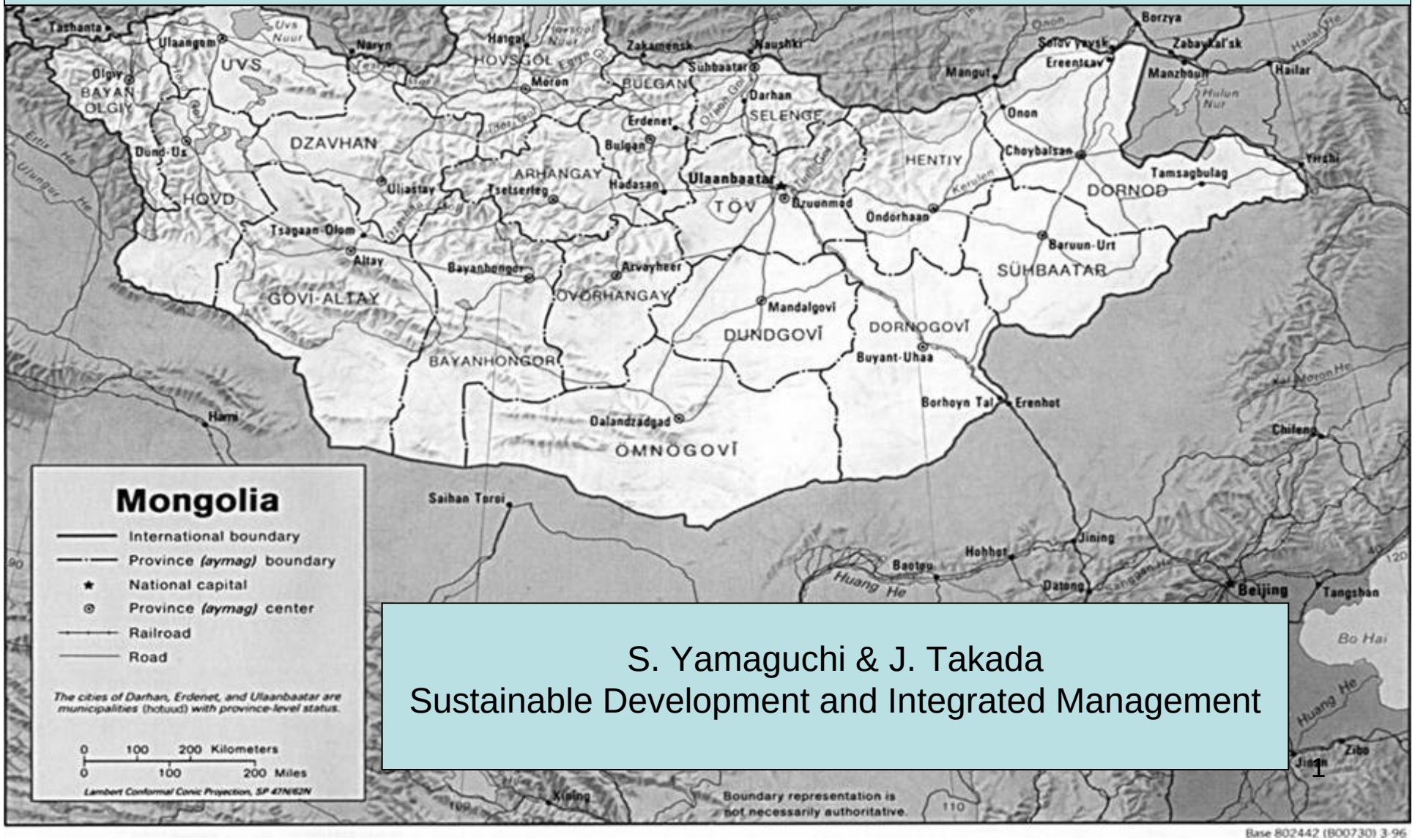
United Nations Trust Fund for Human Security

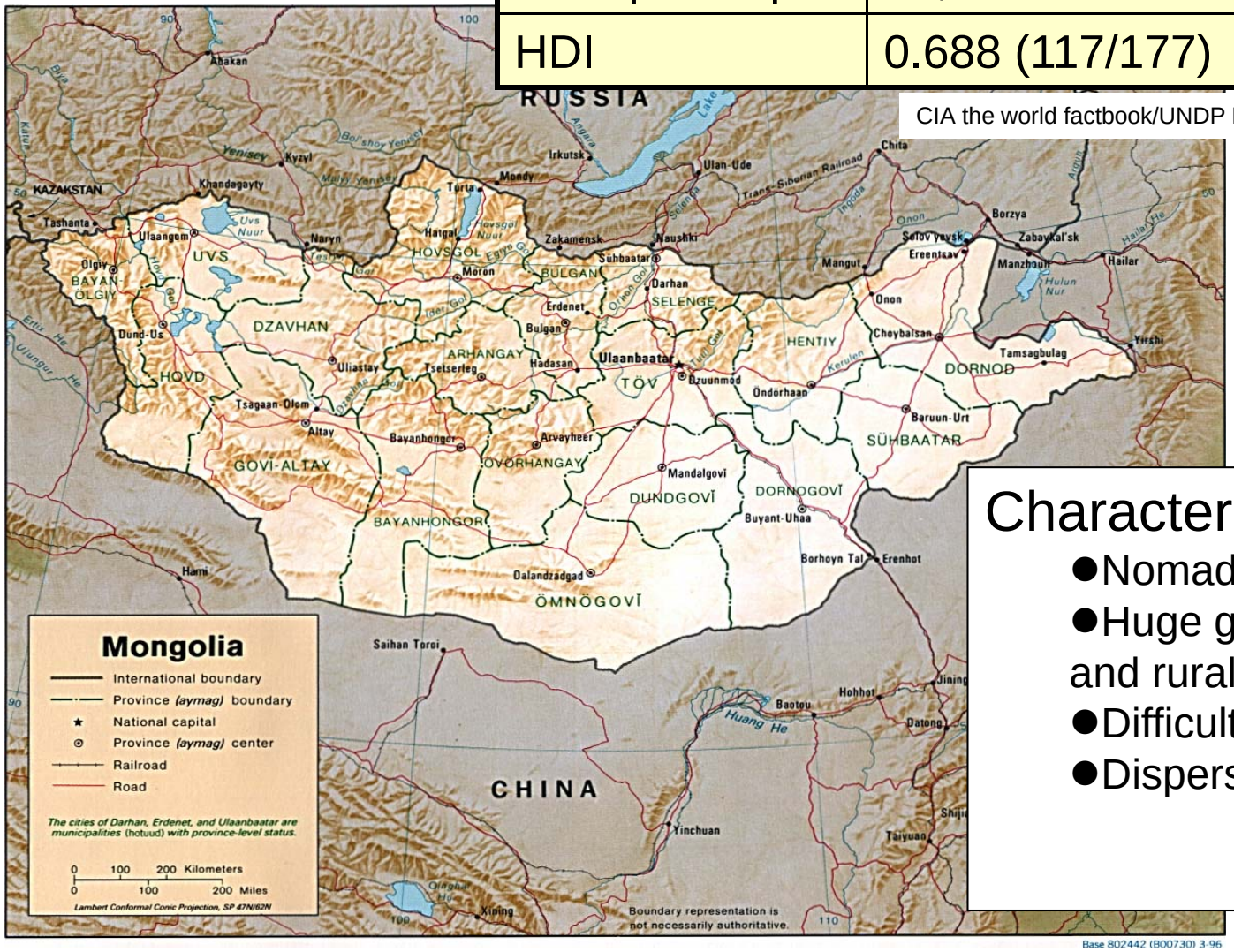
"Rehabilitation of Boarding Schools and Provision of Refresher Training Course for Headmasters and Teachers in the Dzud affected Gobi Desert Provinces in Mongolia"



