and roundtables will be organised by the Ministry of Economic Development and Digitalization in September and October 2023. The number of in-person participants is assumed to be 300.
- During November and December 2023, the Alliance of Small & Medium-sized Enterprises (ASME) of the Republic of Moldova will conduct additional in-person workshops and roundtables for an estimated 150 participants at its own expense. Since the ASME will cover the costs directly, there will be no cost to the budget from this additional activity.
- All the work will be done by the existing personnel of the MoEDD.

## 6. Cost Factors

No significant cost factors are identified. The main cost drivers of this action will be the number of participants and the duration of the media campaign.

## 7. Data Collection and Normalisation

Estimators collect and normalise data for the analogous action to be used for the purpose of costing the action being analysed.

### 7.1. Costs associated with the analogous action

| Cost Input | Description | Input Value (MDL) |
|---|---|---|
| Personnel cost | Costs associated with the work by the Ministry of Finance's civil servants on the campaign to encourage taxpayers to submit their tax returns. | 90,000 |
| Content creation | Costs incurred with third-party service providers for the creation of the campaign. | 100,000 |
| Promotion consisting of: | Costs incurred with third-party service providers for the promotion of the campaign. | 1,100,000 |
| - Media advertising | Costs incurred with third-party service providers for media advertising. | 600,000 |
| - Workshop and roundtables | Costs incurred with third-party service providers for premises and accommodation. | 500,000 |
| **Total costs (Analogous Action)** | | **1,290,000** |

### 7.2. Data normalisation

When analysing the analogous action, the estimators determine that there are some differences from the action being analysed that require corresponding adjustments to be made to the cost data:

- Certain individual components of the analogous action were carried out during a shorter time period than the time estimated for the action being analysed.
- The number of participants in the analogous action (500 participants) was higher than the estimated number in the action being analysed (300 participants).

Estimators normalise the data for the above-mentioned cost inputs:

| Cost Input (Analogous Action) | Total Costs (MDL) | Data Normalisation for Time | | Data Normalisation for Number of Participants | |
|---|---|---|---|---|---|
| | | Duration (months) | Cost per month (MDL) | Number of participants | Cost per participant (MDL) |
| Personnel cost | 90,000 | 3 | 30,000 | | |
| Media advertising | 600,000 | 3 | 200,000 | | |
| Workshops and roundtables | 500,000 | - | - | 500 | 1,000 |

## 8. Documenting Collected Data

| Action Performed | Action Description |
|---|---|
| Purpose of data collection | Determining the costs required to carry out a national-level campaign to raise awareness of the opportunities and requirements arising for small enterprises associated with the AA/DCFTA concluded between the Republic of Moldova and the EU |
| Period of data collection | 01/2023 – 02/2023 |
| Sources of data collected | Historical costs – carrying out an awareness campaign on the deadline for taxpayers to submit their tax returns. |
| Type of data collected | ▪ Personnel – salary costs for civil servants involved in the analogous action.<br>▪ Goods and services – third-party costs incurred in the analogous activity, namely: content creation, media advertising, event costs. |
| Period for which data collected | 01/2022 – 03/2022 |
| Data normalisation procedures | ▪ Adjustments to cost data to account for the shorter period of the analogous action compared to the period estimated for the analysed action.<br>▪ Adjustments to cost data to account for the difference in the number of participants in the analogous and analysed actions. |
| Data Location | ▪ The data collected is available and can be accessed on the network drive of the Ministry of Economic Development and Digitalization. |

## 9. Cost analysis

| Cost Input/ Categories | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|
| Existing personnel | √ | | √ | | | | √ |
| Goods and Services (content creation) | √ | | √ | | √ | | |
| Goods and services (media advertising) | √ | | √ | | | | √ |
| Goods and services (workshops) | √ | | √ | | | √ | |

## 10. Cost Estimation

The costing team proceeds with determining the financial resources required to carry out the AA/DCFTA awareness campaign. For this purpose, estimators rely on the costs determined for the analogous action, including data normalisation to reflect the specific circumstances of the analysed action. Total costs are determined by multiplying the cost per input by the number of inputs.

| Cost Input/WBS Component | Cost Grouping | Cost per input (MDL) | Inputs | Total Costs (MDL) |
|---|---|---|---|---|
| **Carrying out the awareness campaign** | | | | |
| Personnel (WBS 1.1) | Existing personnel | 30,000 | 8 months | **240,000** |
| Content creation (WBS 1.2) | Goods and services | Fixed costs | Fixed costs | **100,000** |
| Promotion (WBS 1.3) | Goods and services | - | - | **1,100,000** |
| - Media advertising (WBS 1.3.1) | Goods and services | 200,000 | 4 months | 800,000 |
| - Workshop and roundtables (WBS 1.3.2) | Goods and services | 1,000 | 300 participants | 300,000 |
| **Total Action Cost** | | | | **1,440,000** |

## 11. Sensitivity Analysis

During the process of cost estimation, the estimators have established specific GR&As. For the purpose of the sensitivity analysis, the following were deemed to be the most important:

**Workshops and Roundtables -** the costing team assumes that the ASME will carry out at its own expense additional in-person workshops and roundtables for an estimated 150 participants. The estimators consider it uncertain that the ASME will deliver the expected level of training, and they therefore prepare a sensitivity analysis of the cost estimate in the event that the ASME fails to deliver the events, by analysing two scenarios:

- *medium cost increase scenario* – the ASME carries out events for 100 participants and the Ministry of Economic Development and Digitalization carries out one event for the remaining 50 participants;
- *high cost increase scenario* – the ASME does not carry out any such events, so the line ministry has to carry them out for all 150 participants.

The impact on cost is determined by multiplying the cost per participant determined during data collection (i.e. MDL 1,000) by the number of additional participants that would participate in the events to be organised by the line ministry. The results are then compared to the cost estimation prepared by the costing team during the preceding steps (i.e. the base estimate).

| Uncertainty | Base Estimate (MDL) | Medium | | High | |
|---|---|---|---|---|---|
| | | Financial Impact | Percentage change | Financial Impact | Percentage change |
| The ASME fails to deliver the events | 1,440,000 | 50,000 | 3.5% increase | 150,000 | 10.4% increase |

In both the scenarios the financial impact is within the 15% limit established under OMF 209/2015, so **the estimates are considered to be stable**.

**Degree of involvement and participation from small businesses -** the costing team assumes that the in-person events will be attended by 300 participants. Estimators prepare the sensitivity analysis of the cost estimate by considering three scenarios with a variable number of participants attending:

- *low drop-out scenario* – where more than 250 participants attend;
- *medium drop-out scenario* – where between 200 and 250 participants attend;
- *high drop-out scenario* – where between 100 and 200 participants attend.

From prior experience with similar events, the costing team agrees that it is likely that at least 250 participants will attend, but that it is also possible that a lower number may ultimately turn up. They consider it highly implausible that less than 100 participants will attend, so no scenario is prepared for an attendance of less than 100.

The estimators assume that there will be no significant reduction of costs in the event that at least 250 participants attend (the low drop-out scenario), given that the event costs are unlikely to significantly differ compared with full participation (i.e. with 300 participants).

With respect to the medium and high drop-out scenarios, the estimators compute the impact on cost by multiplying the number of persons that are assumed not to be attending by the cost per participant (i.e. MDL 1,000). They compute the average of the two figures at each end of the range to arrive at the number of participants to be used for computation purposes. For example, for the scenario in which 200-250 participants attend, the average of the range is 225 participants, i.e. 75 less than in the base scenario.

Furthermore, for purposes of the analysis, estimators consider all the workshop-related expenses to be variable and proportional to the number of participants. Such simplification is solely for the purpose of making the costing process easier, and involves no significant loss of precision in the estimate.

Next, the results are compared to the cost estimation prepared by the costing team during the preceding steps (i.e. the base estimate). Given that under the scenario being analysed a lower number of participants are assumed to attend, the costs will decrease correspondingly.

| Uncertainty | Base Estimate (MDL) | Low | | Medium | | High | |
|---|---|---|---|---|---|---|---|
| | | Financial Impact | Percentage change | Financial Impact | Percentage change | Financial Impact | Percentage change |
| Lower than expected involvement from small businesses | 1,440,000 | No impact | No change | -75,000 | 5.2% decrease | -150,000 | 10.4% decrease |

Because in both scenarios the financial impact is within the negative 15% limit established under OMF 209/2015, **the estimates are considered to be stable**.

Finally, to estimate the volatility range of the costs, the estimators compare the lowest-cost scenario (the one with only 100-200 participants) with the highest-cost scenario (the one where the ASME fails to deliver any events). In this way they determine that the actual costs could range between 1,290,000 MDL and 1,590,000 MDL, i.e. the volatility of costs amounts to 300,000 MDL, or 20.8% of the base cost estimate.

## 12. Funding and Budget Coverage

The costing team determines that the costs to be incurred by the Ministry of Economic Development and Digitalization are MDL 1,440,000. It is also estimated that the ASME will cover the costs of MDL 150,000 for conducting workshops and roundtables for 150 participants.

From the analysis performed by the financial division of the MoEDD in cooperation with MoF, the budget baseline available to the MoEDD for 2023 provides MDL 800,000 for such activities. The MoEDD agrees with the MoF to reallocate MDL 200,000 from another budgetary subprogramme of the MoEDD which has a lower priority, and initiates a discussion with the structural subdivision for coordination of external assistance to seek external donor funding amounting to MDL 440,000.

## 13. Documenting Cost Estimates (the CBT)

| | |
|---|---|
| Name of action / measure | Carrying out a campaign to raise awareness of the opportunities and requirements arising for small enterprises associated with the AA/DCFTA |
| If part of a PPD, name of PPD and code of action / measure | [To be inserted by the Ministry of Economic Development and Digitalization] |
| Responsible institution | Ministry of Economic Development and Digitalization |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **1. Impact on public expenditure (by economic category)** | **1,440,000** | **0** | **0** | **0** | **1,440,000** |
| Existing personnel | 240,000 | 0 | 0 | 0 | 240,000 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 1,200,000 | 0 | 0 | 0 | 1,200,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2. Available funding** | **1,000,000** | **0** | **0** | **0** | **1,000,000** |
| **2A. Funding available from existing MTBF/budget allocations** | 800,000 | 0 | 0 | 0 | 800,000 |
| *[Subprogramme code]* | | | | | |
| Existing personnel | 240,000 | 0 | 0 | 0 | 240,000 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 560,000 | 0 | 0 | 0 | 560,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **2B. Allocations from other existing budget programmes** | 200,000 | 0 | 0 | 0 | 200,000 |
| *[Code of the subprogramme from which the resources will be reallocated]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 200,000 | 0 | 0 | 0 | 200,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2C. Committed funding from external sources** | 0 | 0 | 0 | 0 | 0 |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| **3. Difference between available funding and estimated costs (2-1)** | **-440,000** | **0** | **0** | **0** | **-440,000** |
| Funding gap as percentage of total cost (3/1) | -30.6% | 0.0% | 0.0% | 0.0% | -30.6% |
| **4. Potentially available additional means to cover the funding gap** | **440,000** | **0** | **0** | **0** | **440,000** |
| Donor grants to the budget | 440,000 | 0 | 0 | 0 | 440,000 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| Adjustment of the action/measure to increase cost efficiency | 0 | 0 | 0 | 0 | 0 |
| **5. Remaining difference between available funding and estimated costs (3+4)** | **0** | **0** | **0** | **0** | **0** |

**EXPLANATION**

**1. Main calculations made and data used in the estimation of costs, including the ground rules and assumptions made during the estimation of costs and funding sources**

- Content creation costs are assumed to be the same for the action being analysed and the analogous one.
- Personnel costs and total media advertising costs for the analogous action are proportional to the length of time during which they were incurred – i.e. on a monthly basis.

