

# MAINSTREAMING EARLY CHILDHOOD EDUCATION INTO EDUCATION SECTOR PLANNING

COURSE READER FOR **MODULE 4:**  
Policies, programs, costing  
and financing for pre-primary



United Nations  
Educational, Scientific and  
Cultural Organization



International Institute  
for Educational Planning



GLOBAL  
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for every child



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# Module 4

## Welcome to Module 4.

The education sector plan (ESP) is a strategic document that presents a medium- to long-term vision of a country's education system and identifies strategies on how to reach desired outcomes. The desired outcomes for the pre-primary subsector should be part of the overall vision of the education sector plan.

In this module, we consider the next phases of the ESP development process. The challenges for pre-primary that were identified through the education sector analysis are translated into pre-primary policy priorities and strategies. These are then operationalized into programs and activities, with measurable targets and timelines. Financial simulation models and projections provide evidence of the financial feasibility of achieving selected policy and program targets, and the need to cater for the potential differences in costing for pre-primary. These models can explore multiple scenarios, and ESP policies and strategies may have to be revised to ensure financial viability and realistic achievability.

**Module 4** introduces participants to the second, third and fourth phases of the planning process, which build on the sector analysis to formulate policies and set well-costed, realistic objectives, targets and timelines for programs that include pre-primary.

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## Intended learning outcomes

Upon successful completion of this module, participants should be able to do the following:

- Explain the process of policy formulation for pre-primary programs.
- Identify the process for setting goals and objectives that address pre-primary issues and policy priorities.
- Explain how to design programs and activities to achieve the pre-primary goals/objectives.
- Describe the process of projecting costs and testing goals and objectives for feasibility using an education simulation model.



## Time frame

**Module 4 will be held November 18–24, 2019.**

The study time needed to complete this module is on average two to four hours depending on your learning profile (i.e. reading/watching the materials, and completing the quiz and activities).



## Suggested readings

These key references provide an overview of the following phases of ESP development: policy formulation, program design, and costing and financing (policies, program design and costing). **They complement this course reader. Please note that the contents of the suggested readings will not be assessed during the course.**

Chang, G.-C., and M. Radi. 2001. *Educational Planning Through Computer Simulation: Education Policies and Strategies 3*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000124209>.

IIEP-UNESCO (International Institute for Educational Planning–United Nations Educational, Scientific and Cultural Organization). 2010. “Strategic Planning: Techniques and Methods.” Education Sector Planning Working Paper 3, IIEP-UNESCO, Paris. <https://unesdoc.unesco.org/ark:/48223/pf0000189759>. In particular, chapter 2 (“Phase 2: Policy Formulation”), chapter 3 (“Phase 3: Selection of Key Plan Objectives and Priority Areas”), chapter 4 (“Phase 4: Design of Priority Programs”), and chapter 5 (“Phase 5: Preparation of the Cost and Financing Framework”).



Örtengren, K. 2016. *A Guide to Results-Based Management (RBM): Efficient Project Planning with the Aid of the Logical Framework Approach (LFA)*. Stockholm: Swedish International Development Cooperation Agency. <https://www.sida.se/English/publications/148157/a-guide-to-results-based-management-rbm-efficient-project-planning-with-the-aid-of-the-logical-framework-approach-lfa/>.

**These suggested readings can also be found in the bibliography, which lists all the sources cited in this reader. These documents and the further readings recommended below are available by clicking on the link.**



## Further readings

**Depending on your interests, you may want to consider these other readings.**

Chang, G.-C. 2006. *National Education Sector Development Plan: A Result-Based Planning Handbook*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000144783>. In particular, see chapter 5 (“Estimation of Costs”), pp. 59–63.

Garcito, M., and C. Matthews. 2012. “Costing and Financing Early Childhood Programs.” PowerPoint presentation. World Bank. [https://olc.worldbank.org/sites/default/files/Session\\_6B\\_Costing\\_and\\_Financing\\_Early\\_Childhood\\_Programs\\_Feb\\_6\\_2013\\_1\\_0.pdf](https://olc.worldbank.org/sites/default/files/Session_6B_Costing_and_Financing_Early_Childhood_Programs_Feb_6_2013_1_0.pdf).

Lesotho, Ministry of Education and Training. 2016. *Education Sector Plan 2016–2026*. <https://planipolis.iiep.unesco.org/en/2016/education-sector-plan-2016-2026-6432>.

Planipolis: Portal of Education Plans and Policies. <http://planipolis.iiep.unesco.org>.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2015. *Unpacking Sustainable Development Goal 4: Education 2030: A Guide*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000246300>.

———. 2016. *Mainstreaming SDG4-Education 2030 in Sector-wide Policy and Planning: Technical Guidelines for UNESCO Field Offices*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000246475>.

———. 2019. “UNESCO Launches a New Simulation Model for Education.” <https://en.unesco.org/news/unesco-launches-new-simulation-model-education>.

UNICEF (United Nations Children’s Fund) WCARO (West and Central Africa Regional Office). 2015. *Structuring Development Perspectives for Early Childhood. A User Guide for the Simulation of a Costing Model and Concept Note Drafting in a National Context. [0-6 YEARS]*. Dakar: UNICEF WCARO.



Van Ravens, J. 2010. "Financing ECD." A PowerPoint presentation for the World Bank Africa Early Childhood Care and Development Initiative, Second Technical Workshop, Cape Town, South Africa, July 26–28. <https://slideplayer.com/slide/7407291/>.

Van Ravens, J., and C. Aggio. 2008. "Expanding Early Childhood Care and Education: How Much Does It Cost? A Proposal for a Methodology to Estimate the Costs of Early Childhood Care and Education at Macro-level, Applied to the Arab States." Working Paper 46, Bernard van Leer Foundation, The Hague. <https://files.eric.ed.gov/fulltext/ED522696.pdf>.



## Virtual platform

On the course platform, you will find the following resources to help you through:

- ▶ Introductory video to Module 4
- ▶ Inspirational video
- ▶ Animated presentation
- ▶ Course reader (this document)
- ▶ Assessment tools (quiz + drag and drop exercises)
- ▶ Activities
- ▶ Poll questions
- ▶ Connect forum
- ▶ Glossary
- ▶ Wrap-up session



## Need help?

If you have questions or comments on the readings or activities in Module 4, do not hesitate to share them on the discussion forum (on the course platform) for feedback from other participants and the teaching team. We invite participants to help one another on this forum. The course facilitators will follow these exchanges and intervene when necessary.



# 1.

## INTRODUCTION TO POLICY FORMULATION AND PROGRAM DESIGN

As explained in Module 2, the ESP should be strategic and offer a vision for the education system in the future, including pre-primary, and then identifying the ways to reach this desirable situation. It should provide a long-term vision, with medium-/long-term policy priorities set as goals, objectives and strategies that are developed into programs.

In Module 3, we focused on the education sector analysis (ESA), which, among other things, identifies the various challenges faced by the education system, including pre-primary. We also discussed how the consultation process for the analysis includes a first identification of potential priorities for addressing the challenges raised. After the ESA is finalized, work on the ESP begins.

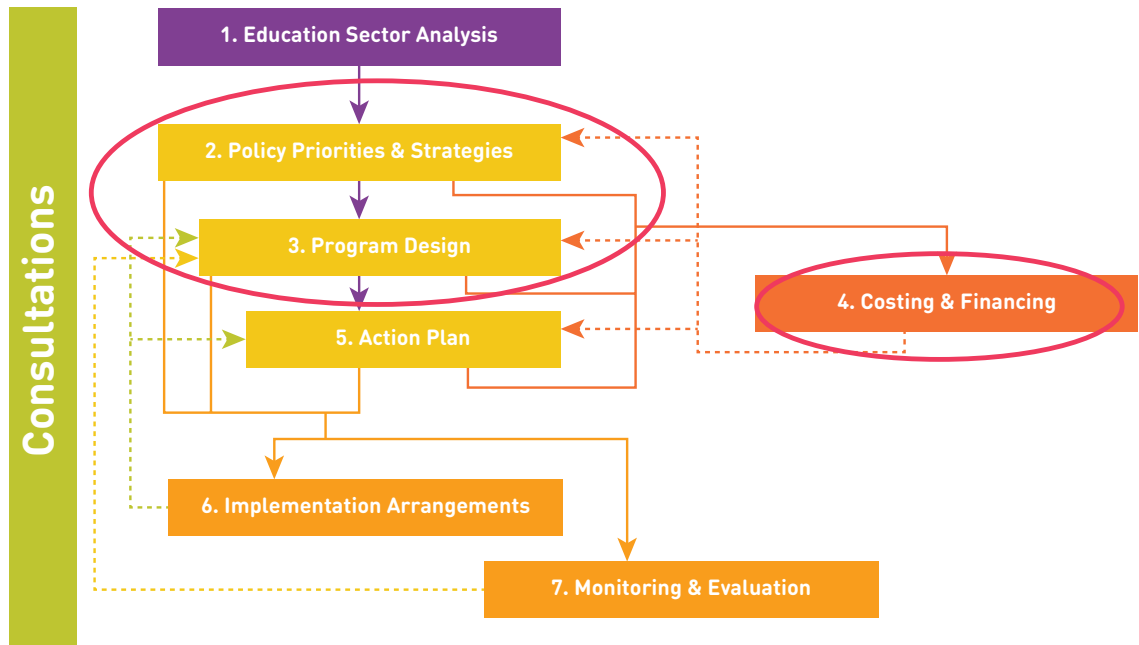
An effective ESP identifies relevant responses to the early childhood education (ECE) challenges raised by the ESA, including a review of current educational policies. These responses will be formulated as policy priorities and strategies that will contribute to overcoming the educational challenges. The policy priorities and their related strategies will then be translated into more specific and detailed programs of actions, each with precise targets to measure the sector performance over the plan implementation period.

In Module 2, we provided a brief overview of the main phases of ESP preparation. In this module, we will look in more detail at the second, third and fourth phases (Figure 1):

- Phase 2: ECE policy priorities and strategies
- Phase 3: ECE program design
- Phase 4: Costing and financing for ECE expansion

FIGURE 1.

MAIN PHASES OF ESP DEVELOPMENT, PHASES 2-4 HIGHLIGHTED



Source: GPE and IIEP-UNESCO 2015.

