Presentation of Kazakhstan's Cost Calculation Model SDG 4.2

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What is Education Costing and Financing Model?

The Education Costing and Financing model aims to simulate reality by estimating and assessing future circumstances based on changes in given variables. It takes policy options, technical feasibilities, and financial constraints into account in order to project future resourcing and budgeting needs that would serve as a basis for policy dialogue.

Summary of ECE statistics

Access, Quality, and Equity

Targets from SDG 4.2 indicators

Economic Variables

Impact of COVID-19

Projection Results

Population
- ECE-aged population

Pupils
- GER, pre-primary
- Enrollments by PP school types

Human and Physical resources
- Teachers needed
- Classrooms needed

Financial requirements
- Recurrent costs
- Capital costs

Expenditure framework
- Financial source
- Total expenditures

Data sources

Education Costing and Financing Models (2/2)

Methodology to project funding gap

School-aged population

Intake and flow rates

Enrolments by grade

Grade 1
Grade 2
Grade 3
Grade 4

Teachers & other staffs

Pupil-teacher ratio

Buildings & equipments

Pupil-classroom ratio

Learning materials

Number of learning materials

Unit Cost

Financial Requirements

Funding Gap

Financial Resources

Public Spending

National Wealth (GDP)

Government Budget

Budget to Education Sector

Stakeholder Contribution

Household Contribution

Development Partner’s Contribution

Presentation of the Results of the SDG 4.2 Costing Program and Practical Possibilities of Using the Model for Kazakhstan
Existing Education Costing Models

[Global Level]
- UNESCO GMR costing model (2015)
- Education Commission Costing model (2016)

[Regional Level]
- UNESCO costing model ESCAP version (2018)
- AP Regional Costing and Financing Model (2020)

[Country Level]
- UNESCO EPSSim v1.0 (2001)
- UNESCO EPSSim v2.9b (2012)
- UNESCO SimuED (2020)
  - BARMM Costing Model
  - SDG 4.2 Costing Model

- For regional advocacy
  Asia-Pacific Regional Education Costing Model

- For ESP Development
  BARMM Education Simulation Model (Philippine)

- For Thematic Analysis
  SDG 4.2 Costing Model

Presentation of the Results of the SDG 4.2 Costing Program and Practical Possibilities of Using the Model for Kazakhstan
How much would it cost to achieve SDGs Target 4.2 in Kazakhstan?

• How many teaching staffs are required to achieve equitable access to ECE?
• How much would financing gap be to achieve equitable access to ECE?
• How much would the government need to spend to compensate financing shortfalls?
The main purposes are:

- To be **used as a projection tool** to estimate the physical / human resources and financial requirements to **facilitate policy discussion** to achieve SDG 4.2 targets, as well as Kazakhstan Education Sector Plan.
- To provide **evidence-based information** on efficient increase in stakeholders’ investment for quality ECCE.

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Excel-based demographic simulation Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main objective</td>
<td>To estimate education provision and costing of education to achieve ESP and 4.2 Targets</td>
</tr>
<tr>
<td>Coverage: year</td>
<td>2019-2030</td>
</tr>
<tr>
<td>Coverage: country</td>
<td>One country (Kazakhstan)</td>
</tr>
</tbody>
</table>
Kazakhstan needs to scale up investments to ECE section to achieve the international access target (100%: universal access to ECE from SDG 4.2).

Source: Calculated by UNESCO Bangkok based on UNESCO Institute for Statistics data
### Projection Scenarios to estimate financial requirements to achieve SDG 4.2 target

<table>
<thead>
<tr>
<th>Access Target</th>
<th>Baseline</th>
<th>Scenario 1 (Status Quo)</th>
<th>Scenario 2 (SDG 4.2 - a)</th>
<th>Scenario 3 (SDG 4.2 - b)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boys</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 3</td>
<td>69.1%</td>
<td>69.1%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Age 4</td>
<td>68.9%</td>
<td>68.9%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Age 5</td>
<td>45.2%</td>
<td>45.2%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Age 6</td>
<td>20.4%</td>
<td>20.4%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 3</td>
<td>68.8%</td>
<td>68.8%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Age 4</td>
<td>69.0%</td>
<td>69.0%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Age 5</td>
<td>42.2%</td>
<td>42.2%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Age 6</td>
<td>15.7%</td>
<td>15.7%</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td><strong>Financial Target</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government education expenditure as % of GDP</td>
<td>2.96 %</td>
<td>2.96 %</td>
<td>2.96 %</td>
<td>5 %</td>
</tr>
</tbody>
</table>
How many teaching staffs are required to achieve equitable access to ECE?

Required number of human resources to achieve national and international scenarios.

**Access target**

**Required number of ECCE teachers**

Projection Results From the SDG 4.2 Costing Model

Presentation of the Results of the SDG 4.2 Costing Program and Practical Possibilities of Using the Model for Kazakhstan
Financial requirements would rise to achieve equitable access to ECE (SDG 4.2 target) in Kazakhstan.

Status quo (Scenario 1)

<table>
<thead>
<tr>
<th>Year</th>
<th>Recurrent (salaries)</th>
<th>Recurrent (non-salaries)</th>
<th>Capital investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>307,671.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2022</td>
<td>398,460.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2025</td>
<td>513,629.2</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2027</td>
<td>606,945.7</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2030</td>
<td>777,209.3</td>
<td>0</td>
<td>0</td>
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SDG 4.2 Target (Scenario 2 and 3)

<table>
<thead>
<tr>
<th>Year</th>
<th>Recurrent (salaries)</th>
<th>Recurrent (non-salaries)</th>
<th>Capital investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>307,671.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2022</td>
<td>464,927.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2026</td>
<td>685,121.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2027</td>
<td>877,282.3</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2030</td>
<td>1,253,550.5</td>
<td>0</td>
<td>0</td>
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</table>
How much would financing gap be to achieve SDG 4.2 targets?

- Financial gaps would rise to KZT 421,076 million for SDG 4.2 target (Scenario 2).
- To compensate for financial shortfall, the government need to increase government expenditure on education as % of GDP or government education expenditure on pre-primary education as % of education expenditure by 2030.
- EX) Increase government education expenditure from 2.96% of GDP (Scenario 2) to 5% (Scenario 3).
Identify cost items and unit costs required for ensuring expanded access to inclusive quality ECCE.

Make projections of costs using a simulation model.

Plan for more equitable distribution of education resources between regions and identity groups.

Identify funding gaps and resources.

Policy dialogues for mobilizing adequate resources.
Demonstration