S. Yamaguchi & J. Takada
Sustainable Development and Integrated Management

	Mongolia	Japan
Population	2,751,314	127,333,002
Area	1,564,116 km^2	377,835 km^2
GDP per Capita	$1,800US	$28,200US
HDI	0.688 (117/177)	0.938 (9/177)

CIA the world factbook/UNDP Human Development Report 2994



Characteristics

- Nomad
- Huge gaps between cities and rural areas
- Difficult geographical sites
- Dispersal of population

Background of the project

- Suffered from severe natural disaster (1999-2001) called “Dzud”,
  - affecting 13 out of 21 aimags
  - killing 3 million livestock in 1999-2000,
  - estimated 6 million livestock (25% of total herd in Mongolia) had died (2000-2001).
- Had enjoyed high literacy rate of 96.5% in the past (1990).
  - Enrollment ratio for children (8-15years old) from 98% to 84% over the last 15 years.
  - Share of education in GDP fell from 11.5% (1990) to 6.8% (1998).
- Dzud affected school systems in Gobi:
  - damaged school buildings and dormitories;
  - insufficient heating system, loss of teaching time (up to 200 hours),
  - loss of teachers in search of more stable job in aimag centers
- Need assessment survey conducted
  - to review the level of damage and current needs of headmasters (school principals) and teachers for post-Dzud situation

Objectives of the project

- To contribute to the effort of the Government to achieve the goals of the Dakar Framework for Action, through the contribution of improving the quality of education in Mongolia with a safe learning environment
- To be carried out as part of the country's National Plans and Policies as well as the National EFA Action Plan
- To contribute to supporting various cost-effectiveness and sustainable policies and programme options for most disadvantaged Dzud affected rural aimags specifically by:
  - Improving the learning environment through the rehabilitation of school buildings and dormitories
  - Improving the quality of teaching and classroom management through the introduction of learner/child-centered teaching methodology;
  - Increasing motivation, confidence and commitment among teachers in remote provinces through mobile in-service teacher training;
  - Increasing participation of students, parents and the community in managing their education through …raising awareness of parents

Base 802441 (B00730) 3-96

Information Technology

Tokyo Tech ♥ Multi-Lateral Organization

School rehabilitation and Local HRD project

UN HQs
Human Security Fund

Funds

Tokyo Tech
- GSIC
- Int'l development dep't
- Innovation management dep't
- industry collaboration office

UNESCO
UNICEF

Mongolian government

Local collaboration

Technical assistance

Consultancy

Project Team

Eco-micro energy

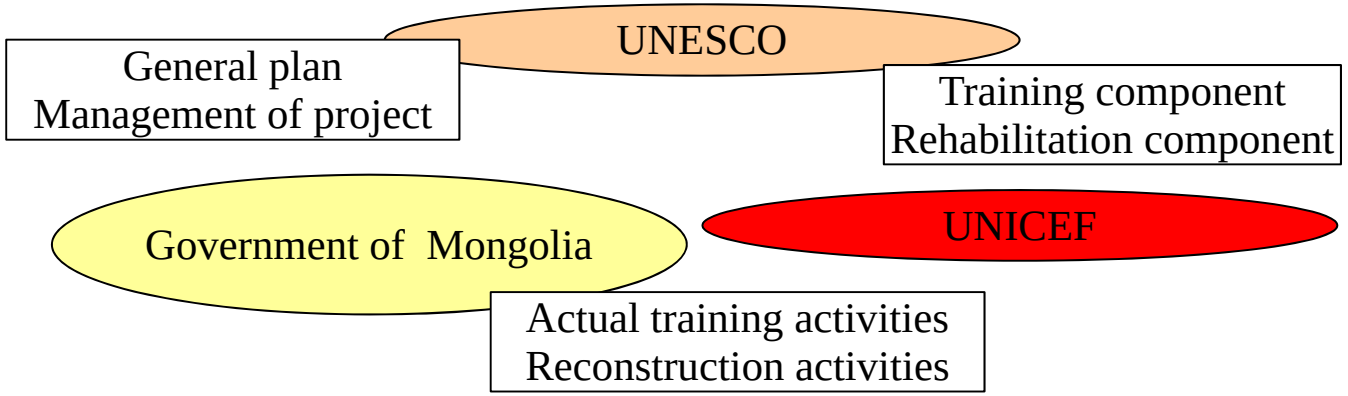
Distance learning survey

Local HRD

Rehabilitation of schools

Composition of the project

- **UNESCO**
  - Conceptualization of project
  - Consultation with national and international counterpart
  - Formulation of national project team,
  - Actual implementation of the project activities



- **Government of Mongolia**
  - Involves and implements the project activities,
  - Identify project site schools in three aimags,
  - Conduct school rehabilitation activities
  - Plan and implement training activities

- **UNICEF**
  - Monitor and supervise the rehabilitation of school buildings in three aimags,
  - Provide technical assistance for the provision of improved sanitation and health care facilities in school and dormitories

TOR: Tokyo Institute of Technology

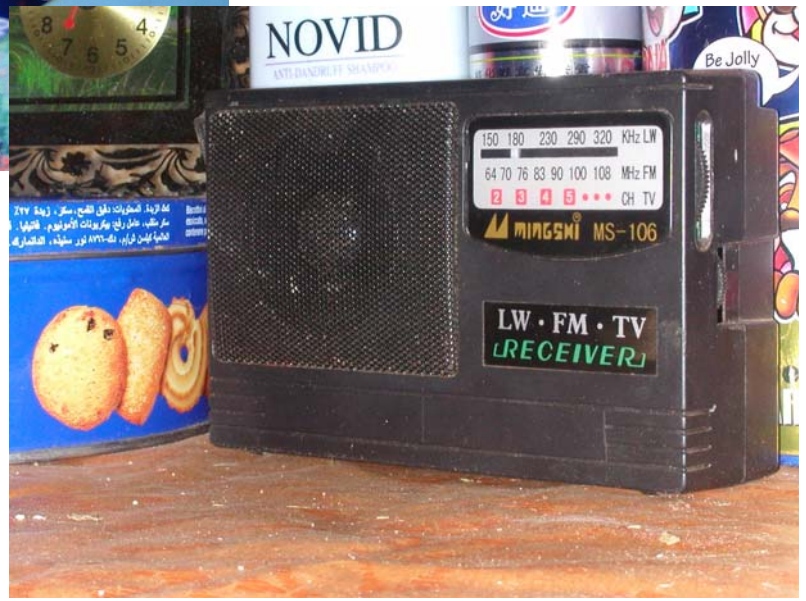
- Provide advice for training activities for teachers and headmasters in three aimags in Mongolia for:
  - In-service training for headmasters at UB
  - Mobile training for teachers in aimag centers and regional central schools
  - Preliminary survey on the potential modality of training
- Participate in the final evaluation activity