**Although numbered sequentially, the phases are not necessarily consecutive; some may occur at the same time or in parallel.** The ESP should lay out the policy framework that supports the overall vision for the plan and its strategic programs. Results from the ESA may point to either needed changes in policies or to the need for new policies, such as, for example, the need to develop a policy to introduce one year of compulsory pre-primary education. As policies and strategic programs are being developed, their feasibility will be regularly assessed, including through a cost and finance lens. This is most effectively done through the use of a **simulation model** (see section 4).

# 2.

## POLICY FORMULATION: SETTING POLICY PRIORITIES AND STRATEGIES FOR PRE-PRIMARY

The ESP serves as a road map for the education system. It lays out a common understanding of **what** is hoped to be achieved, through policy priorities and goals; **how** it will be achieved, through related major strategies, programs and activities; and over what **time frame** it will be achieved.

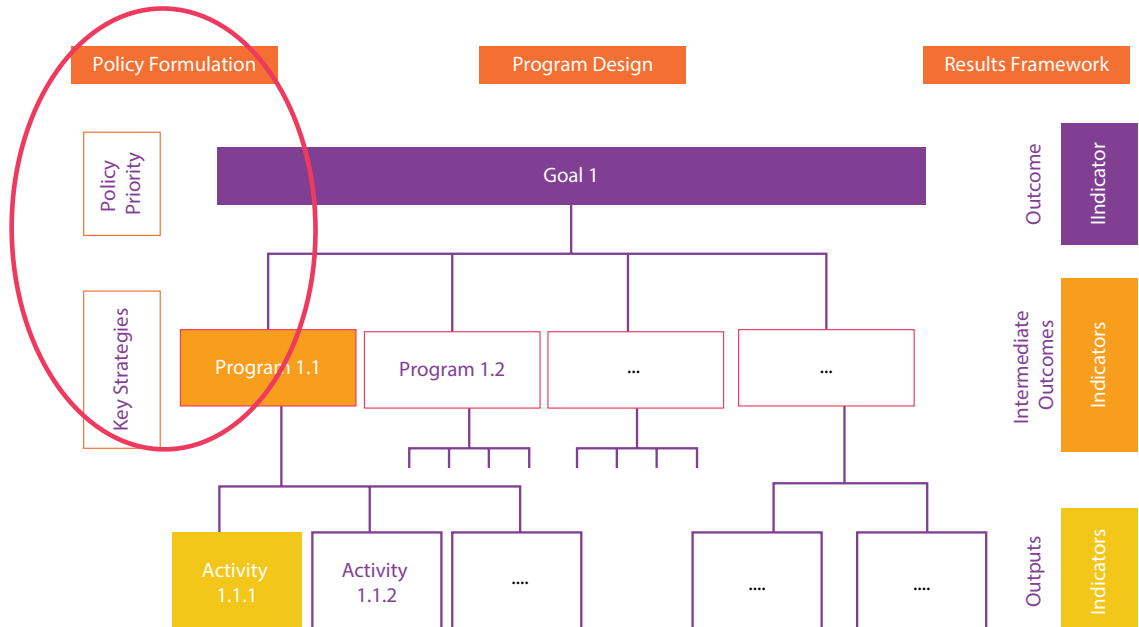
### 2.1 Policy formulation

Formulating policy has to do with *identifying both the policy priorities* (for example, defining broad, medium- to long-term goals and objectives) and the *major strategies* for reaching those goals and objectives. As a national policy instrument, the ESP is strongly influenced by national development priorities and international commitments made by the government. In this regard, it is important for policy priorities to be aligned to the following:

- National and subnational policies and plans and public statements of intent (for example, National Development Plans, Poverty Reduction Strategies, Vision 2030).
- Global and international development frameworks such as the Sustainable Development Goals (SDGs) and Education 2030. Of particular relevance for pre-primary is SDG 4.2, the target specific to early learning. It encourages governments to finance free and compulsory pre-primary education for at least one year. Such commitments may also require adjustment or strengthening of national legislation, which may be included as an activity within the plan.

FIGURE 2.

POLICY FORMULATION AS AN INITIAL STEP IN PLAN DESIGN



Source: Adapted from GPE and IIEP-UNESCO 2015.

In addition to national and international commitments, the plan must address the main challenges raised by the ESA. The identification of appropriate responses to the issues and weaknesses raised, and their underlying factors, leads to the determination of policy priorities and the possible strategies and actions to implement them. This requires the development of an explicit causal chain or logical framework. The Logical Framework Approach (LFA) includes useful tools to help with this process.<sup>1</sup> We will look specifically at problem and objective trees (described below) and the logical framework matrix, or logframe (see section 3).

<sup>1</sup> The LFA was developed at the end of the 1960s for USAID. It became common practice in most aid agencies in the 1990s, when it also began being used for designing broader programs and plans in recipient countries. It is a method for designing (and monitoring) projects in a rigorous way. It implies a highly structured process of analyzing problems, defining objectives, and then selecting and organizing the relevant activities for reaching the objectives, following a strict logical order. Like the LFA, the theory of change approach is increasingly used in planning, to present detailed causal chains that lead to desired outcomes and impacts. Unlike the more linear LFA, the theory of change can show many different pathways that might lead to change and can be more flexible, with no fixed format, including cyclical processes, feedback loops and more.



## 2.2 Using the ESA results and the problem tree tool to move from problems to objectives

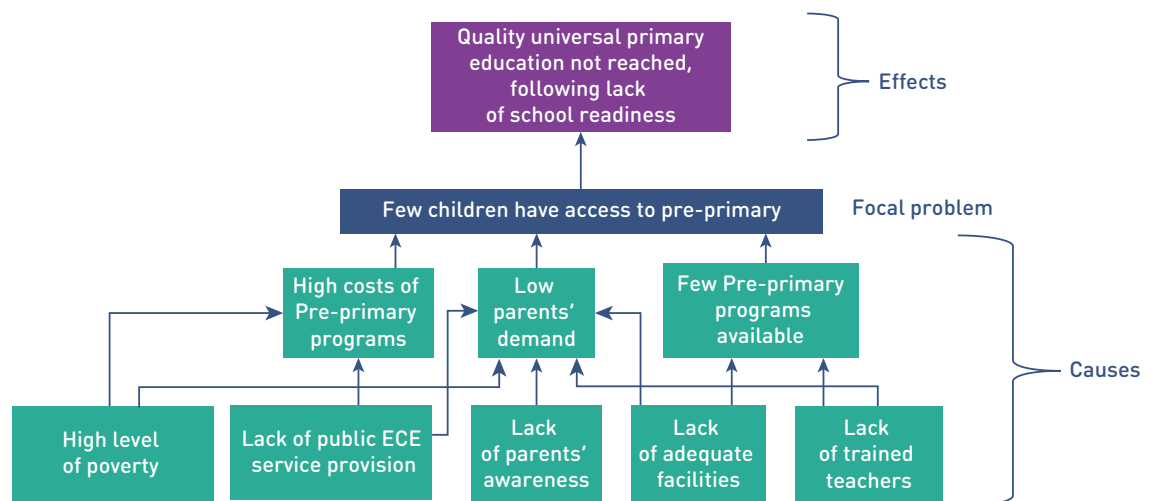
Identifying the main causes of the identified issues, and moving from those causes to objectives, is not a straightforward process. There is no standardized approach to this step; it will remain a question of best judgment based on discussion and consensus building. Problem and objective trees,<sup>2</sup> however, can help with this process.

Problem trees help analyze the challenges and problems raised during the ESA. They are then converted to objective trees, which help with the selection of objectives and strategies to consider. In a problem tree analysis, different issues are considered and ordered in a cause-effect relationship based on a focal problem.

Figure 3 illustrates a problem tree based on a selection of early childhood development and education (ECDE) challenges identified in South Sudan (Box 1). The problem tree allows a clear prioritization of the various causes and helps set up the link between the focal problem (few children have access to pre-primary education) and the underlying causes and effects.

FIGURE 3.

### SIMPLIFIED PROBLEM TREE RELATED TO LOW ACCESS TO PRE-PRIMARY EDUCATION IN SOUTH SUDAN, 2015



Note: Based on South Sudan main challenges, 2015.

2 Problem tree construction is a collaborative technique used for systematizing group discussion and reaching consensus. Generally, group members write down individual problem statements on cards, which are then sorted and visually displayed in a cause-effect relationship. After several rounds of individual statement writing, the output is a graphic presentation of interrelated problems differentiated in a hierarchical order, with the effects presented above the focal problem and the causes below it. The graphic gives an idea of what the group considers are the main causes and effects of the focal problem. It helps in understanding the context, the interrelationship of problems and the potential impact of specific actions that could be undertaken.



## BOX 1.

### SAMPLE PROBLEM AND OBJECTIVE TREE ANALYSIS FROM SOUTH SUDAN

During the *General Education Sector Plan 2017–2022* preparation in South Sudan, the plan’s technical working group reviewed the ESA findings and identified several key challenges related to the expansion of early childhood development and education (ECDE):

- Insufficient number of facilities
- Limited awareness of importance of ECDE
- Poverty
- Poor coordination between the ministry and states
- Negative cultural attitudes against girls’ education
- Insufficient coordination and linkages between the ministry and education development partners working in ECDE
- Insufficient funds from both government and development partners for carrying out ECDE activities
- Insufficient data on ECDE schools
- No curriculum for ECDE school teachers
- Insufficient number of training institutions for training ECDE teachers
- Lack of training for ECDE teachers and no qualification system in place
- Insecurity in some areas might prevent or stop construction; construction in remote areas is more costly because of bad road conditions

*Source:* South Sudan, Ministry of General Education and Instruction (2017).