- Workshops and round tables will be organised by the Ministry of Economic Development and Digitalization during September and October 2023. The number of in-person participants is assumed to be 300.
- During November and December 2023, the ASME of the Republic of Moldova will carry out at its own expense additional in-person workshops and roundtables for an estimated 150 participants. These costs are not included in the estimate, as they will not need to be covered by the budget.
- All work will be done by the existing personnel of the MoEDD.
- Indirect costs are insignificant and are not included in the cost estimate.
- Detailed cost computations are available in the costing and budgeting table.

**2. Sensitivity of cost estimates**

- The following uncertainties were identified during the costing process:
  - the ASME fails to deliver the events, which would require the Ministry of Economic Development and Digitalization to conduct the remaining workshops and roundtables. The costing team estimated the financial impact of two scenarios where ASME would either train 50 participants less than expected, or none at all. It is assumed that the "no training" scenario is highly unlikely but not impossible;
  - there is a lower-than-expected involvement from small businesses, which may result in low participation rates in the workshops and roundtables to be organised by the MoEDD. The costing team estimated the financial impact of three scenarios with lower-than-planned participation (50, 75 and 150 fewer participants) – with the latter being considered to be highly unlikely.
- The costing team determined that in all the scenarios analysed, the financial impact falls within the +/-15% limit established under OMF 209/2015. The costing team concluded that **the cost estimates are stable.**

# Case Study 4 Supporting households during the liberalization of energy markets

## 1. Purpose of the Estimate

**Determine the costs of government support to vulnerable households to cover the increase in energy costs (i.e. electricity, gas, central heating, hot water) for the October 2023 – March 2024 heating season**

## 2. Activity Description

The experiences of EU Member States show that the opening up and liberalization of energy markets may lead to short-term increases in the retail cost of gas and electricity for final consumers. It may therefore be advisable to provide income transfers to the most vulnerable households, and subsidies to enterprises in the most energy-intensive sectors.

According to the 2021 Energy Community Progress Report on the Republic of Moldova, the process of energy market liberalization has not yet advanced substantially. The market share of suppliers selling at unregulated prices is still low; in 2020 it reached 10% for electricity suppliers and 7% for gas suppliers. The Ministry of Economic Development and Digitalization had therefore planned to analyse the need for income transfers and subsidies only at a later stage of the liberalization process. However, in the light of the steep price increases in 2022, a temporary support scheme for vulnerable households was introduced and was planned to remain in effect until March 2023.

In October 2022, the Ministry of Labour and Social Protection (MLSP), which administers the current scheme, proposes to turn it into a permanent mechanism that could be activated if the need arises again in future. Specifically, regardless of the pace of energy market liberalization, the ministry intends to provide support payments to vulnerable households (the "energy benefit") to cover the expected increase in overall utility costs during the next heating season (i.e. from October 2023 to March 2024).

## 3. Work Breakdown Structure (WBS)

| WBS Level | | | | WBS Components | WBS Code | Schedule |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | |
| √ | | | | **Providing the normative framework** | **1** | **01/2023 – 05/2023** |
| | √ | | | Analysis of situation and options | 1.1 | 01/2023 – 01/2023 |
| | √ | | | Drafting of legal amendments and bylaws | 1.2 | 02/2023 – 02/2023 |
| | √ | | | Adoption of legal amendments and bylaws | 1.3 | 03/2023 – 05/2023 |
| √ | | | | **Disbursement of the energy benefit** | **2** | **10/2023 – 03/2024** |
| | √ | | | Administration of the benefit scheme | 2.1 | 10/2023 – 03/2024 |
| | √ | | | Energy benefit payments | 2.2 | 10/2023 – 03/2024 |

Note that WBS item 2.2. is not an activity; however, the costing team decided to include this line to present an estimation of the total value of the benefits paid.

## 4. Cost Estimation Method

**Bottom-up costing -** estimators compute the cost of providing the normative framework (WBS 1.1–1.3) by estimating the cost of the time needed for analysis, drafting and adoption. In the same way, they estimate the administrative costs of disbursing the energy benefit to recipients (WBS 2.1).

**Parametric costing -** estimators use statistical data to estimate the key parameters that will determine the total value of the benefits to be paid, i.e., the size of the target group, the number of recipients, and the monthly amount of the benefit (WBS 2.2).

## 5. Cost Factors

**Social change -** the number of eligible recipients may be affected by changes in the social situation of the population, for example the increase in the number of people below the poverty line.

**External -** the steep increase of energy prices in 2022 was primarily caused by the geopolitical situation. Securing alternative supply sources, or a termination of the military conflict, may lead to a decrease in prices in 2023.

## 6. Data Collection and Normalization

The costing team proceeds with collecting data and gathering information regarding the design of the measure.

The policy division explains that it is still considering different options for the target group of beneficiaries and the amount of the energy benefit, and that it needs rough cost estimates of the different options in order to make a decision regarding the parameters of the benefit scheme.

The policy division additionally explains that the final decision will also depend on the availability of resources, so it is already discussing with EU officials whether the support provided to Moldova for coping with the energy crisis could be applied towards the energy benefit.

It also explains that the benefit would be paid to households, not individuals.

Regarding the preparation of the analysis and the normative framework, the policy division is confident that it can manage this without external expert support, based on its experience with the scheme implemented during the 2022-2023 heating season.

On the basis of this information, as a first step the costing team decides to prepare rough estimates of the cost of the energy benefits under different scenarios. Through brainstorming, the costing team decides to estimate the costs for the following options:

- target group of beneficiaries:
  - recipients of the state's social allowances;
  - households below the extreme poverty line;
  - households below the absolute poverty line (including those below the extreme poverty line);
  - households at the lower end of income distribution (including those below the poverty line).
- amount of the energy benefit:
  - a given percentage of total utility costs;
  - a given percentage of the estimated increase in total utility costs compared to 2021 (i.e. before the 2022 price hike);
  - with either of the two options, the level of the benefit may differ according to the income level of the beneficiary household.

The costing team proceeds to collect relevant data from the databases accessible via the website of the National Bureau of Statistics (https://statistica.gov.md). They collect data for the last three available years, in order to be able to see any trends or irregularities in the data. Prior to commencing their cost calculations, the estimators confirm their understanding of the data with statistical experts from the National Bureau of Statistics.

## 6.1. Data relating to target groups

*Option 1: recipients of the state social allowance (on January 1 of respective years)*

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Number of beneficiaries, people | 61,300 | 66,000 | 68,900 | 73,000 |
| The average size of the allowance, MDL | 542 | 553 | 678 | 1,174 |

*Options 2 and 3: households below absolute and extreme poverty lines*

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Living subsistence, MDL[19] | 2,031 | 2,088 | 2,154 | 2,485 |
| Extreme poverty threshold, MDL | 1,690 | 1,753 | 1,843 | |
| Absolute poverty threshold, MDL | 2,095 | 2,174 | 2,285 | |
| Extreme poverty rate (%) | 10.7 | 10.8 | 9.5 | |
| Absolute poverty rate (%) | 25.2 | 26.8 | 24.5 | |

The costing team notes that the statistical data does not provide information on the households living below the poverty thresholds, but only on the share of the total population living in poverty. Data on the households are needed, because households and not individuals will be the recipients of the energy benefit.

The costing team therefore performs a normalization of the data to generate an estimated number of households living below the poverty line. The normalization consists of two steps:

- using the data on population size to calculate the number of people living below the poverty thresholds;
- using the data on average household size to convert the data on people into data on households.

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Population with their usual residence in Moldova at the beginning of the year[20] | 2,684,772 | 2,643,675 | 2,626,585 | 2,603,813 |
| Average population during the year[21] | 2,664,224 | 2,635,130 | 2,615,199 | |
| People in extreme poverty[22] | 285,072 | 284,594 | 248,444 | |
| People in absolute poverty | 671,384 | 706,215 | 640,724 | |

To be able to convert the number of people living in poverty into the number of households, the costing team collects data on the average household size. The statistical bureau presents this data by income quintiles:

[19] Data for 2022 refer to the first six months of the year.
[20] The data does not cover the population residing on the eastern bank of the river Nistru.
[21] Average population during the year is calculated as the average of the figure for the beginning of the current year and the corresponding figure for the following year. For example, for 2019 this is calculated as the average number of individuals in the population at the beginning of 2019 and their average number at the beginning of 2020.
[22] Average population multiplied by the share of people below the extreme / absolute poverty line.

| Average household size | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Income Quintile I | 3.2 | 3.2 | 3.1 | |
| Income Quintile II | 2.5 | 2.6 | 2.4 | |
| Income Quintile III | 2.3 | 2.3 | 2.2 | |
| All | 2.4 | 2.3 | 2.3 | |

Statistical experts explain to the costing team that each quintile includes 20% of the total population, ranked by income, i.e. the lowest quintile (Quintile I) includes those people with the lowest income who collectively represent 20% of the total population. Conversely, the highest quintile (Quintile V) includes the 20% of the population with the highest income. Accordingly, for example, the data for household size in Quintile I means that the 20% of the population with the lowest income live in households having an average size of 3.3 persons (3.1 in 2021).

Understanding that the lowest quintile includes the poorest people, the costing team estimates the number of households in poverty by using the data on household size in Quintile I:

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Average number of persons in households belonging to the lowest income quintile | 3.2 | 3.2 | 3.1 | |
| Estimated number of households in extreme poverty | 89,085 | 88,936 | 80,143 | |
| Estimated number of households in absolute poverty | 209,808 | 220,692 | 206,685 | |

The costing team notes that the calculation of households living below the poverty lines is only an approximation.

*Options 4: households at the lower end of the income distribution*

From the data on population and the average size of households, the costing team estimates the total number of households in Moldova (excluding those living on the east bank of the river Nistru).

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Average population during the year | 2,664,224 | 2,635,130 | 2,615,199 | |
| Average household size (entire population) | 2.4 | 2.3 | 2.3 | |
| Estimated number of households in Moldova | 1,110,093 | 1,145,709 | 1,137,043 | |

The calculated data on the number of households can now be used to develop cost scenarios based on assumptions about the share of all households that are to be supported by the energy benefit.

## 6.2. Data relating to the estimation of the amount of the energy benefit

*Option 1: a given percentage of total utility costs*

The costing team finds that the statistical household survey provides data on utility costs, broken down by income quintiles. They collect data on the monthly expenses per person for housing and their consumption of water, electricity and gas:

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Quintile I, MDL | 216 | 222 | 239 | |
| Quintile II, MDL | 323 | 325 | 344 | |
| Quintile III, MDL | 415 | 406 | 423 | |

The costing team notes that the data includes expenses for housing, which are not intended to be subsidized by the energy benefit, but a more detailed breakdown of the expenses is unfortunately not available.

Again, as the energy benefit will be distributed to households rather than individuals, the utility expenses per person need to be converted into expenses per household. This is computed by multiplying the expenses per person by the average number of persons per household in the respective quintile.