Observations

- Identification of important factors affecting and/or may affect training activities in three aimags
- Background information influencing and/or may influence the modality of educational training activities


Distance & Disperse-ness
Dundbogi, 09/2004


Strong interest for information at rural areas
Dundgobi, 09/2004



Radio (source of information)
is in the center of the house

Difficulty in transportation

Difficult Climate Condition

Ulastai aimag center, Zavkhan
November, 2004

Time and cost spent for transportation

On the way to Numrug soum (Nov.2004)

Lack of electricity in soum schools

"We want to learn English and PC"

"We want to be connected with outside of the soums and foreign countries"

- Electricity came only 10 days ago...

"We only had limited access to electricity, and could not give extra lessons after getting dark."

"I am sending my kids to aimag center school and school in UB. They have better facilities"

No reliable power supply
Independent diesel engines at school in Zavkhan

Availability of electricity affect teaching & learning (and training activities)

Teachers using PCs to produce teaching materials

(Dundgobi aimag)

After school activities of teachers using PCs

(Dundgobi aimag)

Unused PCs in schools due to lack of energy

Young informatics teacher is responsible for the PC maintenance (Zavkhan aimag)

Unused PCs


Trial for sustainable energy development
Solar and wind energy
Adaatsag soum, Dundbogi
09/2004

Disparity Questions

In which level?

- **Urban-rural**
- **Between aimags**
- **Within aimag**

In what aspects?

- **Access to information**
- **Access to training**
- **Level of power supply**
- **Basic infrastructure**

Production of distant learning materials

Guidelines

- Content based on teachers' concrete questions
- Complementary materials to radio program and VCD

6Subjects

- Science
- Mathematics & Informatics
- Human Science
- Art and technology
- History & social science
- Teachers & student communication

National Project Team

State University of Education

Manual

- Post-graduate training department

Contents

- Departments according to the 6 selected subjects: (Natural Science, Mathematics & informatics, Humanities, Art & Technology, History and Social Science)

VCD production

- School of Mongolian Language, Department of Journalism
- Unit in distant education

Ministry of Education

- Educational Policy

Institute of Education

- Collaboration in developing contents

National Radio Station

- Technical assistance and airing in radio program

Needs assessment for teachers

- Baseline survey, May 2004
- Questionnaire for teachers, Nov. 2004
- Additional response from teachers, Dec. 2004

Radio program

- Being aired in May, June (6 times X 2)
- 15-20 min, 6 program and its repeat next day
- Group training is highly recommended
- Contents developed by SUoEd and Institute of Education
- 2,500 USD to develop and air program
- Nationwide coverage of the program

Audio cassette material

- 300 copies are to be distributed in June
- Half of schools in Mongolia are to be covered

VCD material

- Content is 25 min
- 4,500 USD to develop material
- School of Mongolia Language & Art
- 6 subjects, 10 lessons
- Material testing in summer training

Feedback

Summary
Questionnaires: Summer 2005

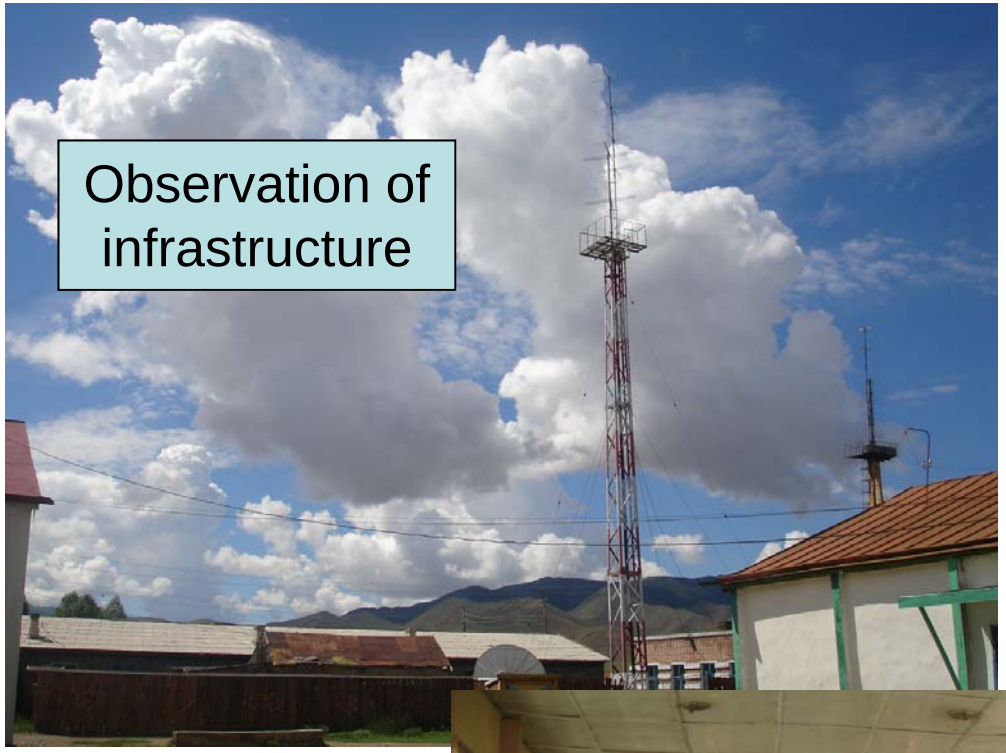
Duration: July 30 - August 17, 2005

Venue: 1) Devshil school, Uliastai aimag center, Zavkhan
2) Jargalant soum school, Bayankhongor
3) Saintsaagan soum school, Mandalgobi aimag center, Dundgobi

Participants: 1) 78 teachers (& principals) from 7 soums
2) 77 teachers (& principals) from 8 soums
3) 124 teachers (& principals) from 8 soums

Specific Activities:

1. Interview with headmasters and teachers
2. Observation of training
3. Conducting and questionnaires
   - Evaluation of distance learning materials
   - Evaluation of training
   - Teachers Needs Assessment