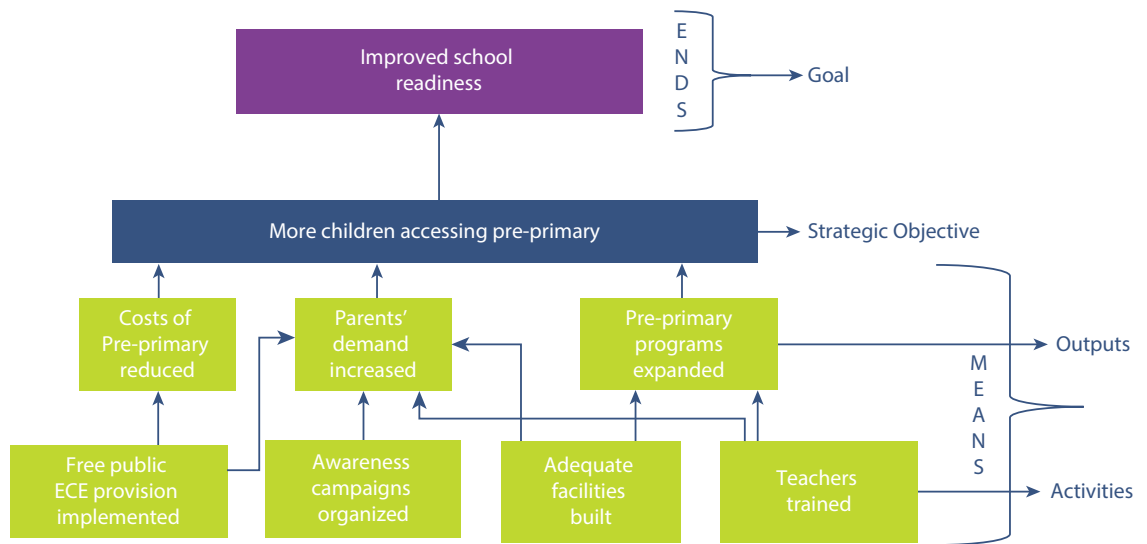
In short, the problem analysis, which stems from the findings of the ESA, is essentially a way to organize the challenges and to consider the underlying negative causes of an existing situation. This is done by asking **why**, which allows the working group to organize selected ESA challenges logically so that they illustrate a cause-effect relationship. For example, Figure 3 shows that one of the problems/challenges related to expanded ECE in South Sudan is too few ECE facilities. The logical question, then, is “Why is that the case?” Two reasons are lack of adequate facilities and lack of trained teachers (which the ESA also had identified as challenges).

Once a problem tree has been created, the next step is to convert it into an objective tree. This occurs through simple rewording that results in goals, objectives, outputs and related activities. The chart thus shows a “means-ends” relationship of possible objectives and leads to the identification of priority programs that could be incorporated as part of the sector plan (Figure 4).

The objective tree can be thought of as the positive version of the problem tree. It involves converting problems into objectives. Whereas the central question in the problem tree analysis is **“why?”**, in the objective tree analysis it is **“how?”** For example, the objective tree in Figure 4 shows that one objective is to increase parents’ demand for pre-primary. The question to ask then is, “How will we accomplish that objective?” In the South Sudan example, the group

FIGURE 4.

TRANSFORMATION OF THE PROBLEM TREE INTO AN OBJECTIVE TREE, SOUTH SUDAN EXAMPLE



Note: This objective tree derives from the problem tree in Figure 3

suggested an awareness campaign, among other activities, to highlight the benefits of pre-primary education and encourage parents to enroll their children. Depending on the context, other activities could help accomplish this objective. The objective tree, therefore, provides a logical structure that can be used during the program design phase (discussed in section 3).

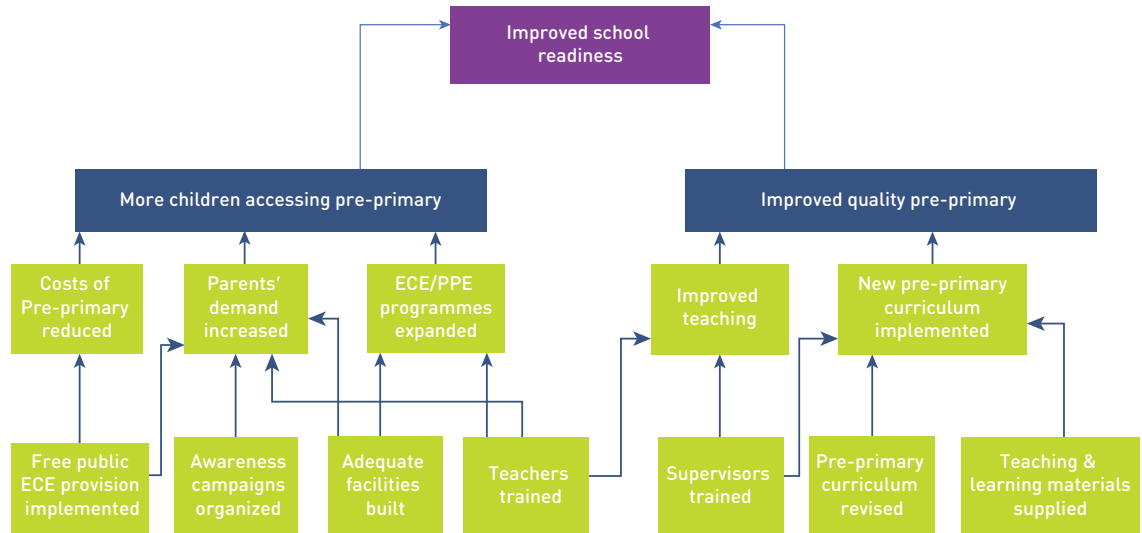
It is important to bear in mind that the results of problem and objective trees are not the equivalent of empirical evidence. Rather, they reflect the collective opinion of the people involved in constructing them. Thus, the quality of the products directly depends on the profile of those individuals, and their diversity. It is important to select the members of the technical working groups (TWGs) carefully, making sure that the groups are composed of specialists with the appropriate technical knowledge and experience.

The above example for South Sudan focuses on one focal problem, “few children have access to pre-primary education.” When planning for the whole pre-primary subsector, though, there may be more than one focal problem—for example, “poor quality pre-primary education”—which would result in the production of another problem tree and objective tree. As shown in Figure 5, the two objective trees might link via the same overall objective.

For an ESP, this same logic may apply across subsectors. For example, the overall objective of the pre-primary subsector and that for basic education might both contribute to a higher-level goal in the plan, for example, “quality basic education for all achieved.” See Figure 6 for a simplified illustration of these relationships.

FIGURE 5.

ILLUSTRATION OF COMBINED OBJECTIVE TREES FOR THE PRE-PRIMARY SUBSECTOR



2.3 Selecting policy priorities

It is unlikely that a particular plan can address all of the problems in a given situation. Therefore, the decision on which programs and strategies to undertake during the plan period must be based on consultations with stakeholders, who should consider various issues, including those discussed below.

FIGURE 6.

CONTRIBUTION OF TWO PRIORITY PROGRAMS TO A HIGHER-LEVEL GOAL



At this stage of the process, the objective trees illustrate a set of policy priorities: goals, objectives and activities to address the focal problems identified. Groups must examine them and then discuss and decide how to prioritize them for implementation during the ESP period. This will lead to the identification of priority programs (that is, groupings of key activities).

As a country formulates policy priorities for their ESP, inherent challenges and trade-offs need to be considered in the context of the country's aspirations for ECE and how that fits within the broader vision for education as a whole. For example, a country may grapple with wishing to grow access while improving quality; to prioritize expansion while at the same time emphasizing equity; or to balance investing in pre-primary education with other levels of education. These challenges are particularly pronounced for nascent pre-primary subsectors and require thoughtful discussions and decision-making. In general, and for the pre-primary subsector in particular, countries are tasked with making tough decisions:

- **Provision modalities:** To reach the target of universal access to pre-primary education, countries may choose to pursue an expansion strategy based on the public pre-primary model (for example, attaching reception classes to existing primary schools), or through a combination of program approaches and alternatives (for example, private provision, accelerated school readiness) to reach more children and to respond to the diversity of needs and contexts.<sup>3</sup>
- **Equity issues:** To expand quickly, countries may choose to provide three or more years of pre-primary education that is often accessible to only a small subset (often more privileged) of families and children and then gradually attempt to expand services to reach more marginalized children. Alternately, they can choose to provide a minimum one-year package of quality pre-primary education for all children (including the most marginalized) and then gradually expand the number of years of pre-primary education.
- **Teachers:** There is an incredible demand for pre-primary teachers across countries, who are currently in very short supply, and for ensuring that these teachers are qualified/trained (half of ECE teachers are not qualified, according to the latest UNICEF 2019 report, "A world Ready to Learn"). To meet this challenge, countries may choose to hire highly qualified teachers and spend more on their salaries while keeping reasonable pupil-teacher ratios (PTRs), or increase PTRs to cover more children with fewer teachers, which can affect the quality of adult-child interactions. Alternately, they can pursue an interim strategy that is based on the hiring of greater numbers of teachers with initially lower qualifications but who are carefully selected and supported to ensure they can provide a positive learning environment for children, complemented by intensive ongoing training for these teachers and the gradual upgrade of qualifications, and quality control measures; this allows for a lower PTR at more affordable costs and potentially reaching more children in the short term.
- **Quality:** Investing in quality is critical to ensure that children reap the benefits of pre-primary education. Countries need to consider the priorities in establishing clear quality standards and ensuring reasonable PTRs while developing a robust quality assurance system (with all that entails in terms of human, financial and physical resources). Furthermore, there should also be goals with respect to solidifying the curriculum and the partnerships with families and communities.

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3 Note that the buy-in of national decision makers for community-based approaches is often an issue. The community-based approach is probably the most cost-effective, but it often is perceived as substandard, which makes it difficult to have the commitment of decision makers in many countries.

In the broader education context, a key trade-off is giving priority to objectives related to the expansion of early childhood education rather than to those of other levels of education (for example, universalization of upper secondary education or expansion of technical and vocational education and training [TVET]). Hence, it is important to formulate priority policies and objectives on the basis of well-argued criteria and thoughtful reflections, and either to justify and explain clearly the choice of the priority policies, or to consider creative, alternative strategies that might help make progress toward the various objectives.

Also, while reflecting on strategies, it is important to keep in mind the possible need for profound reforms of existing systems. Many sector plans mainly focus on expansion of the existing system and pay little attention to the need for reform. Pertinent examples concern, for instance, ECE teacher training or pre-school supervision. ESPs tend to propose to expand the number of teacher training institutions, or setting up new ECE streams, to increase the share of trained ECE teachers or to recruit additional ECE supervisors. However, the sector diagnosis regularly shows that the challenge resides not simply in numbers but in the quality and nature of teacher training and of school supervision. Thus, the plans should include strategies aimed at reforming rather than only expanding ECE teacher training and pre-school supervision, for example.

Ultimately, the various options need to be discussed as part of a wide participatory process, involving all major stakeholders. It is essential at this initial stage to get a consensus on a rather firm, realistic and coherent set of objectives and priority programs from the decision makers and the TWGs.<sup>4</sup> Note, however, that a feasibility checking process, outlined in section 3.4, will lead to further adaptation and fine-tuning during the plan development process, especially in the program design phase (discussed in section 3) and when considering more precise cost and finance implications of quality pre-primary expansion strategies (discussed in section 4).