Estimated monthly expenses per household for housing, water, electricity and gas:

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Quintile I, MDL | 691 | 710 | 741 | |
| Quintile II, MDL | 808 | 845 | 826 | |
| Quintile III, MDL | 955 | 934 | 931 | |

*Option 2: a given percentage of the estimated increase in total utility costs*

The costing team collects data on consumer price indices for the various utilities:

| | 2019 | 2020 | 2021 | Oct. 2022 |
|---|---|---|---|---|
| Utilities, of which: | 104.21 | 94.94 | 118.19 | 225.86 |
| - electricity | 110.04 | 91.82 | 92.15 | 175.02 |
| - natural gas from the network | 100 | 87.91 | 181.68 | 630.82 |
| - central heating system | 100 | 99.85 | 124.6 | 237.97 |
| - hot water | 100 | 100 | 111.45 | 192.03 |

Statistical experts explain to the costing team that the indices show the annual increase in the level of prices, with the level in the December of the preceding year being given a value of 100. For example, the index number of 118.19 for utilities (total) in 2021 means that the prices have increased by 18.19% during 2021 compared to December 2020. Similarly, the index number of 225.86 for October 2022 means that prices of utilities have increased by 125.86% from December 2021 to October 2022.

## 7. Documenting Collected Data

| Action Performed | Action Description |
|---|---|
| Purpose of data collection | Determine the costs for the government support to vulnerable households to cover energy costs (i.e. electricity, natural gas, central heating, hot water) for the heating season from October 2023 to March 2024. |
| Period of data collection | 11/2022 |
| Sources of data collected | Statistical data:<br>▪ Data relating to poverty;<br>▪ Recipients of the state social allowance;<br>▪ Average monthly consumption expenses per person: housing, water, electricity and gas;<br>▪ Average household size;<br>▪ Consumer price indices for utilities: electricity, gas, central heating and hot water. |
| Type of data collected | Social benefits: |

| Action Performed | Action Description |
|---|---|
| Period for which data collected | 2019 - 2022 |
| Data normalisation procedures | ▪ Data on the shares of the population living in extreme poverty and absolute poverty were converted into data on the number of households living respectively in extreme and absolute poverty.<br>▪ Consumption expenses for utilities per person were converted into consumption expenses for utilities per household. |
| Data Location | ▪ The data collected is available, and can be accessed on the network drive of the Ministry of Labour and Social Protection. |

## 8. Cost analysis

| Cost Input / Categories | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|
| Social benefits | √ | | √ | | | | √ |

## 9. Ground Rules and Assumptions

After collecting and normalizing statistical data, the costing team meets and brainstorms on the parameters to be used for scenario development. They agree on the following:

### Ground Rules:

- Scenarios will be developed for three target groups:
  - households living in extreme poverty;
  - households living in absolute poverty (which include those living in extreme poverty); and
  - households at the lowest 30% of income distribution (which include those living in extreme and absolute poverty).
- The number of recipients of the state social allowance is much lower than the number of people living in poverty, so this is a very small group and will not be used as a potential target group for scenario development.
- The number of households (in extreme and absolute poverty, as well as the total) fluctuates from year to year with no clear trend; therefore, for the scenarios the average number of households during the 2019-2021 period will be used.
- As benchmarks for the level of the energy benefit, two alternatives will be used:
  - estimated level of energy expenses of households in target groups in October 2023;
  - estimated increase in energy expenses of households in target groups in October 2023 compared to December 2021;
- To determine the level of benefit, the following ratios of the benchmark value will be used for the three target groups, from the poorest to the least poor:
  - 50%, 30% and 10%, respectively, of the level of energy expenses;
  - 100%, 80% and 40%, respectively, of the increase in energy expenses.

### Assumptions:

- The statistical data on consumption expenses are presented as the sum of the expenses for housing, electricity, gas and hot water. It is assumed that within this group, the expenses for energy-related costs (electricity, gas and hot water) comprise 75% of the total.

- Based on consultations with energy experts, it is assumed that energy prices will decrease during 2023 due to better access to alternative sources of supply. The estimates provided by experts ranged between 25–50% decline in electricity prices and a 10–30% decline in gas prices during 2023. These prices also affect the prices of other utilities, notably central heating and hot water. Considering the experts' estimations, the costing teams agree on the assumption that the average price level of the utilities will be 30% lower in October 2023 compared to October 2022.

## 10. Cost Estimation – development of scenarios

Using the data collected and the agreed GR&A, the costing team first determines the values of the parameters that will be used to calculate the costs under different scenarios, i.e. in terms of the size of the target groups and the benchmark values for the cost benefit.

### 10.1. Determining the number of households in target groups

| | 2019 | 2020 | 2021 | Average |
|---|---|---|---|---|
| Households in extreme poverty (A) | 89,085 | 88,936 | 80,143 | **86,055** |
| Households in absolute poverty (B) | 209,808 | 220,692 | 206,685 | 212,395 |
| 30% of all households with the lowest income (C) | 333,028 | 343,713 | 341,113 | 339,284 |
| Households in absolute but not extreme poverty (B-A) | 120,723 | 131,757 | 126,542 | **126,340** |
| 30% of all households with the lowest income but not in poverty (C-B) | 285,072 | 284,594 | 248,444 | **126,890** |

### 10.2. Estimating the level of energy expenses per household in October 2023

**Step 1**: Level of expenses per household in the lowest two quintiles

| | Quintile I | Quintile II |
|---|---|---|
| Expenses for housing, water, electricity and gas in 2021 (estimated from statistical data on expenses per person) | 741 | 826 |
| Share of energy-related expenses, i.e. without housing, in 2021 (assumed) | 75% | 75% |
| Energy-related expenses in 2021 (assumed) | 556 | 619 |
| Index of utility prices (electricity, gas, central heating, hot water), Oct. 2022 / Dec. 2021 (statistical data) | 226 | |
| Index of utility prices (electricity, gas, central heating, hot water), Oct. 2023 / Oct. 2022 (expert assumption) | 70 | |
| Index of utility prices (electricity, gas, central heating, hot water), Oct. 2023 / Dec. 2021 (expert assumption) | 226 * (70/100) = 158 | |
| Estimated energy expenses in October 2023[23] | 879 | 979 |

**Step 2**: Level of expenses per household in target groups

For the different scenarios, the level of expenses per quintile needs to be converted into the level of expenses per target group. This can be done by applying weightings reflecting the shares of the households in each target group that find themselves in Quintile I and Quintile II of the income distribution. Specifically:

- the rate of extreme poverty in the population is around 10%; this means that all households in the extreme poverty are in Quintile I;

[23] Estimated level of expenses in 2021 multiplied by the price increase from December 2021 to October 2023. For example, for Quintile I the calculation is: 556 MDL * (158/100) = 879 MDL.

- the rate of absolute poverty in the population is around 25%; this means that the remaining 10% of households in Quintile I which are not in extreme poverty all find themselves in the state of absolute poverty; in addition, 5% of households in Quintile II are also in absolute poverty. For households in absolute but not extreme poverty, this implies a ratio of 2:1 (10%; 5%) of those in Quintile I versus those in Quintile II;
- in terms of quintiles, among the 30% of households with the lowest income, two thirds are in Quintile I and one third is in Quintile II.

Based on this understanding of the distribution of target group households between quintiles, the estimators calculate the level of energy expenses per target group in October 2023:

| | Share in Quintile I | Share in Quintile II | Expenses per Quintile I | Expenses per Quintile II | Estimated expenses in October 2023[24] |
|---|---|---|---|---|---|
| Households in extreme poverty | 100% | 0% | 879 | 979 | **879** |
| Households in absolute but not extreme poverty | 67% | 33% | | | **912** |
| 30 % of all households with the lowest income but not in poverty | 67% | 33% | | | **912** |

## 10.3. Estimating the increase of energy expenses per household from December 2021 to October 2023

**Step 1:** Level of expenses in 2021 by target groups

Statistical data for expenses in 2021 are presented in terms of quintiles. The same method as used above is used to convert expenses by quintile into the (estimated) expenses per target group in 2021:

| | Share in Quintile I | Share in Quintile II | Expenses per Quintile I | Expenses per Quintile II | Estimated expenses in 2021 |
|---|---|---|---|---|---|
| Households in extreme poverty | 100% | 0% | 556 | 619 | 556 |
| Households in absolute but not extreme poverty | 67% | 33% | | | 577 |
| 30 % of all households with the lowest income but not in poverty | 67% | 33% | | | 577 |

**Step 2:** Increase in expenses by target groups

| | Estimated expenses in 2021 | Estimated expenses in October 2023 | Estimated increase in expenses |
|---|---|---|---|
| Households in extreme poverty | 556 | 879 | **323** |
| Households in absolute but not extreme poverty | 577 | 912 | **335** |
| 30% of all households with the lowest income but not in poverty | 577 | 912 | **335** |

[24] Calculated by multiplying expenses per quintile by the shares of the group in each quintile. For example, for the second target group the calculation is as follows: 879 * 67% + 979 * 33% = 912.

## 10.4. Calculating the scenarios

The costing team develops a spreadsheet which links the assumptions and estimations made with the resulting scenarios. This allows them to vary any assumption in case additional simulations are requested by the policy division. The different scenarios developed by the costing team are presented on the next page.

| Scenario | Beneficiary group | Number of recipients | Benchmark for the level of benefit | Benchmark level, MDL | Coverage by the benefit | Amount of the benefit, MDL | Cost per month, MDL | Cost per 6 months, MDL |
|---|---|---|---|---|---|---|---|---|
| 1.1 | Households in extreme poverty | 86,055 | Estimated energy expenditures | 879 | 50% | 439 | 37,800,916 | 226,805,497 |
| 1.2 | Households in extreme poverty | 86,055 | | 879 | 50% | 439 | 72,355,375 | 434,132,253 |
| | Households in absolute but not extreme poverty | 126,340 | | 912 | 30% | 274 | | |
| 1.3. | Households in extreme poverty | 86,055 | | 879 | 50% | 439 | 83,923,599 | 503,541,591 |
| | Households in absolute but not extreme poverty | 126,340 | | 912 | 30% | 274 | | |
| | 30% of households with the lowest income but not in poverty | 126,890 | | 912 | 10% | 91 | | |
| 2.1 | Households in extreme poverty | 86,055 | Estimated increase in energy expenditures | 323 | 100% | 323 | 27,783,442 | 166,700,649 |
| 2.2 | Households in extreme poverty | 86,055 | | 323 | 100% | 323 | 61,646,529 | 369,879,173 |
| | Households in absolute but not extreme poverty | 126,340 | | 335 | 80% | 268 | | |
| 2.3 | Households in extreme poverty | 86,055 | | 323 | 100% | 323 | 78,651,675 | 471,910,049 |
| | Households in absolute but not extreme poverty | 126,340 | | 335 | 80% | 268 | | |
| | 30% of households with the lowest income but not in poverty | 126,890 | | 335 | 40% | 134 | | |

## 11. Sensitivity Analysis

The scenarios developed by the costing team show the sensitivity of costs to varying assumptions about the beneficiary group and the level of the energy benefit. The estimated costs for 6 months range from MDL 167 million (scenario 2.1) to MDL 504 million (scenario 1.3), implying a volatility of around 200%. This illustrates the usefulness of developing the alternative scenarios, which present the decision makers with a wide range of options for designing the energy benefit measure.

