ICT contributions to EMIS sustainability and data quality

Unenbat Dashnyam

Ministry of Education, Culture, Science and Sports, Mongolia
• AIM
To develop system based on information technology, that can support education sector management, optimal planning, decision making process and delivering better education services in Mongolia.

• Goals
  • Developing core platforms of ESIS
  • Introducing to all levels of education
  • Delivering evidence based information for analytical research and planning
  • Providing sustainable development of ESIS
Historical timeline of EMIS development in Mongolia

- **2006**: OpenEMIS application was introduced by UNESCO
- **2009**: School management system was developed by private companies.
- **2013**: Started research work of EMIS at MECSS
- **2014**: HW and SW core platform development
- **2015**: Questionaries' based data collection in general education
- **2016**: Statistical system
- **2017**: Update of Statistical system
- **2018**: Officially introduced to pre-school education

- **2015**: HR module
- **2016**: Education management module
- **2017**: Asset management module
- **2018**: Research and development of pre-school education
Schools connected to education network:

- Capital city - 122 schools
- Province center - 210 schools
- Soum - 316 schools
Main modules and users

- MECSS (Government)
- Local education and culture authorities
- Other organizations
- School
  - Managers
  - Teachers
- Parents
## Active users

<table>
<thead>
<tr>
<th>Level</th>
<th>Type</th>
<th>User</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECSS</td>
<td>Officer</td>
<td>30+</td>
</tr>
<tr>
<td>Local authorities</td>
<td>Statistical officer (General education)</td>
<td>30+</td>
</tr>
<tr>
<td>Local authorities</td>
<td>Statistical officer (Pre-school)</td>
<td>30+</td>
</tr>
<tr>
<td>Local authorities</td>
<td>Officer</td>
<td>150+</td>
</tr>
<tr>
<td>Local authorities</td>
<td>Budget and financial officer</td>
<td>90+</td>
</tr>
<tr>
<td>School</td>
<td>Director/Managers</td>
<td>830+</td>
</tr>
<tr>
<td>School</td>
<td>Teacher</td>
<td>31’200+ (19’600+)</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>Director/Managers</td>
<td>1’440+</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>Teacher</td>
<td>6’700+</td>
</tr>
</tbody>
</table>

## Organization’s users 40,500+

## Scholarship system users 3,500+

## Parents (introduced in public Oct, 2018) 2,400+
ESIS – Core databases

- Institutions
- Training facility
- Human resource
- Statistical report

Core database
ESIS – Educational management modules
ESIS – School management system
Statistical data flow

- School, Teacher
- School, Manager
- LOCAL AUTHORITY Officer
- MECSS, Officer

Primary registration → Approved data → Approved data → Approved data

DATABASE
DATA WAREHOUSE
ESIS - HUB System

• Collecting data
  • Schools and kindergartens
  • Data exchange
  • Removes data duplication
  • Prevent fraud

• Processing data
  • Data analysis
  • Data mining
  • Machine learning
  • BI

• Sharing data
  • Government authorities
  • Educational institutions
  • Researcher
  • Public
General education - Official statistical data on ESIS

2015, 2016, 2017, 2018

• General education statistic – 58 reports
• Education statistical yearbook – 18 reports
• National statistical office – 7 reports

• Data outputs
  • Statistical and Real time data
  • Aggregated and Disaggregated data
  • Infographics
Data outputs - Infographics
• ESIS Portal site
  portal.esis.edu.mn

• Online user guides of ESIS
  help.esis.edu.mn

• Electronic textbooks in GE
  econtent.edu.mn

• Scholarship announcement and application process
  scholarship.esis.edu.mn
ESIS includes parent portals, which parents can use to track their children’s progress, attendance, and behavior. Parents can also use the portal to maintain communication with the administration as well as with their children’s teachers.
Update progress on SDG4 national indicators, targets and progress implementation in Mongolia including data gaps

Policy and actions

- **Mongolian Sustainable Development Vision 2030**
  - Knowledge-based society and skillful Mongolian citizen Access, quality, skills

- **Government Action Program 2016-2020**
  - Safe and healthy environment, inclusive service
  - High quality, outcome-based services

- **On actions aimed to enhance quality of statistics data:**
  - Data form of pre-school statistics updated and approved. Chairman’s order #A/207 of National Statistics Committee (Dec 19, 2017), Order #A/009 approved by Minister for Education, Culture, Science and Sports (Jan 5, 2018)
  - Monitoring over data quality of agencies and departments Joint monitoring interventions by NSC, MECSS and MoH (for 2 years) in 13 aimags, 67 soums and 235 bags (all MECSS affiliated organizations)
  - Planned to operationalize preschools MIS in 2018-2019.
  - Working group deployed to strengthen HEMIS (15 people)
## Current status of indicators for SDG 4 in Mongolia

<table>
<thead>
<tr>
<th>Targets</th>
<th>Indicators</th>
<th>Available</th>
<th>N/A</th>
<th>Indicators</th>
<th>Available</th>
<th>N/A</th>
<th>Currently unavailable indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2017</td>
<td></td>
<td>2018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>18</td>
<td>12</td>
<td>6</td>
<td>18</td>
<td>14</td>
<td>4</td>
<td>Proportion of children and young people achieving minimum proficiency level</td>
</tr>
<tr>
<td>4.2</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex</td>
</tr>
<tr>
<td>4.3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill</td>
</tr>
<tr>
<td>4.4</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>Proportion of children and young people achieving at least a minimum proficiency level in (i) reading, by sex, in grades 2/3</td>
</tr>
<tr>
<td>4.5</td>
<td>13</td>
<td>9</td>
<td>4</td>
<td>13</td>
<td>10</td>
<td>3</td>
<td>By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development</td>
</tr>
<tr>
<td>4.6</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive, effective learning environments for all</td>
</tr>
<tr>
<td>4.7</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>84</td>
<td>54</td>
<td>84</td>
<td>63</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td></td>
<td>64.3</td>
<td>35.7</td>
<td>75.0</td>
<td>25.0</td>
<td></td>
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</tr>
</tbody>
</table>
Further considerations:

• Create and disseminate common understandings on education levels and classifications at all education institutions, and maintain them in practice. (Level 3, 4);

• Update the existing “Methodologies for measuring education indicators” by adding methodologies used for measuring SDG4 – Education 2030 (10 targets and 43 indicators);

• Review existing statistics data indicators of primary, secondary and higher education, and update existing formal and administrative statistics forms;

• Introduce EMIS in higher education sectors;

• Examine those indicators of SDG4 – Education 2030 (7-3 targets) which are currently not available, and create possibilities to collect and carry out quality assessment;

• Strengthen capacity of human resources in areas of education statistics, monitoring and planning.
Future actions to increase data quality

• Currently data from general education and pre-school education is easily collected. However data quality still needs to be improved.

• Required policies and acts
  • Policy of ESIS usage should be more detailed
  • Sustainable development on ESIS
  • Develop built-in Quality assurance mechanism on ESIS

• Processes
  • Increase usage of ESIS - need more training at lower level system users
  • Education sector’s digital transformation - Eliminate duplicated process/Business process re-engineering in education sector

• Capacities and resources
  • Extend and upgrade Infrastructure
  • Establish working group consists of representatives from relevant stakeholders such as; Governmental authorities, Universities, NGO`s and private sector to develop long term plan of ESIS.
Thank you!