Background: ICT in Education

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

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	**Target 4.b:** 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
Goal 5: Achieve gender equality and empower all women and girls	**Target 5.b:** Enhance the use of enabling technology, in particular **information and communications technology**, to promote the empowerment of women.
Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation	**Target 9.c:** 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
Goal 17: Revitalize the global partnership for sustainable development	**Target 17.8:** 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**

REGIONAL: Use of ICT in Education in Asia

Special attention to ICT in education in developing countries in Asia
1. UNESCO Mid-term Strategy: Strategy 1 (ICT and quality education) Strategy 9 (ICT & access to information)
2. UNESCO Bangkok Statement: Importance of effective ICT use
3. UNESCO Bangkok Mid-term Strategy (2014-2021): Effective use of ICT can change attitude and behaviour of citizens in social development

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)
3. **State Policy on Education 2024 (adapted in 2015)**
   Basic education is focus of direction
4. **Government Action Plan on Education (2016-2020)**
   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

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

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

Output1
Capacity of teacher training institute (MNUE) is enhanced to produce high quality digitalized video and interactive training materials (middle schools)

Activity 1.1
Form and train professional team for production of digital training materials

Activity 1.2
Organize study tour to Japan

Activity 1.3
Provide professional assistance to training material development teams

Output2
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
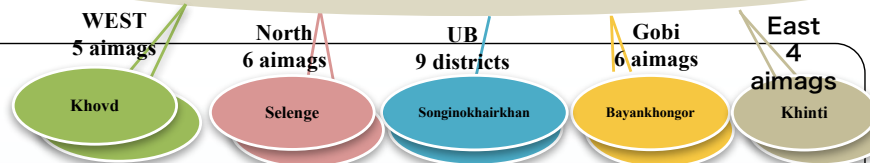
Activity 2.1 Develop training program for methodologists

Activity 2.2 Conduct 5-day training for 124 methodologists
(21 aimags + 9 districts in UB + UB city = 31 ECD units)
4 Methodologists * 31 ECD = 124

Cascade Model

Trained methodologists

WEST 5 aimags — Khovd
North 6 aimags — Selenge
UB 9 districts — Songinokhairkhan
Gobi 6 aimags — Bayankhongor
East 4 aimags — Khinti

Activity 2.3 Trained methodologists plan and conduct aimag/district level training

National-level teacher training with Cascade Model

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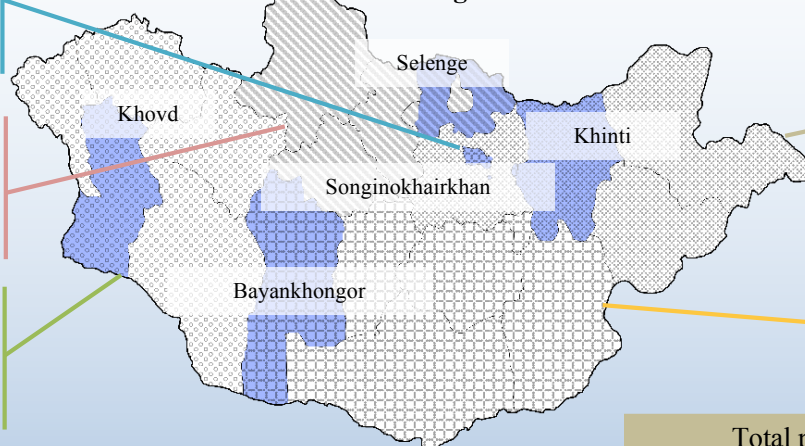(= 3 teachers * 5 schools * 5 cluster * 9 districts)

**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)

Selenge
Khovd
Khinti
Songinokhairkhan
Bayankhongor

Total participants = 2250

Other activities

Baseline Survey (2017)
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

MNUE Review (2017)
Review of MNUE capacity for middle school curriculum and teacher training

Kick-off meeting (2018)

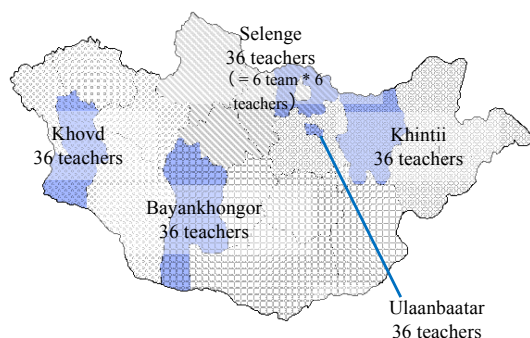**Steering committee meeting and monitoring activities**

Steering committee meeting and monitoring activities

Output3

Local lower secondary school teachers are able to design, develop and utilize digitalized training materials reflecting local needs
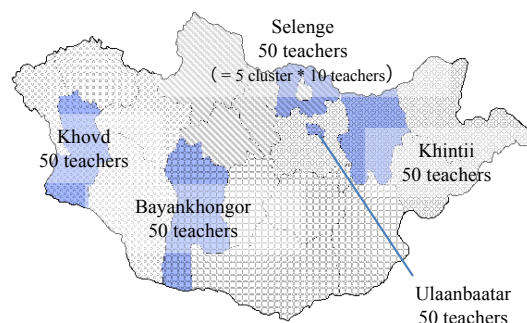
Activity 3.1 Produce draft digital teacher training materials