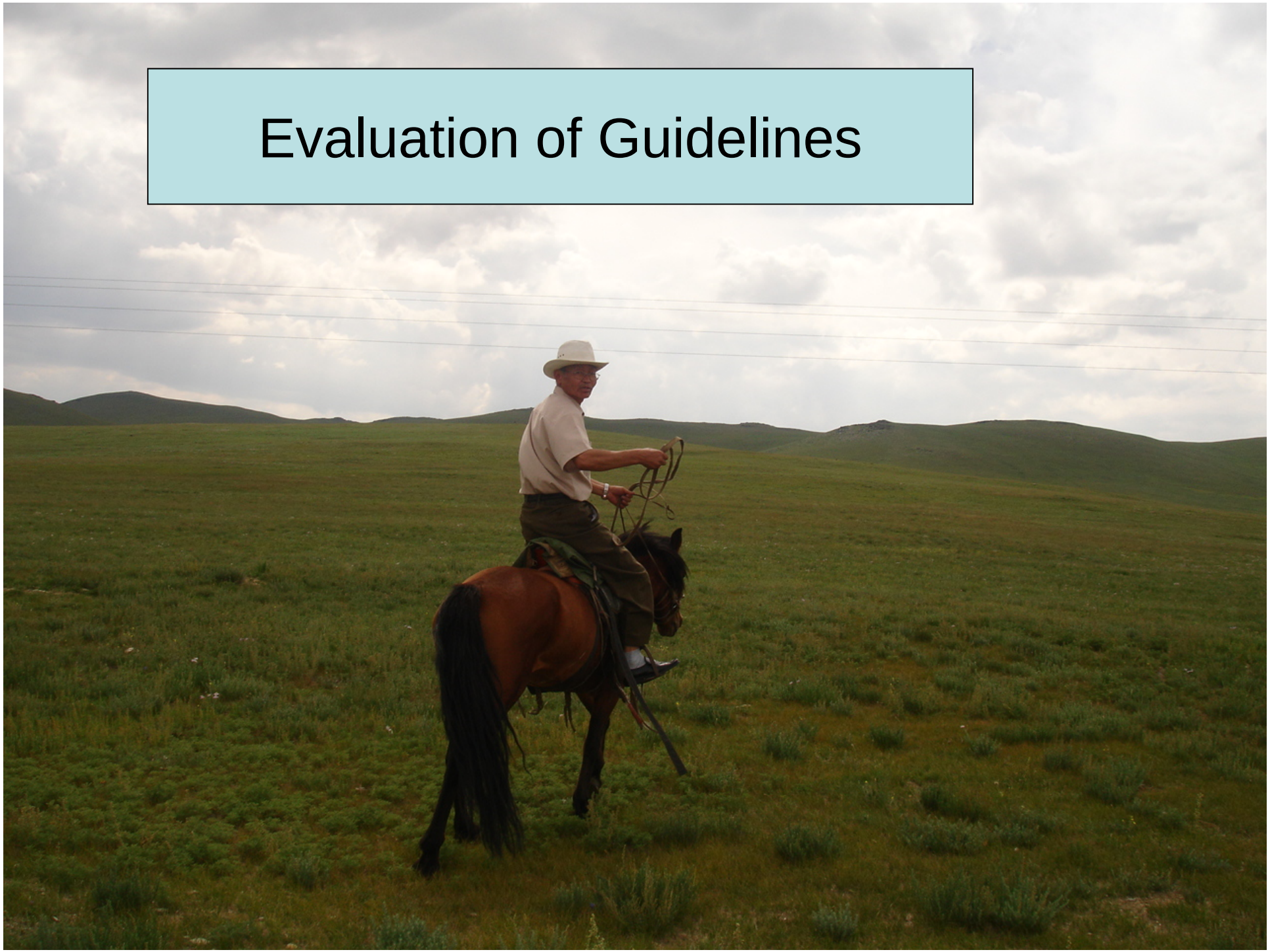
Observation of infrastructure

Evaluation of Distance Learning materials

Mobile teacher training

& Interviews

Evaluation of Guidelines



Data summary: Guidelines feedback

	Zavkhan	Bayankhongor	Dundgobi
# of respondents (response rate)	55 (78%)	39 (51%) *other 49% are non-target schools	75 (60%)
% of pre-use	89%	90%	91%
The most useful topic	“Communications” 44% “Math & Informatics” 36%	“Communications” 50% “History & Social Science” 26%	“Communications” 42% “Math & Informatics” 35%
Places used	School: 53% Home: 45%	School: 59% Home: 56%	School: 40% Home: 72%
Individual use vs group use	Individual: 62% Group: 36%	Individual: 46% Group: 64%	Individual: 63% Group: 53%
Rating (highest score = 4)	Overall: 3.10 Highest rating: “topics” (3.21) Lowest rating: “attractiveness” (3.02)	Overall: 3.11 Highest rating: “topics” (3.22) Lowest rating: “range of Applicability” (3.09)	Overall: 3.16 Highest rating: “topics” (3.25) Lowest rating: “range of Applicability” (3.05)

Findings on Guidelines

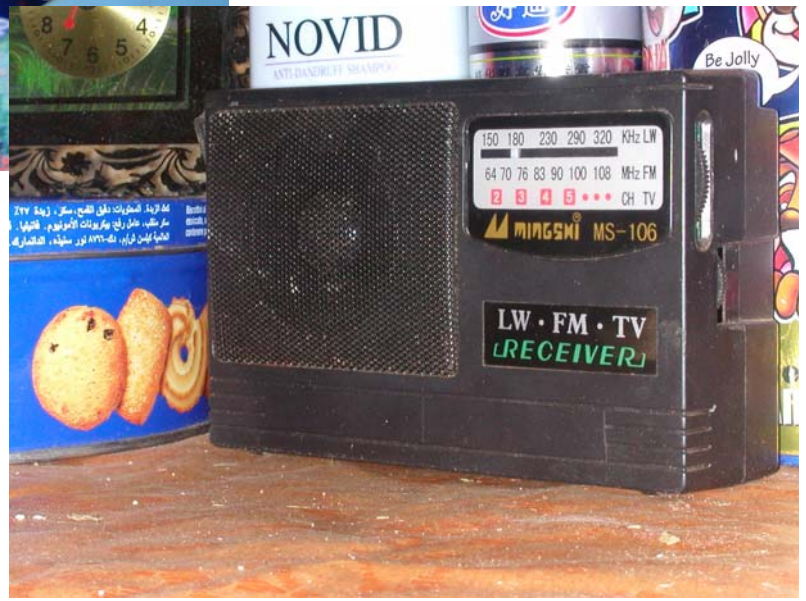
1. About 90% of teachers used the guidelines in advance.

2. “Communications” was the most popular topic in all 3 aimag while “Math & Informatics” had high rating in Zavkhan and Dundgobi aimags, and “History & Social Science” in Bayankhongor aimag.

3. Guidelines are used more at home in Dundgobi aimag while it is used equally at home and school in Zavkhan and Bayankhongor aimags.

4. In Bayankhongor aimag, teachers used the guidelines more actively in group work while teachers in Zavkhan and Dundgobi preferred to use it as individual use.

5. Among 8 categories of rating guidelines (“topics”, “methodologies”, “usefulness”, “attractiveness”, “range of applicability”, “length”, “audio quality”, and “visual quality”), “topics” gained the highest rating while teachers rated “range of applicability” with lowest score.