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4 As needed, please refer to the section on organizational arrangements in Module 2, section 2.4.

# 3.

## PRE-PRIMARY SUBSECTOR PROGRAM DESIGN

Once the plan goals, objectives and strategies have been agreed, specific priority programs are designed for reaching the objectives.<sup>5</sup> These programs include an indication of precise targets to be achieved and outputs expected, key activities to be completed, and corresponding indicators and sources of information.<sup>6</sup> This phase is generally the most time-consuming, including the time needed to brief and train the TWG members in program design techniques.<sup>7</sup>

### 3.1 Structure of ESP programs

There are three general ways to structure programs in a sector plan:

1. By subsector.
2. By thematic entry point (for example, access, quality and relevance, and efficient management). Each thematic entry point then contains components that are generally organized by subsector (pre-primary, basic education, secondary education and so on).

<sup>5</sup> Section 3 is adapted from IIEP-UNESCO (2010) and from IIEP-UNESCO (2015).

<sup>6</sup> Depending on the design template chosen, timelines and the units responsible for each activity might also be included. If they are not included here, they will be incorporated into the action plan, which is discussed in Module 5.

<sup>7</sup> Before initiating this phase, some reshuffling of working groups might be required to adapt their number and composition to the list of selected priority program areas, some of which will be level-specific, while others will be crosscutting, and possibly along different lines from those identified in the ESA.

3. By a mixed approach that prioritizes a specific subsector, such as pre-primary or higher education, and then addresses other challenges raised in the ESA through thematic areas.

The choice of how to structure the ESP depends on the results of the ESA—which identify the key challenges facing the education sector, which are then turned into priorities for the ESP (as we saw in the last section)—and each country’s priorities, which depend on the educational, social and political contexts. It also depends of the organization of the Ministry(ies). Table 1 illustrates how three countries each used a different structure.

TABLE 1.

## EXAMPLES OF PLAN STRUCTURES

VIETNAM (SUBSECTOR)	TANZANIA (THEMATIC)	JORDAN (MIXED)
<p>EFA Action Programs</p> <ol style="list-style-type: none"> <li>1. Early Childhood Care and Education</li> <li>2. Primary Education</li> <li>3. Lower Secondary Education</li> <li>4. Non-Formal Education</li> </ol> <p><i>National EFA Action Plan, 2003–2015</i></p>	<p>ESDP Areas/Cluster</p> <p><b>Outcomes</b></p> <ol style="list-style-type: none"> <li>1. Capacities and Values Improvement (<b>Pre-primary tackled in basic education section</b>)</li> <li>2. Improving Provision and Equity (<b>Pre-primary tackled in basic education section</b>)</li> <li>3. Conducive Teaching and Learning Environment (<b>Pre-primary tackled in basic education section</b>)</li> <li>4. Macro-Micro Management and Governance (<b>Pre-primary tackled in basic education section</b>)</li> </ol> <p><i>Education Sector Development Programme 2008–2017</i></p>	<p>Priority Domains</p> <ol style="list-style-type: none"> <li>1. Early Childhood Education and Development</li> <li>2. Access and Equity</li> <li>3. System Strengthening</li> <li>4. Quality</li> <li>5. Human Resources</li> <li>6. Vocational Education</li> </ol> <p><i>Education Strategic Plan 2018–2022</i></p>



**The key point with regard to mainstreaming pre-primary into ESPs is that how the plan is structured affects how pre-primary is addressed within the plan.** If the plan is structured based on subsectors (or if pre-primary is prioritized in a mixed approach), then the pre-primary subsector will be presented in its entirety, starting with an overall objective for the subsector (similar to the example included in the next section). If the plan is structured along thematic areas, relevant aspects of pre-primary will be included within the programs for each of the thematic areas.

The structure and the terminology of program design differ widely from plan to plan, and there is no “ideal” structure and terminology as such. **The essential point is to use clear logic in the construction of the program, and to be consistent in the use of the terminology.**<sup>8</sup> In this section, we provide an overview of the various steps that can be used to design programs.

### 3.2 Program design and the logical framework matrix

The logical framework matrix (also known as a logframe) is another tool of the Logical Framework Approach. It is a systematic, logical method of organizing activities for reaching objectives, summarizing the program or project and its goals, objectives, anticipated results, activities and targets; it is commonly used in program/project design.<sup>9</sup> The objective trees created during the policy formulation phase can be used as the basis for a logframe (refer to Figure 4). A logframe can be accompanied by more detailed work plans or activity schedules, or it can be used as the starting point for the development of multiyear action plans or annual operational plans (to be discussed in Module 5).

The idea is to start from the specific objectives and work downward, following “means-end” logic and asking two questions:

1. If we achieve the specific objective of the program, what are the different results to be produced?
2. What activities need to be implemented to deliver each of the specific results?

Developing a logframe requires going a step beyond elaborating strategies, and it involves considerable discussion and brainstorming among stakeholders to provide sufficient details on the expected results and the specific activities needed to implement the strategies to reach the specific objectives. Once consensus has been reached on the programs overall (or strategic) objective, specific objective(s), results and activities, planners should define the precise targets to be achieved, the sources of information that will allow for the verification of these targets, and the assumptions surrounding activity implementation.

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8 The terminology used to describe the hierarchy of objectives included in the plan must be decided upon at the start of the planning process. For example, the overall objective, or the long-term outcome, could also be referred to as a goal, impact or other term; the strategic objective, related to the focal problem, could also be referred to as program objective, specific objective, policy orientation or other term; results could also be referred to as outputs or immediate results. No matter the terminology, the key is to be consistent in the use of the adopted terminology throughout the process and across the TWGs to ensure coherence.

9 See Annex 1 for more details on the results chain that links together inputs, activities and results in a logical way, and as such forms the backbone of logframes.

TABLE 2.

## LOGFRAME STRUCTURE AND ELEMENTS

	PROGRAM DESCRIPTION	INDICATORS AND RELATED TARGETS	SOURCES OF VERIFICATION	ASSUMPTIONS
OVERALL OBJECTIVE	<p>The broad development <b>impact</b> to which the program contributes at a national or sectoral level [provides the link to the policy and/or sector program context]</p> <p><i>For example: <b>Improved school readiness</b></i></p>	<p>Measures the extent to which a contribution to the goal/overall objective has been made</p> <p><i>For example:</i></p> <p><i>Proxy indicators: <b>Grade 1 repetition and dropout rates</b></i></p> <p><i>Targets: <b>Grade 1 repetition and dropout rates decreased to 5% (from 10% and 20%, respectively) by 2025</b></i></p>	<p>Sources of information and methods used to collect and report it (including who and when/how frequently)</p> <p><i>For example: <b>Annual EMIS results</b></i></p>	
STRATEGIC OBJECTIVE (OR PURPOSE)	<p>The development <b>outcome(s)</b> at the end of the program, specifically the expected benefits to the target group(s)</p> <p><i>For example: <b>Increased access to quality pre-primary education</b></i></p>	<p>Helps answer the question “How will we know if the outcomes have been achieved?”</p> <p>Should include appropriate details of quantity, quality and time</p> <p><i>For example:</i></p> <p><i>Indicator: <b>Pre-primary GER</b></i></p> <p><i>Target: <b>Pre-primary GER increased to 40% for both boys and girls by 2025</b></i></p>	<p>Sources of information and methods used to collect and report it (including who and when/how frequently)</p> <p><i>For example: <b>Annual EMIS results</b></i></p>	<p>Assumptions (factors outside the program management control) that may impact on the results</p> <p><i>For example: <b>Communities have sufficient resources (human and financial) to operate community-run pre-primary classes; sufficient numbers of teachers and learning spaces are identified to establish new pre-primary classes</b></i></p>
RESULTS	<p>The direct <b>outputs</b> (goods and services) that the program delivers, and which are largely under project management’s control (e.g., the ministry responsible for ECE)</p> <p><i>For example: <b>Number of new pre-primary classes established</b></i></p>	<p>Helps answer the question “How will we know if the outputs have been delivered?”</p> <p>Should include appropriate details of quantity, quality and time</p> <p><i>For example:</i></p> <p><i>Indicator: <b>Number of pre-primary classes (public and community-run)</b></i></p> <p><i>Target: <b>Number of pre-primary classes (public and community-run) increased by 30% (to 600) by 2025</b></i></p>	<p>Sources of information and methods used to collect and report it (including who and when/how frequently)</p> <p><i>For example: <b>EMIS, implementation reports for teacher teaching</b></i></p>	<p>Assumptions (factors outside the program management control) that may impact on the results</p> <p><i>For example: <b>Sufficient space is identified for construction of new pre-primary classrooms, sufficient financial and technical resources available to construct new classrooms; proper incentives provided for teachers to enroll in training</b></i></p>
ACTIVITIES	<p>The tasks that need to be carried out to deliver the planned results</p> <p><i>For example:</i></p> <p><b>1. Construct 200 new pre-primary classrooms</b></p> <p><b>2. Train 350 new pre-primary teachers</b></p>	<p>Sometimes a summary of resources/means is provided in this box</p> <p><i>For example: <b>INPUTS required to implement the activities (e.g., funding, teacher trainers, school construction inspectors)</b></i></p>	<p>Sometimes a summary of costs/budget is provided in this box</p> <p><i>For example: <b>COSTS</b></i></p>	<p>Assumptions (factors outside the program management control) that may impact on the activity-result linkage</p> <p><i>For example: <b>Stable exchange rate throughout duration of the project</b></i></p>

Table 2 is a sample fictive logframe with a brief explanation of each element to be included. While this is a standard format, there are many different ways to present logframes, as you can see in the examples given in Box 2.

The logical framework matrix is usually read from bottom to top. The bottom line (activities) explains *how* the outputs/activities, outcomes/strategic objectives and impact/overall objective will be achieved. The upper lines (outputs, outcomes and impact) indicate *why* the activities are implemented. In the example presented in Table 2,

- The construction of pre-primary classrooms (activity) and the training of new pre-primary teachers (activity) lead to the establishment of new pre-primary classes (output);
- Additional pre-primary classes (output) contribute to increased access to pre-primary education (outcome); and
- Increased access to pre-primary education (outcome) contributes to increased school readiness (impact).

## BOX 2.

### EXAMPLES OF LOGFRAME MATRICES

Click on the following links for pre-primary logframe examples. As you will see, each is presented in a different format, with slightly varying terminology, but in general, the core elements such as objectives, program/activity and indicators are included.