※(5 regions * 6 teams* 6 teachers = 180 teachers)

Selenge
36 teachers
(= 6 team * 6 teachers)

Khovd
36 teachers

Khintii
36 teachers

Bayankhongor
36 teachers

Ulaanbaatar
36 teachers

Activity 3.2 Test and improve the digital materials in 5 aimags

※(5 regions * 5 cluster * 10 teachers = 250 teachers)

Selenge
50 teachers
(= 5 cluster * 10 teachers)

Khovd
50 teachers

Khintii
50 teachers

Bayankhongor
50 teachers

Ulaanbaatar
50 teachers

Activity 3.3 Produce final digital materials and store in CDs (VCDs/DVDs)
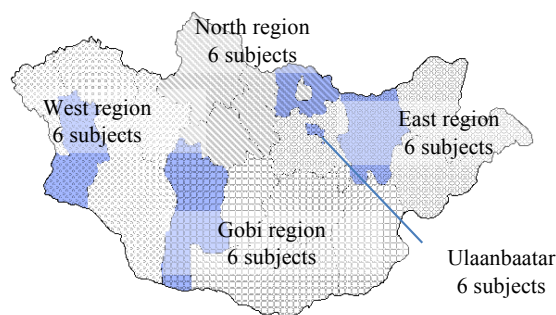

Activity 3.4 Produce the guidelines

Activity 3.5 Plan and disseminate the materials

Output 4

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

Activity
4.1 Develop training program using cascade model
4.2 Conduct training with newly developed materials to methodologists, school principals, and teachers
4.3 Conduct monitoring for school-based training
4.4 Creation of the platform to share materials (Aimag and district levels)
4.5 Upload digital training materials to Bagshin Khugil and the aimag level platform

North region
6 subjects

West region
6 subjects

East region
6 subjects

Gobi region
6 subjects

Ulaanbaatar
6 subjects

Participants : 350
(= (20 Methodologist + 50 teacher) * 5 regions)

Output 5

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

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

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)
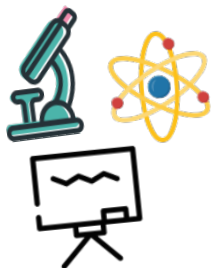
The Project Organization Structure
Strengthening Math and Science Education through Teaching Training using ICT

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

Training managers at schools and in-service teacher training clusters
Professional guidance for developing and utilizing locally contextualized contents

Upload the localized teacher training contents onto national teacher training platform
Bagshin Khugjil

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

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

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

Selenge

Khintii

Khovd

Songinokhairkhan

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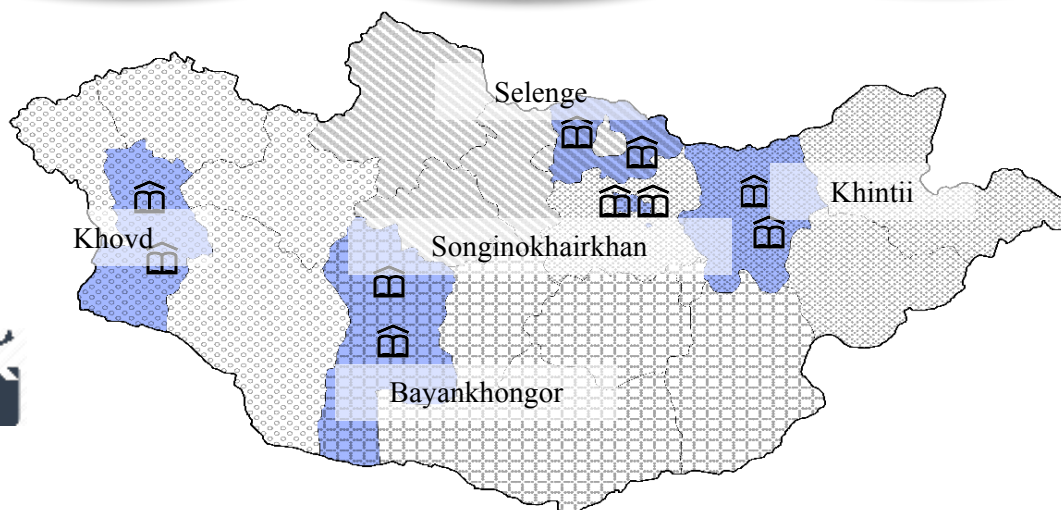
The Survey team
Plan, design, conduct, analyze and report surveys (baseline, impact)

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 trainees

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 Steering Committee/Advisory Board
Provide policy guidance and general coordination
Oversee the implementation
Members: MECS, MNUE, Tokyo Tech, Education Research Institute, JICA, advisors

The Project Implementation Unit
Execute the implementation, Provide logistic support and Reporting
Members: Coordinator, Task coordinators, Secretary and Contracted support staff

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