One assumption common to all the scenarios is a 30% decline in energy prices during 2023. To see the impact of this assumption, the estimators use their spreadsheet to quickly recalculate the scenarios on the assumption that prices during 2023 will remain at the October 2022 level. The calculation shows that with no decline in prices during 2023:

- the costs of scenarios in group 1, where the benefit is based on total energy expenses, would increase by 43%;
- the costs of scenarios in group 2, where the benefit is based on the increase of energy expenses, would increase by 117%;
- the ranking of scenarios by cost changes; scenario 1.1. becomes the lowest-cost scenario at MDL 324 million, and scenario 2.3 becomes the highest-cost one at MDL 1,022 million.

The estimators note that the scenarios do not include the potential impact of the social cost factor, i.e. a potential sharp increase in the number of poor households. Given that the poverty shares were relatively stable over the 2019–2021 period, the estimators conclude that this uncertainty is unlikely to have a significant impact on costs.

Finally, the costing team warns the users that the scenarios only represent crude estimates based on readily available statistical data and the assumptions made during the process. Once the range of possible scenarios is narrowed by the decision makers, a more precise estimate could be developed by refining the data. For example:

- the statistical bureau may be able to provide a better estimate of the number of poor households;
- the calculation of energy expenses per household could be made more precise via a better understanding of how the expenses per person are calculated by the statistical bureau, and how they can be accurately extrapolated to the level of a household;
- the data on energy expenses could be made more precise by gathering data on individual expense items from the database of responses to the household survey, i.e. by using primary data instead of published statistics;
- expert estimates of future price movements may become more reliable and convergent in the coming months as new data becomes available; also, instead of assuming an average increase in utility prices, the calculation could be refined by making a forecast for each individual item and then using their weightings in the consumer price index to estimate the overall increase in utility prices as a group;
- an analysis of the data on energy bills and other information collected during the operation of the energy cost support scheme for the 2022–2023 heating season would provide valuable additional insights into the level of expenditures and other parameters used in costing.

## 12. Choosing the baseline scenario

The costing team prepares an information sheet for the policy division including:

- an explanation of the assumptions behind the scenarios;
- the table with the results of the estimated scenarios;
- the sensitivity analysis information.

The costing team meets with the policy division to present the scenarios and ask for a decision as to which scenario will be used for the base cost estimate. The policy division explains that they need to consult with the political-level decision makers, i.e. the minister, and that they will communicate the decision in due course.

The Minister of Labour and Social Protection, after consulting with the minister of finance, the minister responsible for the energy sector and the prime minister, announces the following (preliminary) decision regarding the baseline scenario:

- the coverage of the population should be wide, i.e. the target group is 30% of households with the lowest income level;
- the benefit should be related to the increase in energy costs, not to their level;
- for households in absolute but not extreme poverty, 75% of the increase should be covered instead of the 80% assumed in the scenarios;
- for households with low income but not in poverty, 25% of the increase should be covered instead of the 40% assumed in the scenarios.

## 13. Estimating the baseline cost scenario

**Step 1**: Baseline scenario for the energy benefit

The estimators enter the parameters of the energy benefit as communicated by the decision makers into their spreadsheet and come up with the result presented in the table below.

Policy scenario:

| Beneficiary group | Number of recipients | Benchmark for the level of benefit | Benchmark level, MDL | Coverage by the benefit | Amount of the benefit, MDL | Cost per 6 months, MDL |
|---|---|---|---|---|---|---|
| Households in extreme poverty | 86,055 | Estimated increase in energy expenditures | 323 | 100% | 323 | 420,949,814 |
| Households in absolute but not extreme poverty | 126,340 | | 335 | 75% | 251 | |
| 30% of households with the lowest income but not in poverty | 126,890 | | 335 | 25% | 84 | |

**Step 2**: Estimating personnel costs (WBS 1.1–1.3 and 2.1)

The costing team realizes that personnel costs will be insignificant compared to the cost of the benefit, but they are aware that these costs need to be included to make the estimate complete. They decide not to devote excessive time to it and make the following simple assumptions:

- a team of three senior (main) consultants from MLSP will analyse the data on the energy support provided in the 2022–2023 heating season and prepare a report, each spending 10 days on the activity (WBS 1.1);
- the head of the analytical team will draft the necessary legal amendments and bylaws (WBS 1.2, input of 15 days) and participate in the approval procedures in the government and parliament (WBS 1.3, input of 10 days);
- a state secretary of the MLSP will be engaged in the approval procedure (WBS 1.3, input of 10 days);
- an administrative-level employee (consultant) of the MLSP will spend 10 days per month, on average, on administering the energy benefit scheme (WBS 2.1)
- the average salaries for these categories of civil servant are already available to the team from costing other measures.

Based on these assumptions, the team comes up with the following quick estimate:

| Civil servant | Days engaged | Daily salary, MDL | Cost in 2023, MDL | Cost in 2024, MDL |
|---|---|---|---|---|
| Main consultant, head of the analytical team | 10 (WBS 1.1)<br>15 (WBS 1.2)<br>10 (WBS 1.3) | 500 | 17,500 | |
| 2 main consultants, members of the analytical team | 20 (WBS 1.1) | 500 | 10,000 | |
| State secretary | 10 (WBS 1.3) | 1,100 | 11,000 | |
| Consultant administering the benefit | 60 (WBS 2.1) | 400 | 12,000 | 12,000 |
| **Total** | | | **50,500** | **12,000** |

## 14. Funding and Budget Coverage

Based on the input provided by the financial division and policy division, who have consulted with the political level decision makers, the following conclusions are reached:

- sufficient financial resources exist within the baseline to cover MDL 100 million in each year and the costs of own personnel;
- the MLSP has applied for a donor grant to cover the funding gap determined after the costing analysis; currently, a possible grant of up to 150 million MDL each year is being discussed.

## 15. Documenting Cost Estimates (the CBT)

| | |
|---|---|
| Name of action / measure | Supporting households during the liberalization of energy markets |
| If part of a PPD, name of PPD and code of action / measure | [To be inserted by the Ministry of Labour and Social Protection] |
| Responsible institution | Ministry of Labour and Social Protection |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **1. Impact on public expenditure (by economic category)** | **210,525,407** | **210,486,907** | **0** | **0** | **421,012,314** |
| Existing personnel | 50,500 | 12,000 | 0 | 0 | 62,500 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 0 | 0 |
| Social benefits | 210,474,907 | 210,474,907 | 0 | 0 | 420,949,814 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2. Available funding** | **210,525,407** | **210,486,907** | **0** | **0** | **421,012,314** |
| **2A. Funding available from existing MTBF/budget allocations** | 100,050,500 | 100,012,000 | **0** | **0** | 200,062,500 |
| *[Subprogramme code]* | | | | | |
| Existing personnel | 50,500 | 12,000 | 0 | 0 | 62,500 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 0 | 0 |
| Social benefits | 100,000,000 | 10,000,000 | 0 | 0 | 200,000,000 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2B. Allocations from other existing budget programmes** | **0** | **0** | **0** | **0** | **0** |
| *[Code of the subprogramme from which the resources will be reallocated]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 0 | 0 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2C. Committed funding from external sources** | 110,474,907 | 110,474,907 | **0** | **0** | 220,949,814 |
| Donor grants to the budget | 110,474,907 | 110,474,907 | 0 | 0 | 220,949,814 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **3. Difference between available funding and estimated costs (2-1)** | **0** | **0** | **0** | **0** | **0** |
| Funding gap as percentage of total cost (3/1) | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **4. Potentially available additional means to cover the funding gap** | **0** | **0** | **0** | **0** | **0** |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| Adjustment of the action/measure to increase cost efficiency | 0 | 0 | 0 | 0 | 0 |
| **5. Remaining difference between available funding and estimated costs (3+4)** | **0** | **0** | **0** | **0** | **0** |

**EXPLANATION**

**1. Main calculations made and the data used in the estimation of costs, including the ground rules and assumptions made in the estimation of costs and funding sources**

- The costing team prepared 6 different cost scenarios based on different assumptions about the recipient groups and the level of the energy benefit.
- After consultations with the policy division and decision makers, the following scenario was selected for the base estimate:
  - the target group is the 30% of households with the lowest income level;
  - the benefit should be related to the increase in energy costs for the target groups;
  - the benefit will cover 100% of the cost increase for households in extreme poverty, 75% of the increase for households in absolute but not extreme poverty, and 25% of the increase for households with low incomes but not in poverty.
- Based on consultations with energy experts, it was assumed that the level of energy-related utility prices for households in October 2023 will be 30% lower than in December 2021.
- Costs of own personnel include civil servants of the MLSP engaged in the analysis, legal drafting, adoption procedure and administration of the energy benefit.
- Indirect costs are considered insignificant and are not included in the estimate.

**2. Sensitivity of cost estimates**

- The base estimate is dependent on the decision about the target group and the level of the benefit. Scenarios with varying assumptions that were developed by the costing team showed that the total costs of the benefit could range between MDL 167 million and MDL 504 million.
- The base estimate presented in the CBT is based on decisions regarding the target group and benefit level as communicated by the decision makers. Should these change in the process of adopting the measure, the costs will need to re-estimated.

- The main assumption underlying the base estimate is that the energy prices will decline by 30% during 2023. If the prices remain at the October 2022 level, the cost of the energy benefit will increase to MDL 912 million, i.e. by MDL 491 million (117% of the base estimate). More-precise assumptions about price movements could be made in the following months; in any event, if prices do not decline as expected, the cost of the energy benefit could be lowered by adjusting the size of the benefit group or the level of the benefit.
- Finally, the costing team underlines that the estimate is based on readily available statistical data and assumptions made in the process. A more precise estimate could be developed by refining the data in consultation with the National Bureau of Statistics and assessing the results of the pending analysis of the 2022–2023 energy cost support scheme.

# Case Study 5 Development of a unified IT system for the border police

## 1. Purpose of the Estimate

**Determine the costs associated with the development of the unified IT system for the border police**

## 2. Activity Description

In March 2023, the Government of the Republic of Moldova concluded a technical assistance agreement with an external donor to create a unified Border Information Management System (BIMS). As a result, the Ministry of Internal Affairs (MIA) as the competent institution was tasked with determining the costs associated with the development of this IT system. The system development process is expected to commence in July 2023.

## 3. Work Breakdown Structure (WBS)

| WBS Level | | | | WBS Component | WBS Code | Start month | End month (including) |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | | |
| **Development of a unified IT system for the border police** | | | | | | **07/2023** | **03/2025** |
| √ | | | | **Preparatory Stage** | **1** | **07/2023** | **11/2023** |
| | √ | | | Preparation of technical specifications | 1.1 | 07/2023 | 08/2023 |
| | √ | | | Preparation of tender specifications | 1.2 | 09/2023 | 09/2023 |
| | √ | | | Contract award | 1.3 | 10/2023 | 11/2023 |
| √ | | | | **System Development** | **2** | 12/2023 | 12/2024 |
| | √ | | | System development by the service provider | 2.1 | 12/2023 | 12/2024 |
| | √ | | | Involvement/support by senior internal specialists in the development of the system | 2.2 | 12/2023 | 12/2024 |
| √ | | | | **Go Live** | **3** | **07/2024** | **03/2025** |
| | √ | | | Acquisition of infrastructure (Hardware/Software) | 3.1 | 07/2024 | 12/2024 |
| | √ | | | Maintenance | 3.2 | 01/2025 | continuous |
| | √ | | | Staff training | 3.3 | 10/2024 | 03/2025 |

## 4. Cost Factors

No significant framework cost factors have been identified. The main cost drivers of this action will be the necessary time required to assist the third-party service provider in developing the BIMS, as well as the training activities for the users of the new system.

## 5. Data Collection

The costing team proceeds with data collection and gathers information from various supporters.