**Cambodia.** *Education Strategic Plan 2014–2018*. Annex 5, ESP logframe, pp. 81–82.

**Georgia.** *Consolidated Education Strategy and Action Plan 2007–2011*. Matrix for the plan, pp. 32–34.

**Lesotho.** *Education Sector Plan 2016–2026*. Priority Matrix: Early Childhood Care and Development, pp. 39–41.

**Liberia.** *Education Sector Plan of Liberia 2010–2012*. Logframe of Prioritized Activities under Each Strategy to Achieve Objectives, pp. 47–51.

**Nepal.** *School Sector Development Plan 2016/17–2022/23*. Annex 2, SSDP Program and Results Framework, pp. 125–30.

These relationships, however, are always subject to a series of assumptions, which need to be made explicit. This method is very useful: It helps ask the right questions thanks to the logical analysis of the different plan elements. It also facilitates common understanding of the plan among managers and stakeholders, which will be useful for the implementation and monitoring of the plan (discussed in Module 5).

But the LFA presents some disadvantages if applied mechanistically. For instance, a strong focus on results can deviate attention from the processes that need to be followed for the results to actually be achieved. An additional risk is that this approach simplifies what are, in reality, complex relationships.

### 3.3 Developing indicators

As shown in Table 2 above, one element of the logframe matrix is indicators and targets.<sup>10</sup> Their purpose is to inform monitoring and evaluation, which is discussed in Module 5. The indicators and preliminary targets are agreed in the program design phase and the targets are adjusted throughout the planning process as different feasibility checks are conducted. The main purposes of setting indicators and targets is to

- Provide the basis for monitoring, review and evaluation, and thus feed back into the management of the organization or program, and into learning lessons and planning for other subsequent work; and
- Contribute to transparency, consensus and ownership of the overall objectives and plan.

In a plan, indicators (what you intend to measure) are accompanied by targets (what you intend to achieve). Indicators and accompanying targets serve as inputs to the decision-making process, where the decision maker—both government and donor—uses them as tools for policy dialogue and adjustment. As such, choosing indicators for an ESP is both a technical and a political process:

- It is technical because they have to correspond to technical criteria such as relevance, validity, reliability and accuracy, including aspects of practical feasibility.
- It is a political endeavor, in that the choice of indicators depends on the policy priorities that have been fixed and may be a matter of negotiation between the ministry of education and development partners and/or private providers, or nongovernmental organizations (NGOs) (in the case of ECE).
- Also, certain indicators are more acceptable to some stakeholders than others because they have been agreed upon in international frameworks.

Indicators and targets should not be used in isolation. To be meaningful, they can be compared with (a) previous observations (and matched against progress), (b) observations in other countries (or comparison with provinces in the same country), or (c) the indicator can compare resources used with results obtained.

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<sup>10</sup> This section is adapted from IIEP-UNESCO (2015).

**It is important to keep in mind the practical fact that measuring change is costly. Use as few indicators as possible in designing programs.**

### 3.4 Feasibility checks

When targets have been set for all subsectors, and all programs and key activities have been outlined, a feasibility check might address the following criteria:

- **Internal consistency:** To what extent are the different objectives and priority actions coherent and compatible with one another?

*For example, compatibility between the objectives in terms of expansion of pre-primary enrollment and the outputs expected in terms of classroom construction, availability of pre-primary teachers and teacher training programs*

- **Desirability:** The policy's acceptance by various interest groups and stakeholders (including families, communities and teachers) as well as its compatibility with national and/or international development policies, and society at large.

*For example, are there any potential concerns regarding the pre-primary curriculum, including cultural differences or language concerns?*

- **Feasibility:** Availability of the necessary resources for the implementation of the policy (human, financial, technical, time for implementation and more). This also includes management and coordination capacity.

*For example, is the construction capacity (including the capacity to take part in tendering procedures) available in all areas of the country sufficient to carry out the total volume of the proposed construction program?*

- **Sustainability:** Impact of the policy over a long period of time, including the long-term requirements in terms of political support, financing and more, and how it may be affected by the political and social environment.

*For example, what are the financial implications of hiring a significant number of new pre-primary teachers? To what extent is this financially sustainable in the longer term?*

A final question to consider is, "To what extent are the estimated costs compatible with the likely financial resources available?" A simulation model (see section 4) will help answer this question. The overall feasibility check may lead to a reassessment of priorities and strategies, and to alternative or complementary strategies. It may be necessary to rethink the plan's objectives and/or to include in the plan a capacity development program that addresses the core capacity constraints in the system.

Stakeholders should be involved in this phase through technical participation in working groups or other appropriate structures. At the end of this phase, a broad consultation process should be launched to draw out the final comments and suggestions of stakeholders.





# 4.

## COSTING AND FINANCING OF PRE-PRIMARY POLICIES: USING EDUCATION SIMULATION MODELS

The costing and financing process consists of determining the cost of policy options and targets and testing their financial feasibility and sustainability using a simulation model.<sup>11</sup> Pre-primary subsector activities should be costed in a similar fashion as other education subsector activities, and included as part of the overall ESP budget. As mentioned previously, the estimated costs of the ESP will be examined at regular intervals during plan preparation as part of an iterative process.

The information on educational expenditures and unit costs that are collected as part of the ESA (see Module 3) serve as the baseline for the simulation model. A financial simulation model can demonstrate various policy scenarios, to help policymakers understand the cost implications and trade-offs associated with each policy decision. This in turn will lead to rethinking and adapting the programs and policy targets until an optimal scenario is found and the stakeholders reach a reasonable consensus. It is therefore important that the simulation model incorporates all subsectors, as each policy choice affects the entire education sector cost.

In addition, resource availability should be carefully considered during the costing of the plan. After calculating the cost of the plan, an overall funding gap for the education sector must be estimated. The funding gap is the difference between the cost of the plan and the financial resources to fund it. If a funding gap remains between the cost of the plan and the expected funding from domestic and external resources, a decision should be made regarding the reasonableness of the funding gap.

<sup>11</sup> This section has been adapted from GPE and IIEP (2015).

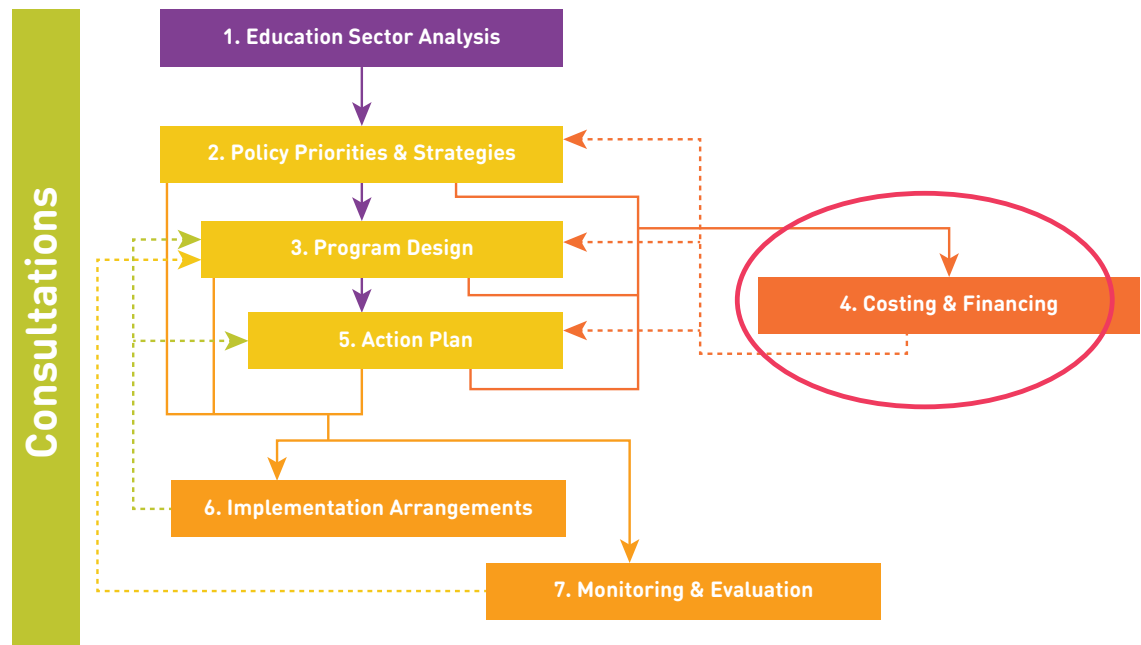


## Pre-primary subsector and financing costing challenges

As discussed in Module 3, costing and financing pre-primary education comes with a number of challenges. The main difficulties arise from the many actors and contributors to this subsector, especially in countries where the main provider is not the government. Indeed, anticipating what nongovernment actors will be willing to contribute financially is often challenging. One major reason is that for most actors, financial visibility over the medium and long terms is limited. Having *all* ECE actors agreeing on key ECE strategies and related costs is essential to ensure adequate buy-in and financial support during plan implementation.

FIGURE 7.

### MAIN PHASES OF ESP DEVELOPMENT: COSTING AND FINANCING PHASE HIGHLIGHTED



Source: Adapted from GPE and IIEP-UNESCO 2015.

## 4.1 Overview of an education simulation model

A simulation model can be used for analyzing, exploring and projecting any complex social and economic system. In this regard, education simulation models facilitate the multiyear projection of pedagogical and institutional inputs, as well as financial resources, within a certain financing and time framework. Multiple scenarios can be tested taking into consideration varying policy options, showing their technical feasibility, and the likelihood of the financial constraints. A simulation model can have numerous formats depending on the model used, and the country's specific system and needs, but generally it is developed on an Excel file.

### 4.1.1 General method for estimating financial cost implications and the funding gap

The cost of an education plan corresponds to **the cost of all the objectives and all the envisaged actions**. The financial amount can be estimated from the total human and material resources that will be needed. Therefore, the financial estimate starts with an evaluation of human and material requirements. These are then translated into monetary terms by means of available information about unit costs.

Simulations aim to explore the consequences of different policy options on one or several variables:

- **School enrollments**
- **Human and physical resource requirements**
- **Cost projections** (based on the unit costs of the resource requirements)
- **Financial resources** (using a macroeconomic framework)

Figure 8 illustrates the elements used in a simulation model to estimate the cost of a plan, usually born by the Government. For more information on the technical details of developing a model, please refer to the Suggested Readings list.