Evaluation of Radio Programs

Data Summary: Radio Program Feedback

	Zavkhan	Bayankhongor	Dundgobi
# of respondents (Response rate)	73 (94%)	35 (45%) *other 49% are non-target schools	89 (72%)
% of respondents listened to the program	100%	100%	93%
% of respondents listened to additional subjects	48%	43%	48%
Places listened to the program	School: 22% Home: 82%	School: 57% Home: 63%	School: 52% Home: 55%
Activities after the program	Group discussion: 63% Presentation: 21%	Group discussion: 63%	Group discussion: 53% Presentation: 20%
Airing time listened to the program	Morning: 29% Afternoon: 63%	Morning: 37% Afternoon: 60%	Morning: 33% Afternoon: 57%
Rating (highest score = 4)	Overall: 3.12 Highest rating: “clarity” (3.28) Lowest rating: “length” (2.76)	Overall: 3.11 Highest rating: “subject” (3.31) Lowest rating: “time” (2.92)	Overall: 3.11 Highest rating: “subject” (3.32) Lowest rating: “time” (2.91)

Findings on Radio Programs

1. In Zavkhan and Bayankhongor aimags, 100% respondents listened to the radio programs, while more than 90% of respondents listened in Dundgobi aimag.

2. About half of teachers in each aimag listened to subjects other than their own teaching subject.

3. In Zavkhan aimag, listening at home was much more popular (4 times more) than listening at school, while in other aimags they listened equally at home and at school.

4. In all 3 aimags, afternoon session is more preferred than morning session.

5. Among 5 categories of rating guidelines (“subject”, “content”, “time”, “length”, and “clarity”), teachers rated “subject” and “clarity” with the highest score. In all 3 aimags “time” suggest needs for improvement.

Evaluation of VCD Materials

Training at Uliastai soum, Zavkhan aimag

Data Summary: VCD feedback

	Zavkhan	Bayankhongor	Dundgobi
# of respondents (response rate)	55 (71%)	54 (70%)	73 (59%)
% of previous experience	54%	31%	38%
Rating (highest score = 4)	Highest rating • Mongolian language I (3.28) • Mongolian language II (3.27) • Chemistry (3.26) Lowest rating • Social Science (2.56) • Art, Technology and Techniques (2.91) • Mathematics (2.91)	Highest rating • Communications (3.38) • Informatics (3.23) • Mongolian language (3.21) Lowest rating • Chemistry (2.90) • Mathematics (2.94) • Biology (2.97)	Highest rating • Communications (3.56) • Chemistry (3.50) • Mongolian language (3.41) Lowest rating • Mathematics (3.08) • Art, Technology and Techniques (3.14) • History (3.25)
% of teachers who want to use VCD material in the future	98%	98%	100%
VCD feasibility in future	100% thinks feasible	100% thinks feasible	100% thinks feasible
Comments on further improvement	• Contents (25) • Many suggestions about “more practical examples”	• To include more subjects with practical lessons (20) • Presentation quality (5)	• To include more subjects with practical lessons (33) • Presentation quality (9)
Most useful medium for future	VCD: 60%, Guidelines: 47% Radio: 11% Combination of multiple media: 27%	VCD: 90%, Guidelines: 31%, Radio: 28% Combination of multiple media: 49%	VCD: 69%, Guidelines: 48% Radio: 21% Combination of multiple media: 44%

Findings on VCD materials

1. Bayankhongor and Dundgobi aimags had smaller % of teachers with previous VCD training experiences (Bayankhongor: 31% and Dundgobi: 38%), while Zavkan aimag had higher % of teachers (54%).

2. Teachers are fairly satisfied with VCD material in general. It needs further improvement on presentation and subjects.

3. Rating of the VCD material is different from subject to subject.

4. Almost all teachers want to use VCD material in the future training.

5. 100% of teachers thinks it feasible to conduct VCD training in the future.

6. VCD was the most preferred medium in the future training.

Tested version of VCD training materials: Summer 2005 (Theory-oriented)

Improved VCD training materials: Winter 2005 (with practical lectures and teaching methods)

Impact

Impact of Distance Learning Materials

Effectiveness: Training Materials

1. **VCD is the most preferred training materials among teachers**
   - "Seeing is believing" and visual aid helps teachers to understand "how to apply"
   - VCD was frequently used both at school and at home (majority of schools)
   - Teachers are attracted with new method of training (///)
   - Practical lectures were most useful (//)
   - Examples of Model Teaching for VCD is appreciated (////)
   - Model lectures can only be provided by VCD

2. **Active Use of VCD improved school teaching environment**
   - It triggered active discussion among teachers on how to apply theory into actual teaching practice
   - Other subject of VCD was also useful to learn how to teach practically with new method of teaching. (///)
   - Use of VCD improved collaboration among teachers. Introduction of VCD encourage teachers' discussion and become opportunity for the opinion exchange among different subject teachers.
   - VCD was used to involve and train parents (///)

3. **Guideline was useful for daily practice as a reference to prepare the subject** (////)

4. **Combined form of training materials were helpful (///)**
   - Guideline covered theory and VCD covered practical application

Effectiveness: Training Materials

5. **Teachers makes an extra efforts to use VCD with limited supply of electricity (*///*)**
   - Team training and individual training were conducted at home
   - VCD was used for Individual self-learning at home (with solar energy) (Songino, Numrag, Jargalant

6. **Revised version of VCD was appreciated together with original version**
   - Test version of VCD focused on theory and the revised version included practical examples and lessons.
   - Combined use of both versions are highly appreciated.