On the basis of discussions with the policy division, the costing team gathers the following information:

- The value of the project estimated by the external donor is EUR 1 million, structured as the following components:
  - identification of technical requirements, preparation of tender documentation and selection of the third-party service provider to develop the BIMS – EUR 50,000. This activity is expected to be implemented between July 2023 and November 2023;
  - development of the system – EUR 900,000, of which the purchase of the necessary equipment/software comprises EUR 300,000. This activity is expected to be implemented between December 2023 and December 2024;
  - assistance in training border police employees how to use the system by involving third-party experts – EUR 50,000. This activity is expected to be implemented between October 2024 and March 2025.
- The system is planned to go live from 2025 for a period of at least 10 years. The annual system maintenance costs comprise 10% of the total project value.
- Payments for the IT system development will be made directly by the external donor to third-party service providers. The preparation of the tender documentation will be mainly performed by the donor with specific inputs from a senior internal specialist from MIA, while the selection of the third-party service provider will be fully undertaken by the external donor.
- The Government of the Republic of Moldova has committed to assuming 50% of the costs associated with the purchase of the necessary equipment/software, plus the total costs associated with its own personnel.
- In 2020-2022, MIA carried out similar projects and implemented a series of IT solutions aimed at ensuring an orderly traffic monitoring process at the state border, namely:
  - the project carried out in 2022 to digitize the submission of customs declarations;
  - the project carried out in 2021 to document the entries and exits of natural persons.
  - the project carried out in 2020 to digitize the internal processes of the border police.

From discussions with the managers of the projects carried out between 2020 and 2022, the costing team gathers the following information:

- Project 2022:
  - A senior in-house specialist was involved for a total of 185 hours, with 25 hours being spent assisting in the preparation of technical specifications, and the remaining time being spent on providing support to the IT solution development team.
  - The time required for training system users was 30 hours.
- Project 2021:
  - A senior in-house specialist was involved for a total of 215 hours, with 35 hours being spent assisting in the preparation of technical specifications, and the remaining time being spent on providing support to the IT solution development team.
  - The time required for training system users was 40 hours.
- Project 2020:
  - A senior in-house specialist was involved for a total of 164 hours, with 24 hours being spent assisting in the preparation of technical specifications, and the remaining time being spent on providing assistance to the IT solution development team.
  - The time required for training system users was 20 hours.

- The costing team asks the previous project managers for their estimate of the time the senior specialists would need in order to support the BIMS project:
  - Because the previous projects did not involve external assistance, for the purpose of identifying the technical requirements of the estimated project it is necessary to involve a single senior internal specialist whose contribution will be substantially less than in the previous projects (i.e. by 50%).
  - Considering the complexity of the estimated project, two senior internal specialists need to be involved in providing support to the IT system developer. The involvement of these specialists will be 30% higher than for the previous projects.
  - Maintenance costs for the first year of operation of the IT system are fully covered by the system developer.

On the basis of discussions with the finance division, the costing team gathers the following information:

- The average monthly salary of a senior internal specialist is MDL 17,000.
- The average monthly salary of a border police employee is MDL 9,000.
- Under an existing budget subprogramme, unused financial resources of MDL 4 million are available.

## 6. Ground Rules and Assumptions

- The training sessions for Border Police employees will involve 70 individuals and will be conducted by 2 senior internal specialists.
- The training sessions for the staff who will be working with the new system will take place at MIA locations, with no costs for premises or accommodation being incurred.
- It is assumed that a month contains 20 working days, and that one working day comprises 8 hours.
- The currency exchange rate is set at 1 EUR = 20 MDL, in accordance with the stable exchange rate target policy adopted by the National Bank of Moldova.

## 7. Cost Estimating Methodology

| Cost Input / WBS Component | Cost Estimation Method | Description |
|---|---|---|
| Preparation of technical/tender specifications and contract award (WBS 1) | Analogy | Historic data on the time spent on previous projects. |
| System development by service provider (WBS 2.1) | - | Given that system development cost will be undertaken directly by the donor, no payments from the public budget will be needed to cover these expenses. |
| Involvement/support from senior internal specialists in the development of the system (WBS 2.2) | Analogy | Historic data on the time spent on previous projects. |
| Acquisition of infrastructure - Hardware/ Software (WBS 3.1) | Bottom-up | Based on the costs included in the donor project. |
| Maintenance cost (WBS 3.2) | Bottom-up | Own collection of data and information (estimate by the policy division). |
| Staff training (WBS 3.3) | Analogy | Historic data on the time spent on previous projects. |

## 8. Documenting Collected Data

| Action Performed | Action Description |
|---|---|
| Purpose of data collection | Determine the costs associated with the development of the unified border police IT system |
| Period of data collection | 03/2023 – 05/2023 |
| Sources of data collected | ▪ Historic data – time spent on previous projects for system development and staff training;<br>▪ Estimates in the external donor project documentation – cost data of various system components. |
| Types of data collected | ▪ Personnel – time spent by MAI employees on previous projects;<br>▪ Goods and services – annual costs for system maintenance;<br>▪ Capital investments– acquisition costs for hardware and software. |
| Period for which data is being collected | 2020 – 2022 |
| Data normalisation procedures | No data normalisation required. |
| Data location | ▪ The data collected is available, and can be accessed on the network drive of the Ministry of Internal Affairs. |

## 9. Cost analysis

| Cost Input/ Categories | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|
| Existing personnel | √ | | | √ | √ | | |
| Goods and Services | √ | | √ | | √ | | |
| Capital investments | √ | | | √ | √ | | |

## 10. Cost Estimation

The costing team proceeds with determining the financial resources required for developing the BIMS. For this purpose, estimators first compute the costs for each individual WBS and then compute the final costs for the overall action.

### 10.1. Preparation of technical/tender specifications and contract award (WBS 1)

The costing team estimates the costs of this activity from the time spent on similar projects in the past and data collected. They assume a 50% reduction in the involvement of a senior internal specialist during this process. The estimators also note that the costs associated with project implementation, which will be directly paid by the donor outside the budget, are not included in the cost estimation.

| Cost Category | Value |
|---|---|
| **Costs to be incurred by the line ministry on assisting the donor on drafting the technical specifications of the BIMS** | |
| Monthly salary of a senior internal specialist assisting the project donor on drafting the technical specifications of the BIMS, MDL | 17,000 |
| Daily salary, MDL | 850 |

| Cost Category | Value |
|---|---|
| Hourly salary, MDL | 106.25 |
| Hours spent by a senior internal specialist on a similar project in 2022 | 25 |
| Hours spent by a senior internal specialist on a similar project in 2021 | 35 |
| Hours spent by a senior internal specialist on a similar project in 2020 | 24 |
| Average number of hours spent by a senior internal specialist on similar previous projects | 28 |
| Expected time saving from the line ministry's reduced involvement due to the donor's expertise | -50% |
| Anticipated hours that will be spent by the BIMS senior internal specialist | 14 |
| **Total cost to be incurred by the line ministry on assisting the donor on drafting the technical specifications of the BIMS, MDL** | **1,488** |
| Total cost of the support provided by the project donor for drafting the technical/tender specifications and awarding the contract to a third-party service provider | covered directly by the donor |

## 10.2. System development by service provider (WBS 2.1)

Given that the costs for the system development undertaken by the third-party service provider will be paid directly by the donor, no costs will be paid from the public budget.

## 10.3. Involvement/support by senior internal specialists in the development of the system (WBS 2.2)

The costing team estimates the costs of this activity from the time spent on similar previous projects and data collected. They assume a 30% increase in the involvement of two senior internal specialists during this process.

| Cost Category | Value |
|---|---|
| **Costs to be incurred by the line ministry in providing support to the donor project in the development of the BIMS** | |
| Average monthly salary of one senior internal specialist involved/supporting the development of the system, MDL | 17,000 |
| Daily salary, MDL | 850 |
| Hourly salary, MDL | 106.25 |
| Hours spent by a senior internal specialist on a similar project in 2022 | 160 |
| Hours spent by a senior internal specialist on a similar project in 2021 | 180 |
| Hours spent by a senior internal specialist on a similar project in 2020 | 140 |
| Average number of hours previously spent by a senior internal specialist | 160 |
| Expected time increase to account for project complexity | 30% |
| Hours expected to be spent on the BIMS by a senior internal specialist | 208 |
| Hours expected to be spent on the BIMS by two senior internal specialists | 416 |
| **Total cost for the involvement/support of two senior internal specialists in the development of the system, MDL** | **44,200** |

## 10.4. Acquisition of infrastructure - Hardware/Software (WBS 3.1)

The costing team estimates the costs associated with the acquisition of infrastructure. For this purpose, estimators note that the Government has undertaken to cover 50% of the costs associated with the purchase of the necessary equipment/software.

Given that the price of hardware/software was estimated in the donor project at MDL 6,000,000 (EUR 300,000), the costs to be paid from the national budget are **MDL 3,000,000.**

## 10.5. Maintenance costs (WBS 3.2)

The estimators note that the annual maintenance costs comprise 10% of the overall value of the BIMS, corresponding to EUR 100,000 or MDL 2,000,000. Given that for the first year of operations the costs will be covered by the service provider, annual payments from the national budget in the amount of **MDL 2,000,000** will occur, starting in 2026.

## 10.6. Staff training (WBS 3.3)

The costing team estimates the costs of this activity on the basis of the time spent on similar previous projects and the assumption that there will be 30% greater involvement by two senior internal specialists during this process. The estimators also note that the donor will pay the costs associated with the involvement of the third-party service provider during the training process, outside of the budget. So these costs are not included in the cost estimation.

| Cost Category | Value |
|---|---|
| **Costs to be incurred by the line ministry in training of border police employees in using the BIMS** | |
| Hours of training spent on a similar project in 2022 | 30 |
| Hours of training spent on a similar project in 2021 | 40 |
| Hours of training spent on a similar project in 2020 | 20 |
| Average training time spent on previous projects, hours | 30 |
| Expected time increase to account for project complexity | 30% |
| Total expected number of hours of training time | 39 |
| Average monthly salary of a senior internal specialist involved in/supporting the development of the system, MDL | 17,000 |
| Daily salary, MDL | 850 |
| Hourly salary, MDL | 106.25 |
| Total cost for 2 senior internal specialists to deliver the training, MDL | 8,288 |
| Average monthly salary of one border policy employee trained in using the BIMS, MDL | 10,000 |
| Daily salary, MDL | 500 |
| Hourly salary, MDL | 62.5 |
| Cost of one border police employee participating in BIMS user training, MDL | 2,435 |
| Cost of 70 border police employees participating in BIMS user training, MDL | 170,652 |
| **Total cost for 70 border police employees to be trained in using the BIMS, MDL** | **178,913** |
| Total cost of the support provided by the donor project during training sessions, MDL | covered directly by the donor |

### 10.7. Total action costs

From the estimations performed, the costing team determines the budgetary costs for the overall action.

| WBS Component | Cost Grouping | Value, MDL |
|---|---|---|
| Preparation of technical/tender specifications and contract award (WBS 1) | Existing personnel | 1,488 |
| System development by service provider (WBS 2.1) | - | 0 |
| Involvement/support by senior internal specialists in the development of the system (WBS 2.2) | Existing personnel | 44,200 |
| Acquisition of infrastructure - Hardware/Software (WBS 3.1) | Capital investments | 3,000,000 |
| Maintenance cost (WBS 3.2) | Goods and services | 2,000,000 |
| Staff training (WBS 3.3) | Existing personnel | 178,913 |
| **Total Action Cost** | | **5,232,888** |

## 11. Sensitivity Analysis

The costing team notes that the major portion of the total cost is related to the IT infrastructure and its maintenance. The estimates for such costs were taken from the donor project documentation, as communicated to the team by the policy division. Hence the costing team contacts the policy division again to enquire about any uncertainties. The policy division explains that the tender will include maintenance costs that are capped at 10%, and there is therefore no risk that they could be exceeded. However, from experience with similar previous IT projects, they indicate that the cost of the infrastructure may ultimately turn out to be some 10–15% higher. The costing team accordingly develops the following uncertainty scenarios:

| | Base estimate | Low-cost increase scenario – 10% higher | High-cost increase scenario – 15% higher |
|---|---|---|---|
| Acquisition of infrastructure - Hardware/Software (WBS 3.1) | 3,000,000 | 3,300,000 | 3,450,000 |
| Total cost of action | 5,232,888 | 5,532,888 | 5,773,888 |
| Additional costs | | 300,000 | 450,000 |
| **Compared to the base** | | **5.7%** | **8.6%** |

The costing team notes that the financial impact of the uncertainty scenarios is above 5% but below 15% of the base scenario. The cost estimate can therefore be deemed to be stable. A more precise cost estimate will be possible once the technical specifications and tender documents have been prepared.

