Background: ICT in Education

**GLOBAL:** Global Trend: Importance of ICT in multiple SDGs (Target 4.b, 5b, 9.c, 17.8)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Project Purpose</th>
<th>Target</th>
<th>Description</th>
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<tr>
<td>4.1</td>
<td>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</td>
<td>4.b</td>
<td>By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries</td>
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<td>5.1</td>
<td>Achieve gender equality and empower all women and girls</td>
<td>5.b</td>
<td>Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women</td>
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<td>9.1</td>
<td>Build resilient infrastructure, promote sustainable industrialization and foster innovation</td>
<td>9.c</td>
<td>Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020</td>
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<td>17.1</td>
<td>Revitalize the global partnership for sustainable development</td>
<td>17.e</td>
<td>Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology</td>
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**MONGOLIA:** Relevant Policies

1. Education Law, Article 6: Citizen’s main rights and responsibilities on education
   - 6.2: State will provide general education free of charge in accordance with the Constitution
   - 6.3: Basic education is compulsory for all citizens of Mongolia
2. Core Curriculum
   - Encourage localized and student-centered learning, (use of ICT as learning tool across different curriculum)
   - Basic education is focus of direction
   - Use of ICT will help lifelong learning
5. Long-term strategy 2030 (approved in 2016)
   - Emphasize country’s development with increased GDP and sustainable development reflecting SDG goals

Current condition in Mongolia

Findings from the JICA project phase 1 (2012-2016)

- **Teacher training opportunity increased**
  - In 5 target regions, teacher training opportunity increased by 34.8% in province-level and by 52% in school-level
  - 93% of school managers recognized an increase in teacher training opportunity

- **Teachers’ skills were improved**
  - ICT skills: 83% of school managers answered totally agree with the statement “Our teachers have better ICT skills”
  - Competence in developing and using digital teacher training materials: Compared to baseline survey 13% more school managers answered that more than 75% of their teachers possess the skills and competence to develop and use digital teacher training materials
  - Teachers’ performance: 98% of school managers agreed with improvement in teachers’ performance
  - Impact of teacher training: Teachers recognized positive impact of teacher training at any level. The increase in teachers’ perception is 10.7% (National level), 8.02% (Province level), 6.72% (School level) and 8.29% (Colleagues)
  - Excellent teachers: The percentage of excellent teachers saw a significant increase with an average of 11.34%

- **Teachers’ perceptions toward ICT use were enhanced**
  - Competence: The degree of teachers’ agreement on influence of teacher training on their job competence increased by 7.8%
  - Satisfaction: The degree of teachers agreement on influence of teacher training on their job satisfaction increased by 9%
  - Student centered-education: 92% of teachers believe digital contents contribute to promotion of student-centered education and 93% of teachers believe use of ICT tools contribute to promotion of student-centered education
  - Students’ interested and motivations: Compared to baseline survey, 7-11% more teachers believed ICT tools make students interested and motivated

- **Appreciation by parents and community increased**
  - 90% of school managers recognized that teachers’ work is appreciated by parents and community.

- **Impact of JICA project is visible among teachers**
  - 86.7% of teachers believed that their competencies as teachers increased substantially due to this project

Objective

**Overall Goal:** Middle school students can learn through student-centered approach by the improved quality of teaching in rural schools

**Project purpose:** To enhance middle school teachers’ skills and competencies in their classroom teaching by effectively applying locally produced ICT-based teacher development material

Issues of middle school teachers’ in rural Mongolia

- Less opportunity of professional training for middle school teachers
- Middle school teachers are behind in ICT skill development
- Lack of quality science laboratories and materials
- Teachers support/cooperation within the subject is difficult
- Regional gap as the last years of basic education
- Lack of self-evaluation method for student-centered education

Needs

Urgent needs for improving knowledge and skills of middle school teachers by promoting local teachers’ proactive and continuous participation in teacher training and training material development
1. To identify the state of teacher training
2. To see the teacher perception on self-development
3. To see the extent of use of training materials at school-level

Capacity of teacher training institute (MNUE) is enhanced to produce high quality digitalized video and interactive training materials (middle schools)

ECD methodologists from 21 aimags and 9 districts in UB will be trained on how to design and develop digitalized materials for secondary school teachers

Form and train professional team for production of digital training materials
Organize study tour to Japan
Provide professional assistance to training material development teams

Develop training program for methodologists
Conduct 5-day training for 124 methodologists
(21 aimags + 9 districts in UB + UB city = 31 ECD units)
4 Methodologists * 31 ECD = 124