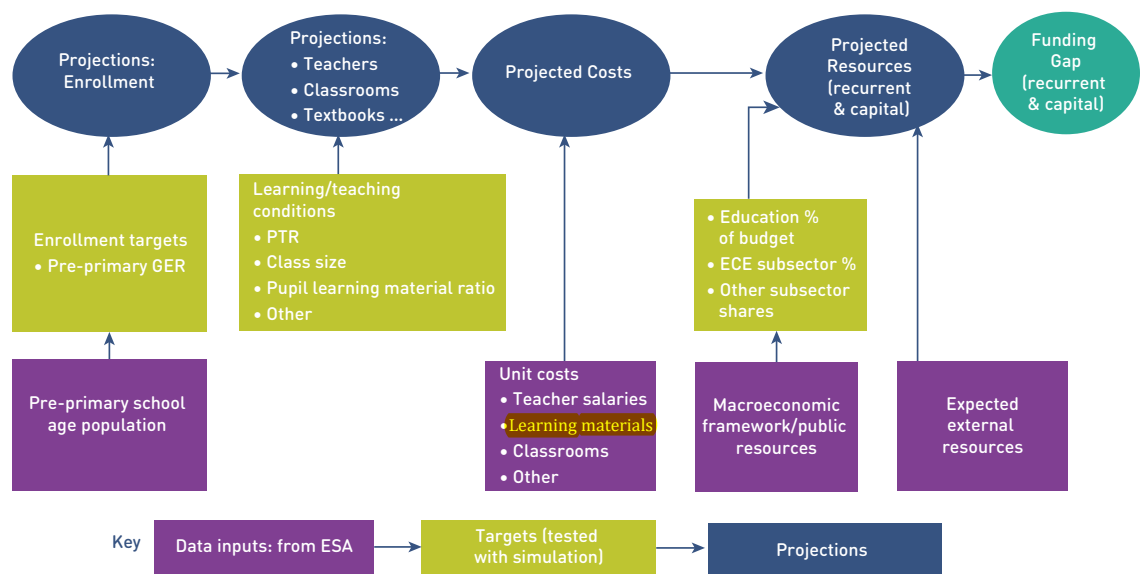
In a nutshell, the process proceeds as follows:

1. The starting point is demographic, and based on the enrollment "needs" of the school-age population.
2. The number of ECE pupils is deduced from coverage rate (gross enrollment ratio [GER]).
3. Staff, classrooms needs and more are deduced from the number of enrollments on the basis of the objectives laid down in the policies with regard to the use of human resources, infrastructure and equipment ... and ratios (PTR, pupil-non-teacher ratio, pupil-classroom ratio and so on).

4. The projection of enrollment, staff and more makes it possible to calculate the needs in terms of recruitment, construction and so on, and once linked to the unit cost associated with each of them, the model makes it possible to quantify the overall cost of the envisaged policy.
5. The overall cost is compared to estimated available domestic resources, and ultimately allows assessing the existence or not of a funding gap.

FIGURE 8.

### HOW SIMULATION MODELS PROJECT COSTS, FINANCING AND FUNDING GAPS



## BOX 3.

### PRE-PRIMARY SIMULATION MODELS TO ASSESS THE COST OF QUALITY ECE EXPANSION AND ESTIMATE FUNDING GAPS

A sound understanding of the costs of ECE expansion is a prerequisite for the mobilization of adequate resources and ECE program scale-up. A number of ECD- and ECE-specific costing models have been developed to aid countries in costing their early childhood programs and in planning for their expansion. These education *simulation* models allow projecting costs over a period of time to assess the scaling up of programs some specific to ECE/ECD, others sector-wide. Two of the main pre-primary simulation models are the *UNICEF WCARO regional prototype* and the *Van Ravens and Aggio interactive cost estimation model*. UNESCO also has recently updated its simulation model for education; it tackles the whole education system, and it does address ECE. When putting a program at scale, the major challenge—in a budget-constrained environment—is to find the right balance between the need to ensure a minimum level of quality and the need to enroll as many children as possible.\*

The methodology followed is the same. A series of assumptions are made on the level of enrollment and on the various quality parameters of ECE programs (for example, group size, level of qualification of teachers, level of teacher salaries, program duration, work hours, support to reach the most-vulnerable, non-salary resources level). This allows for the computation of a global cost of an ECE program over a given period. The costs are then compared to an estimated amount of resources that could be mobilized to assess the gap. However, in practice, the cost of ECE is not compared to the funding of ECE: the funding relates to the overall funding of the ESPm usually not pre-defined for a specific sub-sector.

**UNICEF WCARO regional prototype costing model (2015):** Developed based on studies in West and Central Africa. Includes costing of pre-primary and parenting programs, taking into account factors related to quality and the amount of financing available, considering capital and recurrent costs. See UNICEF WCARO (2015).

**Van Ravens and Aggio interactive cost estimation model (2008):** Developed using the domain of the Arab States. Estimates costs of ECD services (not just pre-primary).

**UNESCO Simulation Model for Education (SimuED):** An education sector-wide simulation model covering every subsector (including ECE). It allows users to project the selected key SDG 4 indicators. SimuED files and guidelines can be found on <https://en.unesco.org/news/unesco-launches-new-simulation-model-education>.

When integrating pre-primary into an ESP, however, pre-primary simulation models will need to be integrated within the full plan simulation model to provide an analysis of overall sectoral cost trade-offs.

\* As part of the Costing and Financing SDG4-Education 2030 in the Asia-Pacific Region project, UNESCO Bangkok will be developing the costing model for SDG 4.2. The tools are to be finalized by the end of 2019.

#### 4.1.2 What is the purpose of education simulation models?

Simulation models are used to **test “policy” implications of potential planning decisions**. Simulations can help to

- Give a sense of where current policies will lead;
- Identify consequences of “no changes”;
- Identify the most damaging gaps in future educational performance, and set priorities; and
- Assess technical and financial feasibility of various options.

They support the **generation of credible, sector-wide, participatory and costed plans**, as they help to

- Identify achievable versus unachievable targets;
- Quantify resources necessary to be mobilized for a given set of targets;
- Anticipate future changes in the values of key indicators; and
- Verify coherence of all (closely interdependent) components of the system.

Simulation models facilitate **negotiation with stakeholders** on policy objectives and resourcing and help in building a consensus (if not “compromise”) on what to do and how:

- They are an effective tool for policy dialogue among stakeholders (including the finance ministry).
- They clearly explain the reasons and logic of resources requested.
- During negotiations, simulation models can integrate indicators of concern to different stakeholders and visualize their impact on sector performance and resource requirements.
- They make it simple to reflect changes, as points of view move.

Simulation is useful **throughout the planning cycle** and can assist in **almost all stages of the policy process** by helping to

- Assess the present situation;
- Define, test and plan policy interventions; and
- Evaluate policy outcomes.

## BOX 4.

### INNOVATIVE FINANCING FOR ECE IN ASIA-PACIFIC COUNTRIES

In an effort to fill the funding gap to increase access to, and the quality of, early childhood care and education (ECCE) programs, different innovative financing mechanisms and partnerships for the financing of ECCE have been explored in Asia and the Pacific region and beyond. **“Innovative financing”** is defined as nontraditional financing mechanisms that (1) mobilize domestic as well as international financing; (2) include innovations in service delivery as well as in resource mobilization; (3) involve multilateral management and partnerships with private entities; (4) generate substantial and stable flows of funds for development; and (5) help enhance the efficiency of financial flows.

Based on this definition, the recent regional guidelines on innovative financing mechanisms and partnerships for ECCE has identified four types of mechanisms (direct government financing, taxes/earmarked funding, voluntary contributions, front-loading impact bonds and debt management systems) and five kinds of partnerships (inter-ministerial partnerships; public-private partnerships; international, local NGOs, and government partnerships; private corporation and community partnerships; and government and community partnerships).

Under these categories, 26 examples of innovative financing have been documented for countries to adapt and replicate, each fulfilling the following criteria: (1) has significant impact on the development of ECCE, in regard to both access and quality; (2) is relevant to solving a country’s specific problems; (3) is able to mobilize domestic or/and international sources of funding; (4) contributes to the sustainability of ECCE programs; and (5) effectively reduces disparities and enhance equity of service provision.

*Source:* UNESCO and SEAMEO CECCEP 2019.

**Importantly, simulations and simulation models are not attempts to predict what will happen in the future.** Their purpose is to inform decision makers and stakeholders of what would happen if certain developments were to take place, or if certain measures were taken. By highlighting the consequences of different options, they contribute to selecting the one that is most desirable, bearing in mind existing conditions and constraints. **For a step-by-step example of using a simulation model to test the cost implications of an ECE policy decision, please see Annex 2,** which illustrates how information from a simulation model can be used to assist decision makers with the prioritization process.

## 4.2 Financing the plan

“Estimating costs is one issue, finding the resources to cover those costs is quite another” (Van Ravens and Aggio 2008, 59). As discussed in Module 3, contributions for ECE are multi-source: public, private, including households and external. Lack of adequate information on nongovernment sources is a major constraint in the assessment of possible financing for ECE (this also concerns all subsectors). Donors generally have limited visibility of the funds they will be able to mobilize beyond the medium term. Estimated resources are thus generally based on domestic funding, as is the funding gap.

The funding gap is the difference between the projected costs of the plan and the potential government budget for education from domestic resources; often, a second funding gap is then calculated that adds in any external resources expected to be available for education. If a funding gap exists, a decision needs to be made how to close it. There may be opportunities to find more cost-effective implementation strategies or to adjust targets to reduce the gap. After that, the funding gap should be filled by first seeking additional government funds—by seeking other government revenues, by increasing the tax base or by improving system efficiency to lower delivery costs.<sup>12</sup> If no further public funds are available, plan implementers can seek external support to fill the gap.

Innovative sources of finance and delivery mechanisms studied and identified by Putcha, Upadhyay and Burnett (2016) and the Center for Universal Education<sup>13</sup> and UNESCO Bangkok (see Box 4), while promising, are not without challenges. One needs to keep in mind the risks “of diverting attention from the need for mainstreamed public financing and of relegating early childhood into a ‘special financing’ category” (Putcha et al. 2016). This said, these finance sources and delivery mechanisms offer interesting funding avenues to explore.

In many countries, households may also be expected to contribute. This possibility needs to be considered very carefully. Primary education, for example, is legally required to be free in many countries (and in accordance with the Convention on the Rights of the Child). Similarly, the SDG target 4.2 for pre-primary education calls for at least one year of free and compulsory pre-primary

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12 Over the long term, increasing the tax base (often weak in many low-income countries) could form a sustainable option. In addition, efficiency gains at primary and secondary levels (less repeating, less early dropout, better learning outcomes) induced by improved pre-primary coverage and quality could open up new avenues for pre-primary financing, by shifting those “saved resources” toward pre-primary.