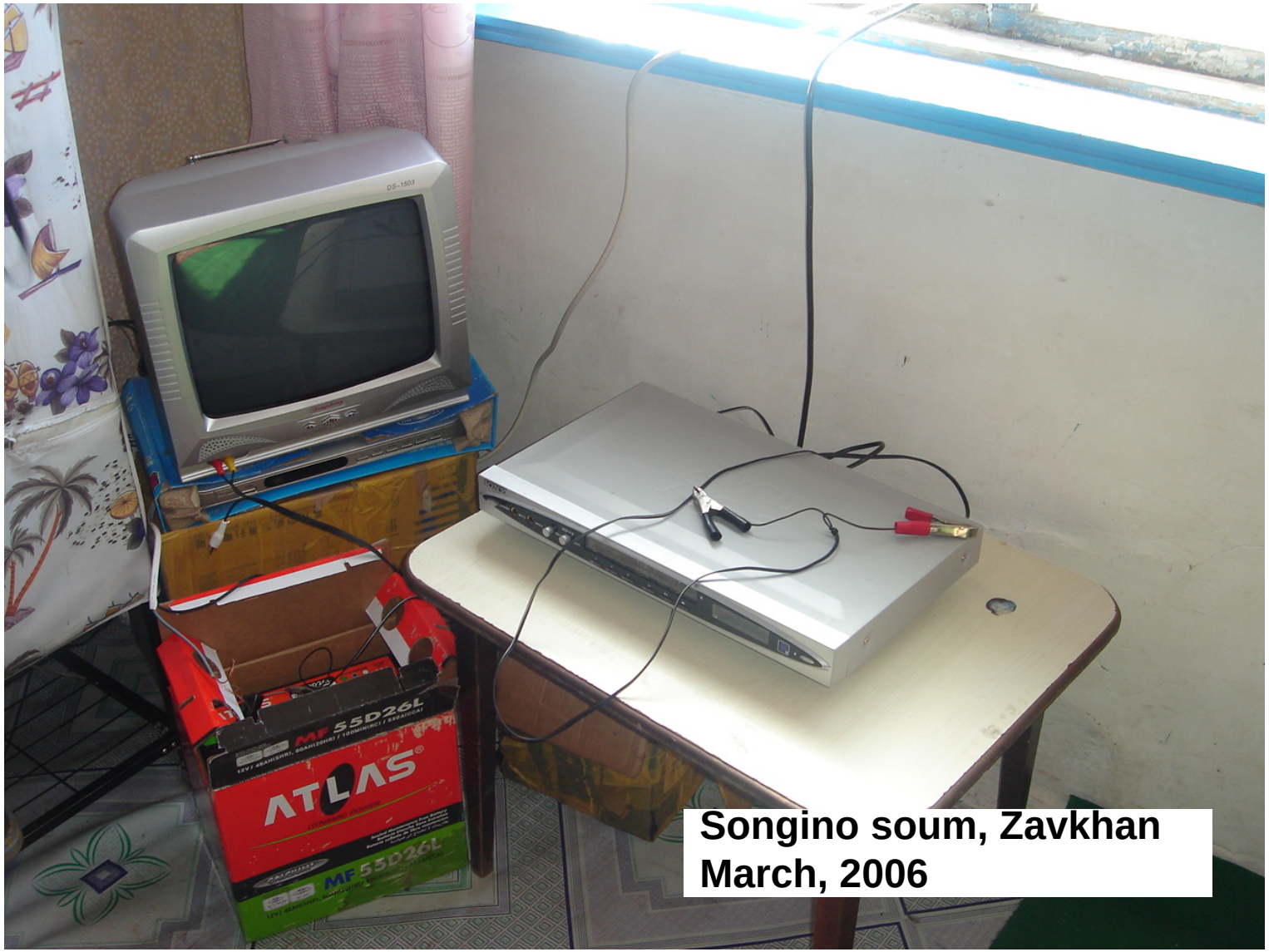
7. **VCD materials are cost effective especially for rural schools**
   - Face to face training is costly for rural schools and thus, VCD helps to promote school based training
   - VCD can be used among many teachers instead of sending representative of teachers to centralized training.

8. **More copies of VCD are strongly requested**

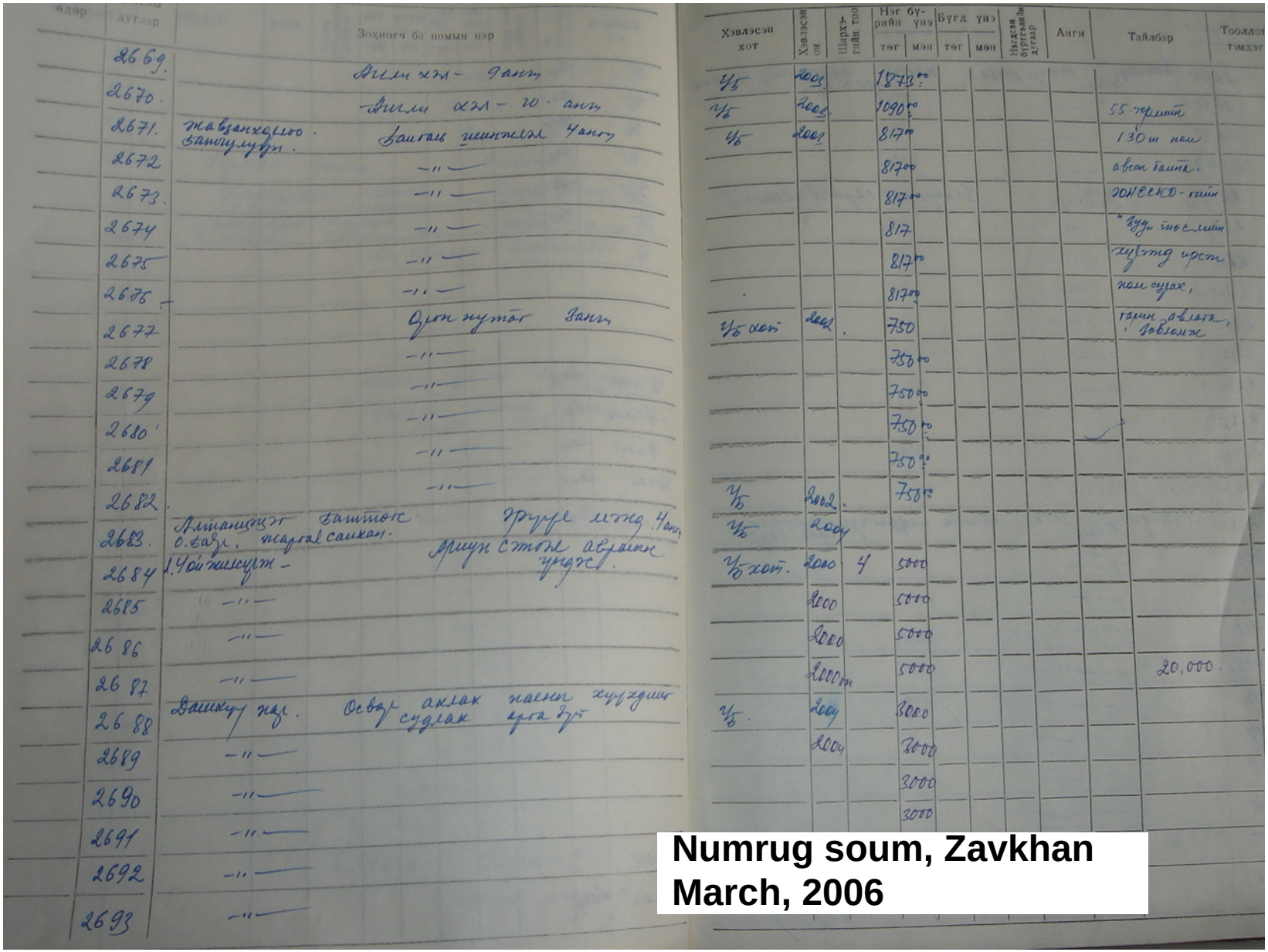
9. **Radio program had impact on community members.** Parents are encouraged to listen to the program, especially communication. Radio program should develop the content available for whole community rather than targeting only teachers.