## 12. Funding and Budget Coverage

From the input provided by the financial division and policy division, the following conclusions are reached:

- sufficient financial resources exist within the baseline to fully cover all the salary costs and maintenance expenses;
- no financial resources exist within MIA's baseline to cover the costs associated with the acquisition of hardware/software. These costs will be covered by a separate existing budget subprogramme from which unused financial resources of MDL 4 million are available.

## 13. Documenting Cost Estimates (the CBT)

| | |
|---|---|
| Name of action / measure | Development of a unified IT system for the border police |
| If part of a PPD, name of PPD and code of action / measure | [To be inserted by the Ministry of Internal Affairs] |
| Responsible institution | Ministry of Internal Affairs |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **1. Impact on public expenditure (by economic category)** | **5,024** | **3,134,264** | **93,600** | **2,000,000** | **5,232,888** |
| Existing personnel | 5,024 | 134,264 | 93,600 | 0 | 232,888 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 2,000,000 | 2,000,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 3,000,000 | 0 | 0 | 3,000,000 |
| **2. Available funding** | **5,024** | **3,134,264** | **93,600** | **2,000,000** | **5,232,888** |
| **2A. Funding available from existing MTBF/budget allocations** | 5,024 | 134,264 | 93,600 | 2,000,000 | 2,232,888 |
| *[Subprogramme code]* | | | | | |
| Existing personnel | 5,024 | 134,264 | 93,600 | 0 | 232,888 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 2,000,000 | 2,000,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2B. Allocations from other existing budget programmes** | 0 | 3,000,000 | 0 | 0 | 3,000,000 |
| *[Code of the subprogramme from which the resources will be reallocated]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 0 | 0 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 3,000,000 | 0 | 0 | 3,000,000 |
| **2C. Committed funding from external sources** | 0 | 0 | 0 | 0 | 0 |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| **3. Difference between available funding and estimated costs (2-1)** | **0** | **0** | **0** | **0** | **0** |
| Funding gap as a percentage of the total cost (3/1) | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **4. Potentially available additional means to cover the funding gap** | 0 | 0 | 0 | 0 | 0 |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| Adjustment of the action/measure to increase cost efficiency | 0 | 0 | 0 | 0 | 0 |
| **5. Remaining difference between available funding and estimated costs (3+4)** | **0** | **0** | **0** | **0** | **0** |

## EXPLANATION

### 1. Main calculations made and the data used in the estimation of costs, including the ground rules and assumptions made during the estimation of costs and funding sources

- The value of the donor-financed project is estimated at 1 million euros. The Republic of Moldova has committed to assuming 50% of the costs associated with the purchase of the necessary equipment/software (i.e. MDL 3,000,000) and the total costs associated with its own personnel. The remaining costs will be assumed by the donor and paid directly to the third-party service providers, and are therefore not included in the CBT.
- For the year 2025, system maintenance costs will not be incurred because they will be covered by the developer. The budget will need to cover the maintenance costs from 2026 onwards, amounting to approximately MDL 2,000,000 annually or 10% of the total value of the project.
- Two senior in-house specialists will be required to support the third-party IT solution developer. Their time involvement was estimated from previous experience on similar projects. But taking into account the complexity of the project, it is estimated that the time required per specialist will be 30% greater than for previous projects.
- The training sessions for border police employees will involve 70 employees and be conducted by 2 senior internal specialists.
- Indirect costs are considered insignificant and are not included in the cost estimation.
- Detailed cost computations are available in the costing and budgeting table.

### 2. Sensitivity of cost estimates

At the time of preparing the cost estimates, the precise technical specifications for the required IT infrastructure (hardware and software) were not yet available. Instead, rough estimates from the project donor were used. Experience shows that the actual costs might ultimately turn out to be 10-15% higher. Should this eventuality materialize, the total cost of the action over the costed period would increase by between 300,000 MDL (5.7%) and 450,000 MDL (8.6%). A more precise estimate will become possible once the technical specifications and tender documents have been prepared; however, under the rules of OMF 209/2015, even the present estimate is considered to be stable.

# Case Study 6 Building and running a regional mid-sized general hospital in District A

## 1. Purpose of the Estimate

**Determine the costs associated with building and running a mid-sized hospital**

## 2. Activity Description

In April 2023, the Ministry of Health (MoH) identified the need to build a regional mid-sized general hospital in District A. The line ministry's costing team was tasked with determining the costs associated with building the hospital, as well as the expenses for its operation. The construction is expected to commence in January 2024.

## 3. Work Breakdown Structure (WBS)

| WBS Level | | | | WBS Component | WBS Code | Schedule |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | |
| √ | | | | **Constructing and Operating the Hospital** | **1** | **01/2024 – 01/2026** |
| | √ | | | Construction | 1.1 | 01/2024 – 12/2025 |
| | | √ | | Foundation and underground | 1.1.1 | 01/2024 – 12/2024 |
| | | √ | | Framing | 1.1.2 | 01/2025 –07/2025 |
| | | √ | | Interior and exterior work | 1.1.3 | 07/2025 - 12/2025 |
| | √ | | | Hospital Equipment | 1.2 | 03/2025 – 05/2026 |
| | | √ | | Beds | 1.2.1 | 03/2025 – 12/2025 |
| | | √ | | Medical equipment | 1.2.2 | 03/2025 – 12/2025 |
| | | √ | | Ambulances | 1.2.3 | 03/2025– 05/2026 |
| | | | √ | *Reallocated from other hospitals* | *1.2.3.1* | *03/2025 – 12/2025* |
| | | | √ | *New ambulances* | *1.2.3.2* | *01/2026 – 05/2026* |
| | √ | | | Operation of the Hospital | 1.3 | 01/2026 – 12/2026 |
| | | √ | | Pharmaceutical products | 1.3.1 | 01/2026 – 12/2026 |
| | | √ | | Medical personnel | 1.3.2 | 01/2026 – 12/2026 |
| | | | √ | *Full-time medical personnel* | *1.3.2.1* | *01/2026 – 12/2026* |
| | | | √ | *Visiting medical personnel* | *1.3.2.2* | *01/2026 – 12/2026* |
| | | √ | | General and administrative | 1.3.3 | 01/2026 – 12/2026 |
| | | | √ | *Utilities* | *1.3.3.1* | *01/2026 – 12/2026* |
| | | | √ | *Administrative personnel* | *1.3.3.2* | *01/2026 – 12/2026* |
| | | | √ | *Maintenance of IT infrastructure* | *1.3.3.3* | *01/2026 – 12/2026* |
| | | | √ | *Cleaning materials* | *1.3.3.4* | *01/2026 – 12/2026* |

## 4. Ground Rules and Assumptions

- The hospital will be built to house an estimated 300 beds, corresponding to the average number of 300 patients that are estimated to be hospitalised. The interior work also includes the IT hardware.
- The area of the hospital is estimated at 40,000 square metres. An additional 100 patients can be accommodated there if necessary.
- Visiting medical personnel are engaged for a full-time equivalent of 4 months per year.

## 5. Cost Factors

- **Demographics.** An increase in District A's overall population level, or an increase in the share of the older population, may result in an increase in the number of patients in accordance with the following scenarios:
- Scenario A: average patient number increases by 20%;
- Scenario B: average patient number increases by 50%.
- **New Technology.** Advancements in medical technology allow for the replacement of individual/standardised machines by multifunctional clinical devices. This decreases the overall hospital utility costs by 30% compared with the costs incurred by hospitals using individual/standardised machines.

## 6. Cost Estimating Methodology, Data Collection and Normalization

| Cost Input/WBS Component | Cost Estimation Method | Sources of Data | Period for which data is collected | Data Normalisation | Data Collected | |
|---|---|---|---|---|---|---|
| | | | | | Type of Input | Input Value |
| Construction Costs (WBS 1.1) | Parametric | Historic costs associated with the building of hospitals in Republic of Moldova. | 2010 - 2015 | Adjustment of costs based on the construction price index[25] | ▪ Cost per bed – new building (MDL) | 1,000,000 |
| | | | | | - *Foundation and underground* | 600,000 |
| | | | | | - *Framing* | 200,000 |
| | | | | | - *Interior and exterior work* | 200,000 |
| | | | | | ▪ Cost per bed - extension to existing infrastructure (MDL) | 400,000 |
| Beds (WBS 1.2.1) | Bottom-up | Reference market prices. | 2021 | N/A | ▪ Cost per bed | 10,000 |
| Medical equipment (WBS 1.2.2) | Bottom-up | List of reference prices for multifunctional medical devices that should be available in a mid-size hospital in Moldova. | 2021 | N/A | ▪ Equipment costs (MDL) | 200,000,000 |
| | | | | | ▪ Maximum number of patients served | 500 |
| Ambulances (WBS 1.2.3) | Bottom-up | Reference data on the number of ambulances that mid-size hospitals should maintain. | 2021 | N/A | ▪ Number of ambulances | 6 |
| | | | | | ▪ Maximum number of patients served | 300 |
| | | | | | ▪ Number of ambulances per additional 100 patients | 1 |
| Reallocated from other hospitals (WBS 1.2.3.1) | Bottom-up | Accounting data for 4 ambulances which can be reallocated from other hospitals in Moldova. | 2021 | N/A | ▪ Cost of 4 ambulances (net book value) | 1,250,000 |