Trained methodologists plan and conduct aimag/district level training

Ulaanbaatar 675 teachers
(= 3 teachers * 5 schools * 5 cluster * 9 districts)

North Region 450 teachers
(= 3 teachers * 5 schools * 5 cluster * 6 aimags)

West Region 375 teachers
(= 3 teachers * 5 schools * 5 cluster * 5 aimags)

North Region 300 teachers
(= 3 teachers * 5 schools * 5 cluster * 4 aimags)

Gobi Region 450 teachers
(= 3 teachers * 5 schools * 5 cluster * 6 aimags)

Total participants = 2250

Baseline Survey (2017)
Review of MNUE capacity for middle school curriculum and teacher training
Kick-off meeting (2018)
Steering committee meeting and monitoring activities
Local lower secondary school teachers are able to design, develop and utilize digitalized training materials reflecting local needs.

**Output 3**
- **Activity 3.1** Produce draft digital teacher training materials
- **Activity 3.2** Test and improve the digital materials in 5 aimags
- **Activity 3.3** Produce final digital materials and store in CDs (VCDs/DVDs)
- **Activity 3.4** Produce the guidelines
- **Activity 3.5** Plan and disseminate the materials

Rural teachers can teach students by utilizing local training materials and applying student-centered approach.

**Output 4**
1. Develop training program using cascade model
2. Conduct training with newly developed materials to methodologists, school principals, and teachers
3. Conduct monitoring for school-based training
4. Creation of the platform to share materials (Aimag and district levels)
5. Upload digital training materials to Bagshin Khugil and the aimag level platform

**Output 5**
- **Activity 5.1** Model school selection
- **Activity 5.2** Study tour to Japan
- **Activity 5.3** Support for model school
- **Activity 5.4** Produce guidelines and materials
- **Activity 5.5** Disseminate teaching materials

At 10 model schools, teachers' teaching ability will be improved through development and dissemination of classroom teaching materials.

Other activities:
- Steering committee meeting and monitoring activities
- Steering committee meeting and monitoring activities
- Impact Survey (2021)
  1. To identify the state of teacher training
  2. To see the teacher perception on self-development
  3. To see the extent of use of training materials at school-level
- Steering committee meeting and monitoring activities
- Final Project Conference (2021)
The Project Organization Structure

Strengthening Math and Science Education through Teaching Training using ICT

Students in rural middle schools
Middle school students can learn through student-centered approach by the improved quality of teaching in rural schools

Middle school teachers of rural Mongolia equipped with appropriate skills and updated knowledge enjoying professional satisfaction
To enhance middle school teachers’ skills and competencies in their classroom teaching by effectively applying locally produced ICT-based teacher development material

The Project Implementation Unit

Execute the implementation, Provide logistic support and Reporting

Members:
Coordinator, Task coordinators, Secretary and Contracted support staff

The Steering Committee/Advisory Board

Provide policy guidance and general coordination
Oversee the implementation

Members:
MECS, MNUE, Tokyo Tech, Education Research Institute, JICA, advisors

The Training managers at schools and In-service teacher training clusters

Professional guidance for developing and utilizing locally contextualized contents

Khovd ECD
Guide, facilitate and monitor the implementation; coordinate participants; creation of aimag level training platform

Bayankhongor ECD
Guide, facilitate and monitor the implementation; coordinate participants; creation of aimag level training platform

UB ECD
Guide, facilitate and monitor the implementation; coordinate participants; creation of aimag level training platform

Selenge ECD
Guide, facilitate and monitor the implementation; coordinate participants; creation of aimag level training platform

Khentii ECD
Guide, facilitate and monitor the implementation; coordinate participants; creation of aimag level training platform

The Survey team

Plan, design, conduct, analyze and report surveys (baseline, impact)

The Multimedia Studio Team (MNUE)

• Execute the production of training contents in digital formats
• Assist local teams and schools in design and development of localized materials

Each partner region has

• Core production team (6 subject x 6 teachers)
• 2 model schools: design, develop and test classroom instruction methodologies with blended teaching
• Local platform to upload teaching materials

Collaboration

Model school coordinator
Plan, develop, organize, coordinate and report; Supervise and assist pilot schools and teams

The Training task coordinator
Plan, develop, organize, coordinate and report progress and results of training activities
Liaison between instructors, training institutions and trainers

The Content Development task coordinator
Plan, develop, organize, coordinate and report progress and results of content development and distribution activities
Liaison between the Studio, VCD teams and national trainers

The Project Manager
Supervise the process of implementation
Liaison stakeholders
Control and authorize the project expenses

The Survey team
Plan, design, conduct, analyze and report surveys (baseline, impact)

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