Songino soum, Zavkhan
March, 2006


Songino soum, Zavkhan
March, 2006



Songino soum, Zavkhan
March, 2006



Numrug soum, Zavkhan
March, 2006

Constraint/issues identified

1. **Project schools are facing Insufficient volume of training materials**
   - Distant learning materials are in high demand and the number of materials are insufficient. (all schools)
   - Books are very popular and some heavily demanded books are used by parts. (already in bad condition) (Devshil)
2. **Lack of constant electricity supply affect effective use of teaching materials**
   - All the teachers are interested in effective materials such as VCD, they can not be used fully due to lack of electricity at school. (Numrag, Songino)

Recommendations

Recommendations

1. **Effective leadership of school principals particularly makes difference in rural schools. Thus, training for school principals and school managers should be further promoted, including self-learning materials (VCD).**

2. **In addition to the school principals, managers of study and methodologists should be included at the centralized training.**

3. **Traditional way of teaching (lectures) and creative way of teaching (participatory+technology) may be combined for more effective training.**

4. **Combination of school-based training and mobile training has a multiple effect for further motivating school managers and teachers. Thus, multi-layered training activities should be integrated into systematic training program.**

5. **VCD was well accepted and used both at school and at home. Comprehensive set of subject to be covered in VCD is further recommended. Each set of subject for primary and secondary level teaching is strongly requested.**

6. **Simple distribution of VCD is not recommended. Training of effective use of VCD should be covered during the mobile training or aimag level training (with use of instruction of VCD use)**

Recommendations

7. **There exists gaps in infrastructure among rural schools. Combination of guidelines (written materials) and VCD (visual materials) is recommended for self-training in regular basis.**

8. **For effective use of the distance learning materials, Rapidly changing technology in rural Mongolia should be closely monitored.**

9. **At this moment, possible introduction of solar panel along with equipments at rural schools should be considered along with providing distant learning materials.**

10. **When radio program is used as a part of the training program, the target should include parents and other community members.**

11. **Future training program for rural school principals and teachers should be based on the result of needs assessment conducted during this project.**

12. **In aimag level, the project contributed to educate responsible, reliable, committed school principals. Such trained human resources should form a core for in-aimag training and dissemination, including best practices and applicable examples.**

Serendipity (Unexpected outcome)

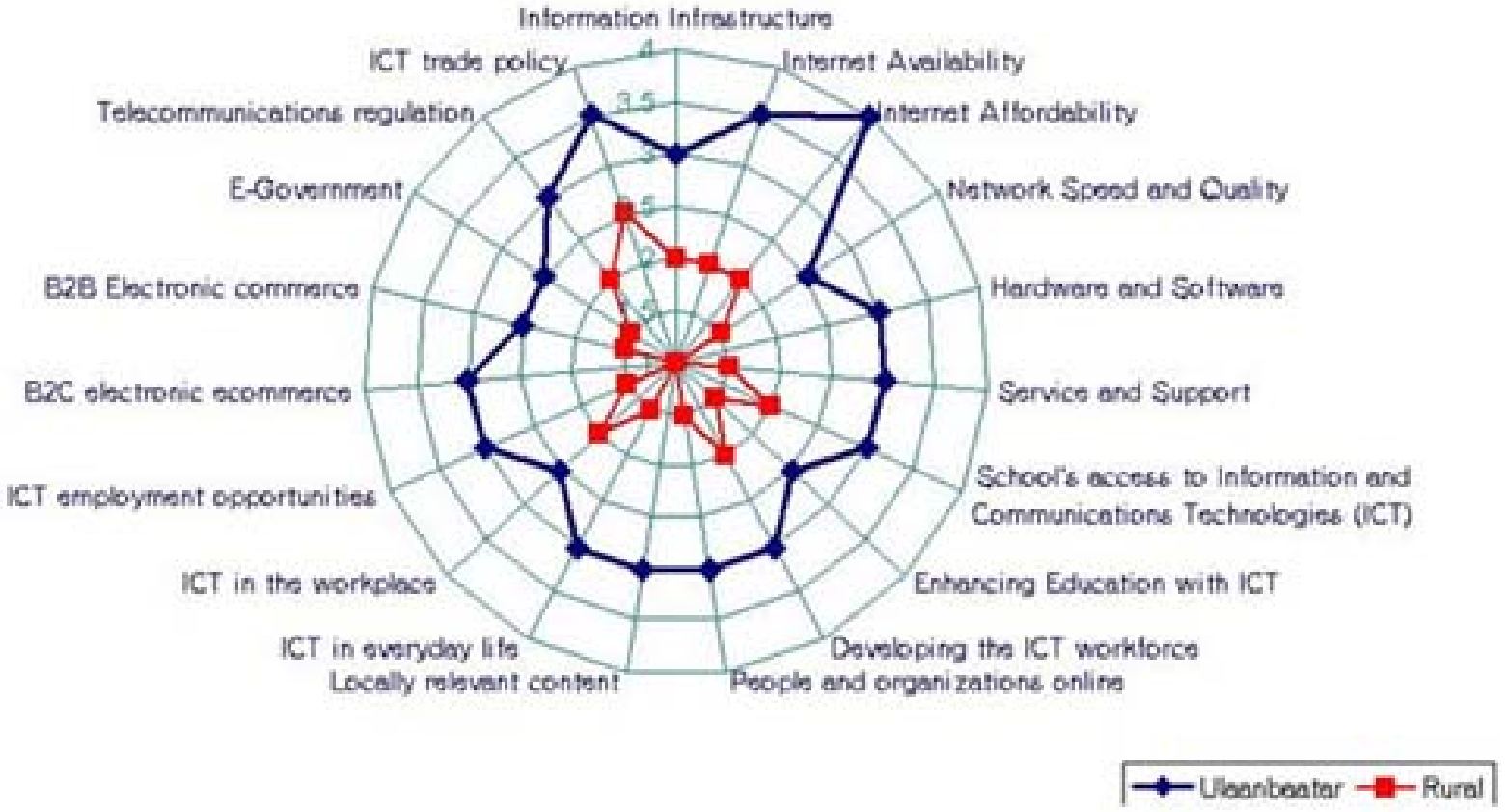
1. **The project affected positively on non-project schools as well, and thus, raising educational level of the aimag.**
   - In Zavkhan aimag, students in non-project soums join the rehabilitated dormitories, and this contributed to decrease drop-out rate.
2. **The training content and materials are disseminated much more widely than expected.**
   - Following the school principals training, Zavkhan aimag government (ECD) gathered 25 school principals to organize aimag level training.
   - Teachers of the project schools are requested to give lectures and provide information by the non-project schools.
3. **The project schools are performing well in implementing performance contract with soum government.**
   - In Bayankhongor aimag, ECD finds that schools' performance is better and well targeted among project schools.
   - School principals feel more confident in negotiating with soum government when concluding performance contract.

Gaps in Communication Infrastructure related to training

Cellular mobile telephone subscribers per 100 inhabitants	8.9
Main telephone lines per 100 inhabitants	5.3
Total telephone subscribers per 100 inhabitants	14.2
Internet users (estimated)	0.02