13 The Center of Universal Education of Brookings issued a series of posts on education financing in 2016 and 2017. See also the works of Gustafsson-Wright and Gardiner (2016) and Gustafsson-Wright, Smith and Gardiner (2017).



education. When households are expected to contribute to the cost of pre-primary education, there is a significant risk that this will lead to inequitable access to pre-primary, which will disadvantage children from poorer households. This said, seeking a certain level of cofinancing from households could be sought in contexts where access to free pre-primary is means tested and richer households (who can afford it) are asked to contribute. The experience from introducing universal free primary education in many countries was that the poorest children remained excluded due to associated and opportunity costs. And those that did access pre-primary, accessed low quality owing to a lack of funding.

As part of the plan development process, a review of potential funding by development partners should be undertaken—through general or sector budget support or through earmarked funding for selected activities. Public spending remains essential for serving all socioeconomic groups, especially the most disadvantaged, as further stressed by Putcha, Upadhyay and Burnett (2016). Considering issues of equity, as a child’s experiences in the early years have such an impact on their chances later on in life, one can argue that the case for investment in ECE as a public good is stronger than that for the last educational phases—which many children will never attend, yet they receive a comparatively large portion of both government and donor budgets (Van Raven and Aggio 2008). So countries will need to reflect on various ways of increasing ECE financing, including from public sources and via alternative financing mechanisms.

After consideration of the expected or potential funding sources, the remaining gap, if any, should be achievable. If the funding gap still appears too high, meaning that the plan would not be financed, strategies have to be revised to reach an acceptable level. In some cases, more cost-effective implementation strategies may need to be found. The final scenario and financing framework that are included in the ESP reflect the conclusion of the iterative exchange between the targets and actions planned, on the one hand, and the resources available, on the other.



# 5.

## MOVING FORWARD

This module focused on identifying policy priorities and designing relevant priority programs to address the key challenges in the education sector. We also looked at the use of education simulation models to help with costing a sector plan and testing different targets and assessing trade-offs. Here, we offer a few suggestions for moving forward with planning for the pre-primary subsector in the context of overall education sector planning.

### **Decide on the structure of the plan.**

One challenge for planning for pre-primary education relates to the agreed structure of the plan. Will it be based on subsectors, thematic areas or a mix of the two? When plans are based on subsectors, it will be easier to see all the ECE priorities in one place. Depending on ESA results and the overall educational, social and political context, however, the plan may be structured along thematic (or mixed) lines. When the plan is developed along thematic priorities, it will be especially important for representatives from pre-primary to be in each of the relevant thematic TWGs to ensure that pre-primary is included in the design of all relevant areas.

### **Design priority programs using a logical method (LFA or similar).**

Education sector plans should be strategic—that is, they should clearly indicate a “means-ends” or causal relationship in their design. Each plan program should indicate the results expected if the proposed strategies and activities are implemented. (This will be further discussed in Module 5.) The Logical Framework Approach is one method to facilitate plan preparation.

### **Conduct feasibility checks throughout the plan preparation process.**

Planning is an iterative process. It depends on testing and revising priorities based on a number of factors. Some of the key questions to test:

- To what extent are the objectives, programs and activities coherent and compatible with one another?
- To what extent do the objectives, programs and activities address the key challenges identified in the education sector analysis?
- To what extent are the estimated costs compatible with the likely financial resources available?
- To what extent are the plan priorities in line with sociocultural expectations?
- To what extent are the structures and capacities in place to be able to implement the plan?

Consideration of these questions may lead to revised strategies or targets and is an integral part of the planning process. The use of an education simulation model is especially helpful for illustrating financial feasibility, assessing the costs associated with various targets against the expected financial resources.

### **Consult and build consensus and capacity throughout the process.**

The feasibility questions mentioned above should not be answered by only one person or one small group. They are also an important tool to build consensus on plan priorities, as they provide opportunity for TWGs and other stakeholders to comment on proposed priorities. As discussed in Module 2, two essential principles of plan preparation are participation and capacity development. TWGs and regular consultation processes help achieve these principles.

The TWGs must be composed of specialists with the appropriate technical knowledge and experience. In the case of pre-primary, this also means considering whether to include representatives from other relevant ministries and partners (for example, representatives from United Nations, NGO or private sector groups who are key implementers of ECE in the country). Care should be taken, though, that the TWGs do not become so large that they cannot function efficiently. These groups provide opportunities to increase participation and afford members the opportunity to learn about planning through the actual plan preparation process. Beyond these groups, additional consultations with multiple stakeholders should be built into the plan preparation process. This will provide opportunities for stakeholders to input on the plan priorities during the process to incorporate more efficiently any changes. Consultation meetings will also help build consensus on the final priorities adopted.

## THE LOGICAL FRAMEWORK APPROACH (FOCUS ON RESULTS CHAIN)

The results chain forms the backbone of the logframe by linking together inputs, activities and results in a logical way. Below, we have reproduced in part Thomas Winderl's particularly user-friendly article on the results chain: "The Results Chain: A Beginner's Guide."<sup>14</sup> This presentation will also serve in Module 5 when discussing monitoring and evaluation issues.

### The results chain: A beginner's guide

Monitoring and evaluation is about measuring and tracking **results**. That is why it is important **to understand what results are**, and how to **distinguish** between different **levels** of results.

In general, a "result" is something that happens **or** exists **because of something else** that has happened:

- The results of a **football game**
- The final value of a **mathematical calculation**
- The outcomes of an **election**

In development and governance, we use a more *nuanced* understanding of different types of "result": the so-called **result chain**.

The result chain distinguishes between five logically connected elements:

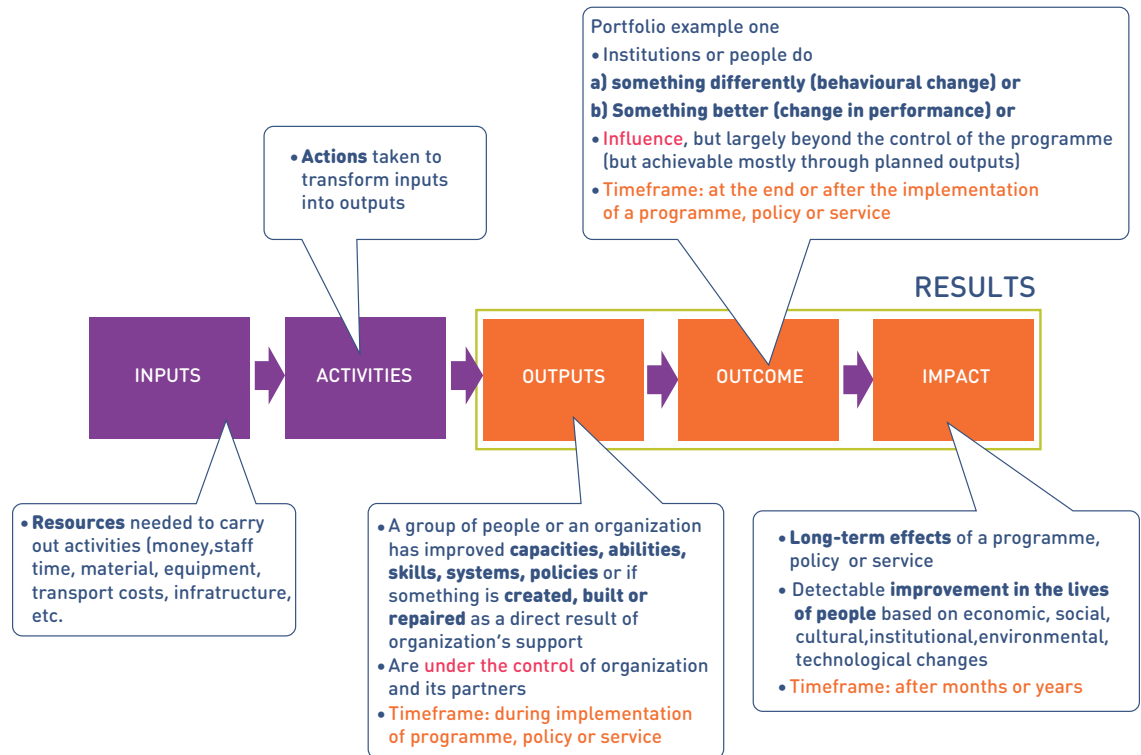
- **Inputs**
- **Activities**
- **Outputs**
- **Outcomes**
- **Impact**

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14 T. Winderl, June 3, 2016, <http://winderl.net/resultschain/>.



## Elements of a results chain



Source: T. Winderl, <http://winderl.net/resultschain/>.

### INPUTS

Any program, policy or service requires resources of some kind. We call these resources **inputs**. For example: To put together this course, it took me time to record this video; you need an internet connection and a computer to watch it.

Typically, inputs refer to money, staff time, materials and equipment, transport costs, infrastructure and so on.

### ACTIVITIES

These inputs are required to carry out a number of **activities**. For example: You watch videos of this lesson; you do a quiz; you do some additional reading; you watch the next videos; and so on.

So activities are **actions taken** that use inputs to produce higher level results: "outputs."

Typical activities in governance and development are the drafting of a policy document for a ministry, the organization of a media outreach campaign, the training of midwives in a new approach, and so on.

## OUTPUTS

The next level, **outputs** are typically the result of several completed activities. *For example: After finishing this introduction course, you have the knowledge and some skills to monitor and evaluate.*

In development and governance, an output is delivered if a group of people or an organization has improved **capacities, abilities, skills, systems, policies** or if something is **created, built or repaired**.

Outputs are the **direct** result of a set of activities and delivered **during** the implementation of a program, a policy or a service.

Outputs are different from the next level of results—*outcomes*—because you largely have **control** over delivering outputs.

That means that if we—and our partners—have the resources and the time to deliver a certain output, we can largely **guarantee** that the output will be delivered.

That also means that, in turn, we are fully **responsible** for delivering an output.

*Typical outputs are a draft policy document for a ministry, a media outreach campaign, improved skills for, and so on.*

## OUTCOME

Now, this is very different from the *next* level of results: An outcome is something we hope to **achieve** as a result of what we do.

In development and governance, an outcome implies that **institutions** or **people do**

- a) **something differently** (*behavioral change*), or
- b) **something better** (*change in performance*).