[25] Construction price index is available from the National Bureau of Statistics: https://statbank.statistica.md/pxweb/pxweb/ro/40%20Statistica%20economica/40%20Statistica%20economica__05%20PRE__PRE040/?rxid=8e69070f-3ac5-4b22-ab66-eab8ee8cc25a

| Cost Input/WBS Component | Cost Estimation Method | Sources of Data | Period for which data is collected | Data Normalisation | Data Collected | |
|---|---|---|---|---|---|---|
| | | | | | Type of Input | Input Value |
| Ambulances (WBS 1.2.3.2) | Bottom-up | Reference market prices. | 2021 | N/A | ▪ Cost of 1 new ambulance (MDL) | 1,800,000 |
| Pharmaceutical products (WBS 1.3.1) | Parametric | Accounting data from other hospitals in Moldova. | 2021 | N/A | ▪ Annual cost per patient (MDL) | 3,000 |
| Medical and administrative personnel (WBS 1.3.2.1, 1.3.2.2. 1.3.3.2) | Analogy | Number and category of medical and administrative personnel in a mid-sized hospital. | 2021 | N/A | ▪ Full-time medical personnel | |
| | | | | | - *Number of personnel* | 50 |
| | | | | | - *Maximum number of patients serviced* | 400 |
| | | | | | - *Number of personnel per additional 10 patients* | 1 |
| | | | | | ▪ Visiting medical personnel | |
| | | | | | - *Number of patients per person* | 30 |
| | | | | | - *Full-time work equivalent (months)* | 4 |
| | | | | | ▪ Administrative personnel | |
| | | | | | - *Number of personnel* | 60 |
| Medical and administrative personnel (WBS 1.3.2.1, 1.3.2.2. 1.3.3.2) | Bottom-up | Regulated costs on the salaries of medical and administrative personnel[26]. | 2021 | N/A | ▪ Annual costs per employee (MDL) | |
| | | | | | - *Full-time medical personnel* | 240,000 |
| | | | | | - *Visiting medical personnel* | 80,000 |
| | | | | | - *Administrative personnel* | 96,000 |

[26] GD 387/2016 – in Romanian*: Regulamentul privind salarizarea angajaților din instituțiile medico-sanitare publice încadrate în sistemul asigurării obligatorii de asistență medicală*

| Cost Input/WBS Component | Cost Estimation Method | Sources of Data | Period for which data is collected | Data Normalisation | Data Collected | |
|---|---|---|---|---|---|---|
| | | | | | Type of Input | Input Value |
| Utilitie (WBS 1.3.3.1) | Parametric | Accounting data on the costs per patient of utilities in Moldova's mid-size hospitals. | 2021 | The costs are adjusted to take account of the estimated 30% decrease in utility costs from the use of multifunctional medical equipment compared with hospitals where single-function equipment is used | ▪ Annual cost per patient (MDL) | 7,000 |
| Maintenance of IT infrastructure (WBS 1.3.3.3) | Parametric | Accounting data from other hospitals on the costs commonly associated with maintaining IT infrastructure. | 2021 | N/A | ▪ Annual cost per full time personnel (medical and non-medical) - MDL | 5,000 |
| Cleaning Materials (WBS 1.3.3.4) | Parametric | Accounting data on the costs incurred for cleaning materials at other hospitals in Moldova. | 2021 | N/A | ▪ Annual cost per patient (MDL) | 6,000 |

## 7. Documenting Collected Data

| Action Performed | Action Description |
|---|---|
| Purpose of data collection | ▪ Determining the costs required for purposes of building and running a regional mid-sized general hospital in District A. |
| Period of data collection | ▪ 06/2021 – 09/2021 |
| Sources of data collected | ▪ Historic costs, including actual costs for construction activities, equipping of the hospital with various medical equipment, and the running costs for operating a hospital.<br>▪ Reference market prices for the various goods and services required by a hospital.<br>▪ Regulated costs for the salaries of personnel working within hospitals. |
| Types of data collected | ▪ Personnel cost – i.e. medical and non-medical personnel.<br>▪ Goods and services: utilities and other costs associated with the running of the hospital.<br>▪ Capital investments– i.e. construction of the hospital, equipment, ambulances. |
| Period for which data collected | ▪ 2010 – 2021 |
| Data normalisation procedures | ▪ Adjustment of construction cost data to account for the difference in the construction price index in the period for which relevant cost data was obtained and the period of implementation of the analysed action.<br>▪ Adjustments to utility costs to take account of the use of multifunctional medical equipment. |
| Data Location | ▪ The data collected is available, and can be accessed on the network drive of the Ministry of Infrastructure and Regional Development. |

## 8. Cost analysis

| Cost categories | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|
| Construction activities | √ | | | √ | | √ | |
| Hospital beds | √ | | | √ | | √ | |
| Medical equipment | √ | | | √ | | √ | |
| Salaries of full-time medical personnel | √ | | √ | | | √ | |
| Salaries of visiting medical personnel | √ | | √ | | | | √ |
| Ambulances | √ | | | √ | | √ | |
| Pharmaceutical products | √ | | √ | | | | √ |
| Electricity | | √ | √ | | | √ | |
| Water | | √ | √ | | | √ | |
| Other utilities | | √ | √ | | | √ | |
| Maintenance of IT infrastructure | | √ | √ | | | √ | |

| Cost categories | Direct | Indirect | Recurring | Non-recurring | Fixed | Semi-fixed | Variable |
|---|---|---|---|---|---|---|---|
| Salaries of administrative personnel | | √ | √ | | | √ | |
| Cleaning materials | | √ | √ | | | | √ |

## 9. Cost Estimation

The costing team proceeds with determining the financial resources associated with building and running the hospital. For this purpose:

- The estimators note the previously established GR&As:
  - the hospital is built for an estimated 300 beds, corresponding to the average number of 300 patients that are estimated to need hospitalisation;
  - the estimated area of the hospital is estimated at 40,000 square metres. An additional 100 patients can be accommodated there if necessary.
- The estimators cost the individual activities determined under the WBS using the cost data collected.

### 9.1. Construction Costs (WBS 1.1)

The estimators determine the construction costs by reference to the cost per bed and the total bed capacity of the hospital. Such costs are deemed to be non-recurring and are expected solely during the construction phase:

| Cost Input/ WBS Component | WBS Code | Cost per Bed (MDL) | Total Bed Capacity | Total Costs (MDL) |
|---|---|---|---|---|
| Foundation and underground | **1.1.1** | 600,000 | 300 | 180,000,000 |
| Framing | **1.1.2** | 200,000 | 300 | 60,000,000 |
| Interior and exterior work | **1.1.3** | 200,000 | 300 | 60,000,000 |
| **Total Costs (WBS 1.1.1+1.1.2+1.1.3)** | | **1,000,000** | | **300,000,000** |

### 9.2. Equipping the Hospital (WBS 1.2)

Estimators determine the costs associated with equipping the hospital. For some WBS components, the collected data allows a cost per input to be established, while for some other items only the overall cost is available to the costing team. Estimators deem such costs to be non-recurring, at least for the period for which the action is being costed (i.e. 3 years):

| Cost Input/ WBS Component | WBS Code | Cost per Input (MDL) | Number of inputs | Total Costs (MDL) |
|---|---|---|---|---|
| Beds | **1.2.1** | 10,000 | 300 | 3,000,000 |
| Medical equipment | **1.2.2** | - | - | 200,000,000 |
| Ambulances: | **1.2.3** | - | - | 4,850,000 |

| Cost Input/ WBS Component | WBS Code | Cost per Input (MDL) | Number of inputs | Total Costs (MDL) |
|---|---|---|---|---|
| ***- reallocated from other hospitals*** | 1.2.3.1 | - | 4 | 1,250,000 |
| ***- new ambulances*** | 1.2.3.2 | 1,800,000 | 2 | 3,600,000 |
| **Total Costs (WBS 1.2.1+1.2.2+1.2.3)** | | | | **207,850,000** |

## 9.3. Operating the Hospital (WBS 1.3)

Estimators determine the costs associated with the annual operation of the hospital by reference to the cost per input and total number of units estimated to be required. Costs are deemed to be recurring on an annual basis.

| Cost Input/ WBS Component | WBS Code | Cost per Input (MDL) | Number of Inputs | Total Costs (MDL) |
|---|---|---|---|---|
| **Pharmaceutical products** | **1.3.1** | 3,000 | 300 | 900,000 |
| **Medical personnel** | **1.3.2** | - | - | 12,800,000 |
| *Full-time personnel* | *1.3.2.1* | *240,000* | *50* | *12,000,000* |
| *Visiting personnel* | *1.3.2.2* | *80,000* | *10* | *800,000* |
| **General and administrative** | **1.3.3** | - | - | 10,210,000 |
| *Utilities* | *1.3.3.1* | *7,000* | *300* | *2,100,000* |
| *Administrative personnel* | *1.3.3.2* | *96,000* | *60* | *5,760,000* |
| *Maintenance of IT infrastructure* | *1.3.3.3* | *5,000* | *110* | *550,000* |
| *Cleaning materials* | *1.3.3.4* | *6,000* | *300* | *1,800,000* |
| **Total Costs (WBS 1.3.1+1.3.2+1.3.3)** | | | | **23,910,000** |

## 9.4. Total action cost (WBS 1.1-1.3)

| Cost Input/ WBS Component | Cost Grouping | Schedule | Total Cost (MDL) | | |
|---|---|---|---|---|---|
| | | | FY 2024 | FY 2025 | FY 2026 |
| **Construction Costs** | | **01/2024 – 01/2026** | | | |
| Foundation and underground | Capital investments | 01/2024 – 01/2026 | 180,000,000 | - | - |
| Framing | Capital investments | 01/2024 – 12/2025 | - | 60,000,000 | - |
| Interior and exterior work | Capital investments | 01/2024 – 12/2024 | - | 60,000,000 | - |
| **Equipping of the Hospital** | | **03/2025 –12/2025** | | | |

| Cost Input/ WBS Component | Cost Grouping | Schedule | Total Cost (MDL) | | |
|---|---|---|---|---|---|
| | | | FY 2024 | FY 2025 | FY 2026 |
| Beds | Capital investments | 07/2025 - 12/2025 | | 3,000,000 | |
| Medical equipment | Capital investments | 03/2025 – 12/2025 | | 200,000,000 | |
| Ambulances reallocated from other hospitals | Capital investments | 03/2025 – 12/2025 | | 1,250,000 | |
| New ambulances | Capital investments | 03/2025 – 12/2025 | | | 3,600,000 |
| **Operation of the Hospital** | | **03/2025– 12/2026** | | | |
| Pharmaceutical products | Goods and services | 03/2025 – 12/2025 | | | 900,000 |
| Full-time medical personnel | New personnel | 01/2026 – 05/2026 | | | 12,000,000 |
| Visiting medical personnel | New personnel | 01/2026 – 12/2026 | | | 800,000 |
| Utilities | Goods and services | 01/2026 – 12/2026 | | | 2,100,000 |
| Administrative personnel | New personnel | 01/2026 – 12/2026 | | | 5,760,000 |
| Maintenance of IT infrastructure | Goods and services | 01/2026 – 12/2026 | | | 550,000 |
| Cleaning materials | Goods and services | 01/2026 – 12/2026 | | | 1,800,000 |
| **Total Annual Costs** | | | **180,000,000** | **324,250,000** | **27,510,000** |
| **Total Action Costs** | | | | | **531,760,000** |

## 10. Sensitivity Analysis

The costing team carries out a sensitivity analysis, to account for possible demographic trends in District A. From the analysis of past and forecast demographic trends and population health indicators, they determine two scenarios: one which they consider likely, and another which in their opinion could only occur in exceptional circumstances, such as epidemics or a decrease in the capacity of the hospitals in neighbouring regions. The following two scenarios are analysed:

- *Medium cost increase* – the average number of patients increases by 20%, or 60 individuals;
- *High cost increase* – the average number of patients increases by 50%, or 150 individuals.

The estimators assess the impact on costs under the two scenarios for each individual cost input. The results are then compared to the cost estimation prepared by the costing team during the preceding steps (i.e. the base estimate).

The results of the analysis are presented below, with the calculations being presented on the next page.

| Uncertainty | Base Scenario | Medium cost increase | | High cost increase | |
|---|---|---|---|---|---|
| | | Financial Impact | Percentage change | Financial Impact | Percentage change |
| Increase in the number of patients in the mid-size hospital | 531,760,000 MDL | 3,520,000 MDL | 1% increase | 29,125,000 MDL | 5.5% increase |

From the analysis performed, the estimators determine that even under the less likely high cost (pessimistic) scenario, the financial impact is only 5.5%, and in accordance with OMF 209/2015 the estimate can be considered stable.

However, the costing team recognizes that this result is driven by most of the action costs (95%) relating to the construction of the hospital and equipment procured in 2024 and 2025, whereas the uncertainty arising from a higher number of patients is assumed to occur in 2026, when the costs of the action will be limited to the normal day-to-day operation of the hospital. They therefore compare the financial impact of the uncertainty with the cost of the action in the year when the uncertainty occurs, i.e. 2026. They come up with the following result:

| Uncertainty | Base Scenario FY 2026 (MDL) | Medium cost increase | | High cost increase | |
|---|---|---|---|---|---|
| | | Financial Impact | Percentage change | Financial Impact | Percentage change |
| Increase in the number of patients in the mid-size hospital | 27,510,000 | 3,520,000 | 13% increase | 29,125,000 | 106% increase |

From the analysis performed, the estimators determine that under the high cost (pessimistic) scenario the financial impact in year 2026 would be 106%, much higher than the 15% limit established under OMF 209/2015. As a result, the manager organises a meeting with the policy division in charge of the overall PPD preparation to assess whether any changes should be made to the action itself to account for the significant potential cost impact of this uncertainty in 2026. Accordingly, the following items are discussed:

- the assumptions behind the high-cost scenario, to assess more carefully how likely it is to occur, and whether the need for increased capacity would probably be temporary / seasonal (e.g. because of an epidemic) or permanent (e.g. demographic changes);
- planning for a larger hospital from the beginning, i.e. as the baseline action, to reduce the risk of having to increase its capacity later, and considering the option of additional funding for a larger hospital;
- reconsidering the scope of the treatments offered by the hospital, to make savings on the associated equipment costs;
- developing organizational solutions to cope with temporary increases in patient numbers, such as improvised beds and hiring visiting staff on a fixed-term basis.

| Cost Input / WBS Component | Base Scenario | | Medium (60 additional beds/ patients) | | High (150 additional beds/patients) | |
|---|---|---|---|---|---|---|
| | Capacity Assessment | Cost per Input (MDL) | Additional Inputs | Financial Impact (MDML) | Additional Input | Financial Impact (MDL) |
| Construction | ▪ Maximum – 400 beds.<br>▪ Extension to infrastructure of existing hospital decreases construction costs by 40%. | 400,000 | ▪ Existing capacity is sufficient. | - | ▪ 100 patients accommodated within existing capacity;<br>▪ Additional hospital wing for 50 patients. | 20,000,000 |
| Beds | ▪ 300 beds | 10,000 | ▪ 60 beds | 600,000 | ▪ 150 beds. | 1,500,000 |
| Medical equipment | ▪ Maximum – 500 patients | N/A | ▪ Sufficient with existing capacity | - | ▪ Sufficient with existing capacity. | - |
| Ambulances | ▪ Maximum – 300 beds<br>▪ 1 ambulance for every additional 100 beds. | 1,800,000 | ▪ 1 ambulance | 1,800,000 | ▪ 2 additional ambulances. | 3,600,000 |
| Pharmaceutical products | ▪ Based on the effective number of patients. | 3,000 | ▪ 60 patients | 180,000 | ▪ 150 patients | 450,000. |
| Full-time medical personnel | ▪ Maximum – 400 patients;<br>▪ 1 employee for every 10 additional patients. | 240,000 | ▪ Sufficient with existing capacity | - | ▪ 100 patients accommodated within existing capacity;<br>▪ 5 additional employees per 50 patients. | 1,200,000 |
| Visiting medical personnel | ▪ 1 person per 30 patients | 80,000 | ▪ 2 visiting personnel | 160,000 | ▪ 5 visiting personnel | 400,000 |
| Administrative personnel | ▪ Assumed to be fixed | 96,000 | ▪ Sufficient with existing capacity | - | ▪ Sufficient with existing capacity | - |
| Utilities | ▪ Based on the number of patients | 7,000 | ▪ 60 patients | 420,000 | ▪ 150 patients | 1,050,000 |
| Maintenance of IT Infrastructure | ▪ Based on the number of full-time medical and administrative personnel | 5,000 | ▪ Sufficient with existing capacity | - | ▪ 5 additional full-time employees | 25,000 |
| Cleaning materials | ▪ Based on the number of patients | 6,000 | ▪ 60 patients | 360,000 | ▪ 150 patients | 900,000 |
| **Total Cost** | | | | **3,520,000** | | **29,125,000** |

## 11. Funding and Budget Coverage

The costs of the action will be shared between the MoH and the Ministry of Infrastructure and Regional Development (MIRD). Both ministries ensure that money is available within the national budget, and no further allocations are required.

## 12. Documenting Cost Estimates (the CBT)

| | |
|---|---|
| Name of action / measure | Building and running a regional mid-sized general hospital in District A. |
| If part of a PPD, name of PPD and code of action / measure | [To be inserted by the Ministry of Infrastructure and Regional Development (MIRD)] |
| Responsible institution | Ministry of Infrastructure and Regional Development (MIRD) |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| **1. Impact on public expenditure (by economic category)** | **0** | **180,000,000** | **324,250,000** | **27,510,000** | **531,760,000** |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 18,560,000 | 18,560,000 |
| Goods and services | 0 | 0 | 0 | 5,350,000 | 5,350,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 180,000,000 | 324,250,000 | 3,600,000 | 507,850,000 |
| **2. Available funding** | **0** | **180,000,000** | **324,250,000** | **27,510,000** | **531,760,000** |
| **2A. Funding available from existing MTBF/budget allocations** | 0 | 180,000,000 | 324,250,000 | 27,510,000 | 531,760,000 |
| *[Subprogramme code]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 18,560,000 | 18,560,000 |
| Goods and services | 0 | 0 | 0 | 5,350,000 | 5,350,000 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 180,000,000 | 324,250,000 | 3,600,000 | 507,850,000 |
| **2B. Allocations from other existing budget programmes** | 0 | 0 | 0 | 0 | 0 |
| *[Code of the subprogramme from which the resources will be reallocated]* | | | | | |
| Existing personnel | 0 | 0 | 0 | 0 | 0 |
| New personnel | 0 | 0 | 0 | 0 | 0 |
| Goods and services | 0 | 0 | 0 | 0 | 0 |
| Social benefits | 0 | 0 | 0 | 0 | 0 |

| FINANCIAL ESTIMATION (MDL) | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|
| Subsidies | 0 | 0 | 0 | 0 | 0 |
| Capital investments | 0 | 0 | 0 | 0 | 0 |
| **2C. Committed funding from external sources** | 0 | 0 | 0 | 0 | 0 |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| **3. Difference between available funding and estimated costs (2-1)** | **0** | **0** | **0** | **0** | **0** |
| Funding gap as a percentage of the total cost (3/1) | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **4. Potentially available additional means to cover the funding gap** | **0** | **0** | **0** | **0** | **0** |
| Donor grants to the budget | 0 | 0 | 0 | 0 | 0 |
| Dedicated loans | 0 | 0 | 0 | 0 | 0 |
| Other public funding available | 0 | 0 | 0 | 0 | 0 |
| Participation by the private sector | 0 | 0 | 0 | 0 | 0 |
| Budget revenues created by the action/measure | 0 | 0 | 0 | 0 | 0 |
| Adjustment of the action/ measure to increase cost efficiency | 0 | 0 | 0 | 0 | 0 |
| **5. Remaining difference between available funding and estimated costs (3+4)** | **0** | **0** | **0** | **0** | **0** |

## EXPLANATION

**1. Main calculations made and data used in the estimation of costs, including ground rules and assumptions made in the estimation of costs and funding sources**

- The hospital is expected to be built with a capacity of 300 beds, corresponding to the average number of 300 patients that are estimated to be hospitalised.
- The area space of the hospital is estimated at 40,000 square metres, which can, if necessary, accommodate an additional 100 patients.
- Visiting medical personnel have a full-time equivalent of 4 months.
- For the estimation of construction costs, historic data were used. Data from similarly sized hospitals were used as the benchmark for the number of ambulances and personnel, pharmaceutical equipment, utilities, cleaning and IT maintenance required. Official reference prices were used for medical equipment. Reference market prices were used for hospital beds and new ambulances, while book value was used for ambulances transferred from other hospitals. Regulated salaries were used for medical and administrative staff payments.

- The indirect costs of hospital operation are included in the estimate.
- Detailed cost computations are available in the costing and budgeting table.

**2. Sensitivity of cost estimates**

- The key uncertainty relates to the potential increase in 2026 of the number of patients requiring hospitalisation as a result of the demographic and health trends in District A.
- Two scenarios were analysed:
  - medium increase in patient numbers – the average number of patients increases by 20%, or 60 individuals;
  - high increase in patient numbers – the average number of patients increases by 50%, or 150 individuals.
- The following were determined:
  - under the medium scenario, the financial impact in 2026 (i.e. the 13% cost increase of 3,520,000 MDL) lies within the +15% limit established by OMF 209/2015; while
  - under the high scenario, the financial impact in 2026 (i.e. the 106% cost increase of 29,125,000 MDL) is substantially higher than the limit established by OMF 209/2015.
- The costing team organised a meeting with the policy division in charge of the overall PPD preparation to present the result of the costing analysis, including a discussion regarding the potential cost increases in the final year of the action being analysed. In this meeting, the eventuality of a permanent 50% increase in patient numbers was considered highly unlikely to take place over the medium term. Consequently, an agreement was reached that no changes to the cost estimate should be made, but the Ministry of Health should carefully analyse the changes in the number of patients during 2022 – 2024. If significant changes occur, the cost estimates will be revisited in the subsequent budgeting periods.

## 13. Allocation of available funding from the line ministries

An agreement was reached that the construction activities will be carried out by the MIRD, while the operation of the hospital will take place under the purview of the MoH. Similarly, the available funding will be allocated on the basis of the activities to be carried out by the two institutions, as outlined in the table below:

| Economic Category | 2023 | | 2024 | | 2025 | | 2026 | |
|---|---|---|---|---|---|---|---|---|
| | MIRD | MoH | MIRD | MoH | MIRD | MoH | MIRD | MoH |
| Existing personnel | - | - | - | - | - | - | - | - |
| New personnel | - | - | - | - | - | - | - | 18,560,000 |
| Goods and services | - | - | - | - | - | 204,250,000 | - | 8,950,000 |
| **Social benefits** | - | - | - | - | - | - | - | - |
| Subsidies | - | - | - | - | - | - | - | - |
| Capital investments | - | - | 180,000,000 | - | 120,000,000 | - | - | - |
| **Total** | **-** | **-** | **180,000,000** | **-** | **120,000,000** | **204,250,000** | **-** | **27,510,000** |

Printed on “Casa Editorial-Poligrafică «Bons Offices»”

BONS OFFICES

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**Implemented by**

This publication was produced with the financial support of the European Union. Its content represents the sole responsibility of the "Support for structured policy dialogue, coordination of the implementation of the Association Agreement and enhancement of the legal approximation process" project, financed by the European Union. The content of the publication belongs to the authors and does not necessarily reflect the vision of the European Union.