The **difference** of an outcome is that—unlike outputs which we largely control—we can only **influence** the achievement of an outcome, but it ultimately goes *beyond* our **control**.

*Typical outcomes are a parliament passing a new law, people changing their behavior because of a media campaign, midwives that apply new skills in their daily routine, and so on.*

Outcomes are typically achieved **at the end** or even **after** a program, policy or service has been implemented.



## IMPACT

Finally, outcomes should contribute to a broader impact.

An impact is the **long-term effect** of programs, policies or services. It implies a **detectable improvement in people's lives**.

Impact typically relates to positive **economic, social, cultural, institutional, environmental, technological** changes in the **lives** of a targeted population.

An impact is often related to broad **national** goals or **international** aspirations like the Sustainable Development Goals.

Impact is typically much **broader** than a program, policy or service. And an impact is typically detectable only after a few **months** or even **years**.

So, which of these elements of a result chain do we consider **"results"**?

We usually define results—in the context of governance and development—as the **top three** elements of the result chain: **outputs, outcomes** and **impact**. And most importantly, results are *not* **inputs** or **activities**.

## **ASSESSING COST IMPLICATIONS OF QUALITY ECE EXPANSION IN KENYA USING A SIMULATION MODEL FOR EDUCATION**

Here, we address the question “What are the cost implications of lowering the pupil-teacher ratio from 40:1 to 30:1?”

### **Context**

The *Kenya National Education Sector Plan 2013/2014–2017/2018* (NESP) recognizes that early childhood education can have a positive impact on development and that the subsector needs to be strengthened in terms of both access and quality. Therefore, the NESP includes opportunities for counties to improve pre-primary access, to improve the quality of early childhood care and to better focus on pedagogical methods.

The ESP indicated a baseline GER for ECDE of 66 percent in 2012 with regional inequalities in access and participation. Most counties had relatively low enrollment levels compared to the target of universal access and the Millennium Development Goal (MDG) target of 80 percent access by 2015. Based on a study conducted in 2009, about 60 percent of counties had net enrollment rates (NERs) above the national rate of 49 percent, but three counties were particularly disadvantaged with enrollment rates of less than 5 percent. The target for ECDE GER by the end of the NESP is 85 percent.

### **Issue/Challenge: Projected increase in ECDE population in Kenya**

Table A2.1 shows the demographic trends that determine the ECDE school population over the period of the NESP (2013/14–2017/18). From the population projection, the ECDE age population will increase by 14 percent over the NESP period. This will affect pupil enrollment and therefore the resources required to achieve subsector targets.

TABLE A2.1.

## PROJECTED ECDE SCHOOL-AGE POPULATION AND ENROLLMENT GROWTH, KENYA (MILLIONS)

	2013	2014	2015	2016	2017	2018
ECDE population (4-5)	2.9	3.0	3.0	3.1	3.2	3.3

Source: Kenya, Ministry of Education Science and Technology (2014).

Based on the GER target of 85 percent, enrollment in ECDE is projected to increase by more than 600,000 children over the plan period (Table A2.2). While some of these children will be enrolled in private ECDE programs, the NESP also anticipates an expansion of public sector ECDE programs from 70 percent to 75 percent. By 2017, nearly 2.7 million children are expected to be enrolled in public ECDE programs.

#### Scenarios to accommodate projected increase in ECDE enrollment

To accommodate projected increases in enrollment in the public sector, two scenarios were considered for possible targets for ECDE pupil-teacher ratios: scenario 1, PTR of 40:1; scenario 2, PTR of 30:1.

Although the lower PTR of 30:1 might be desirable from an increased quality perspective, it was also recognized that it might not be financially feasible based on the anticipated increase in enrollment. Therefore, **one decision that was needed during the plan formulation process was whether it was feasible to implement the lower pupil-teacher ratio.** This decision was based on three factors: projected enrollment increases, corresponding increases in the number of teachers needed and the resulting projected cost of teacher salaries.

The Kenya education simulation model was used to help make this decision. Table A2.2 shows the projections for 2013–2017, with respect to the number of public ECDE pupils for each year during this period and the corresponding number of teachers required for a PTR of 40:1 or 30:1.

TABLE A2.2.

## KEY SIMULATION RESULTS, KENYA, 2013–2017

	2013	2014	2015	2016	2017
Number of public ECDE pupils	2,217,573	2,291,357	2,564,471	2,631,147	2,699,557
# of teachers required: PTR of <b>40:1</b>	55,439	57,284	64,112	65,779	67,489
# of teachers required: PTR of <b>30:1</b>	73,919	76,379	85,482	87,705	89,985

Source: Kenya, Ministry of Education Science and Technology (2014).

As expected, ECDE will need to expand significantly over the plan years to meet the increased coverage. The number of pupils in public ECDE will increase by 22 percent from 2013 to 2017. The number of public ECDE teachers would need to increase by 12,050 in scenario 1 (PRT of 40:1) and by 16,066 in scenario 2 (PTR of 30:1).

#### What are the cost implications of lowering the PTR from 40:1 to 30:1?

Table A2.3 shows the resulting cost estimates for both teachers and the ECDE subsector based on the two scenarios. The use of a simulation model helps planners test different scenarios or targets. In Table A2.2, we tested the effect of increasing the pupil-teacher ratio in relation to other plan objectives: increasing access (GER increasing from 66 percent to 85 percent, share of pupils enrolled in public schools increasing from 70 percent to 75 percent) and reducing pupil-teacher ratios. Table A2.3 shows that reducing the pupil-teacher ratio to 30:1 would cost nearly 25 billion more Kenyan shillings over the plan period (or approximately 5 billion shillings per year).

TABLE A2.3.

## ESTIMATING THE COST OF TEACHERS IN DIFFERENT PUPIL-TEACHER RATIO SCENARIOS, KENYA, 2013/14–2017/18

SCENARIO 1: PTR OF 40:1	2013	2014	2015	2016	2017
Projected enrollment	2,217,573	2,291,357	2,564,471	2,631,147	2,699,557
# teachers required	55,439	57,284	64,112	65,779	67,489
Average annual teacher salary (monthly salary is KES 20,148)	241,776	241,776	241,776	241,776	241,776
<b>Total projected cost of teacher salaries (KES, millions)</b>	<b>13,404</b>	<b>13,850</b>	<b>15,501</b>	<b>15,904</b>	<b>16,317</b>
<b>Total ECDE cost (KES, millions)</b>	<b>26,075</b>	<b>26,942</b>	<b>30,753</b>	<b>30,968</b>	<b>31,773</b>
<hr/>					
SCENARIO 2: PTR OF 30:1	2013	2014	2015	2016	2017
Projected enrollment	2,217,573	2,291,357	2,564,471	2,631,147	2,699,557
# teachers required	73,919	76,379	85,482	87,705	89,985
Average annual teacher salary (monthly salary is KES 20,148)	241,776	241,776	241,776	241,776	241,776
<b>Total projected cost of teacher salaries (KES, millions)</b>	<b>17,872</b>	<b>18,467</b>	<b>20,667</b>	<b>21,205</b>	<b>21,756</b>
<b>Total ECDE cost (KES, millions)</b>	<b>30,543</b>	<b>31,559</b>	<b>35,919</b>	<b>36,269</b>	<b>37,212</b>
<hr/>					
<b>Additional cost of reducing PTR to 30:1 (KES, millions)</b>	<b>4,468</b>	<b>4,617</b>	<b>5,166</b>	<b>5,301</b>	<b>5,439</b>

Source: Kenya, Ministry of Education Science and Technology (2014).

## What does this mean in the context of the overall education sector and ESP?

From a sector plan perspective, we also have to consider the impact of subsector decisions on the projected total cost of the entire plan in relation to the projected resources and the funding gap.

To continue our example, we look at the scenarios presented in Table A2.3 in relation to the overall costs and funding for the plan.<sup>15</sup> Table A2.4 shows the projected impact on the funding gap based on scenario 1 (PTR of 40:1).

TABLE A2.4.

### PROJECTED COSTS, RESOURCES AND FUNDING GAP BY SUBSECTOR (KES, MILLIONS), KENYA 2013/14–2017/18

COSTS BY SUBSECTOR	2013	2014	2015	2016	2017
ECDE (PTR 40:1)	24,750	25,573	29,222	29,229	29,985
Primary	118,981	125,825	138,246	142,887	147,673
Secondary	110,858	104,607	103,040	105,758	108,549
Tertiary	63,743	67,126	79,703	82,188	90,168
Other costs (management, administration, other)	3,277	15,587	8,777	5,997	4,955
<b>Total cost of NESP</b>	<b>321,609</b>	<b>338,718</b>	<b>358,988</b>	<b>366,059</b>	<b>381,330</b>
<b>Public resources allocated to education sector</b>	<b>306,865</b>	<b>330,830</b>	<b>340,576</b>	<b>359,844</b>	<b>376,765</b>
<b>Funding gap (scenario 1)</b>	<b>14,744</b>	<b>7,888</b>	<b>18,412</b>	<b>6,215</b>	<b>4,565</b>

Source: Kenya, Ministry of Education Science and Technology (2014).

Reducing the PTR to 30:1 (scenario 2) would result in the following projected funding gaps:

Funding gap: Based on PTR of 40:1	14,744	7,888	18,412	6,215	4,565
Additional cost to reduce ECDE PTR to 30:1	4,468	4,617	5,166	5,301	5,439
<b>Funding gap: scenario 2</b>	<b>19,212</b>	<b>12,505</b>	<b>23,579</b>	<b>11,516</b>	<b>10,004</b>

<sup>15</sup> For illustration purposes, this example is simplified to only one decision. Actual planning processes would involve consideration of multiple decisions for multiple targets to develop one or more scenarios for inclusion in the plan.

**Based on considerations of the overall cost and financing of the NESP and sustainability of priorities, the decision to target a 40:1 ECDE pupil-teacher ratio for the NESP period was a reasonable trade-off in order to increase overall ECDE enrollment and implement other quality improvements,** such as improvements in child-centred pedagogical methods, in the ECDE subsector as well as in other subsectors.

As this example highlights, simulation models are particularly useful tools when one needs to assess both intra-sectoral (within the ECE sector) and intersectoral (ECE with other sectors) policy trade-offs. More generally, such models

- Help formulate affordable ECE objectives by testing different scenarios through an iterative process;
- Link necessary resources and results; and
- Check the consistency between resource allocation and education sector priorities in general, and ECE priorities in particular.



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