122nd place out of 191 countries

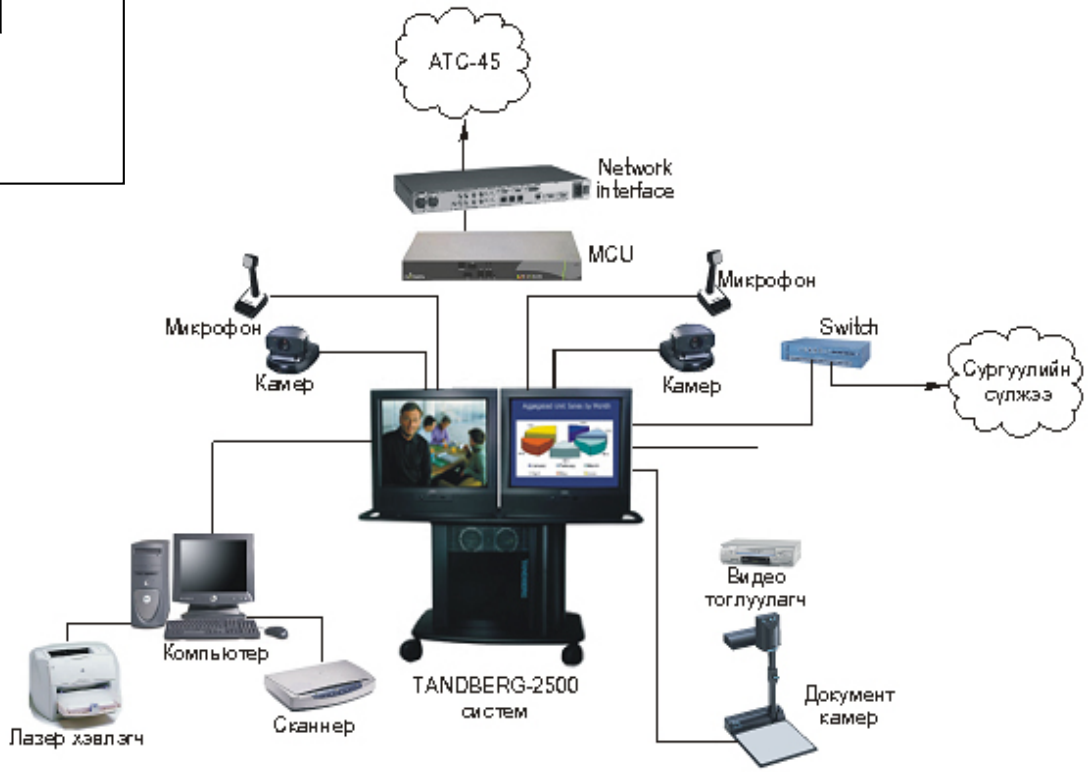
Gaps in IT development
E-readiness of Mongolia



Source: Mongolia Development Gateway http://www.mongolia-gateway.mn/

TV conference system to connect aimag centers for Training Program

12 aimag centers connected
by TV conference system
via optical fiber



IT application to connect sites and people
Training Program at MUST with ICT

Telecom center in Adaatsag soum, Dundgobi aimag

In Numrug soum

Only one telecom center

- Three staff
  - Postal services
  - Telephone line exchange
  - Maintenance
- Booster of TV channel
- Amateur radio based communication w/ burg center
- If phone call is received, residents are requested to come to telecom center

In Numrug soum

- Only one telecom center

Communication w/ burg center

Telephone line exchanger

Satellite dish for TV channel

Important Findings :Mongolian case

- Meeting the need of local community in changing society (new information) is vital
- Interest levels in technology is high
- Motivated potential human resources are growing at younger generation
- Regular training is provided in collaboration of national universities and enterprises
- Younger generation vs. traditional generation
- Providing different technology at Urban - sub urban - sub rural – rural is necessary
- Maintenance cost **>** Installation cost
- Sustainable energy development is the key

Photo Gallery

II. Training Activities

Mobile teacher training, Nov. 2-9

Headmasters training, Sept. 6-11, UB

- Good facility to conduct training
- Easy access to different professionals
- Networking among principals

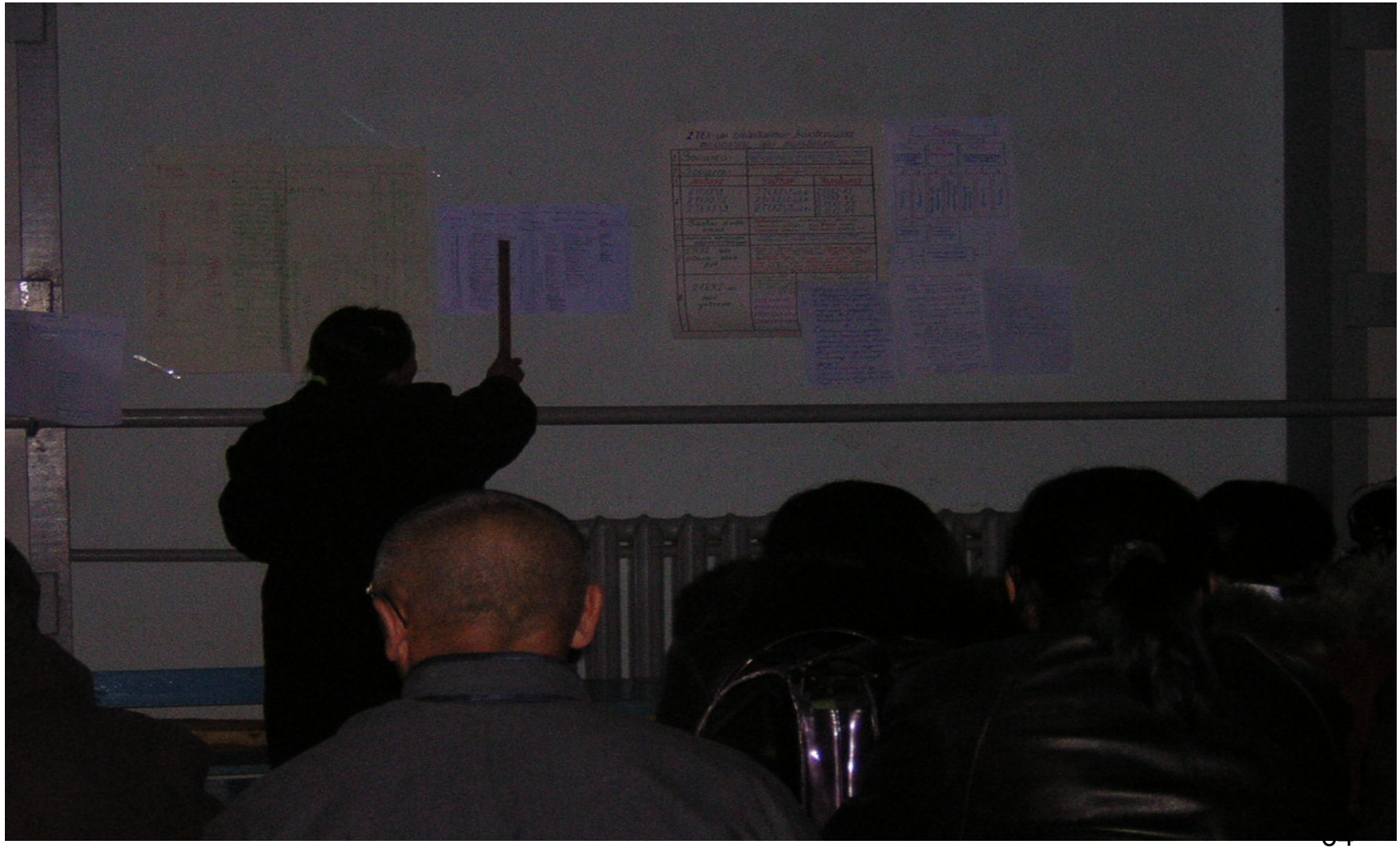
Training at Uliastai (aimag center)
Lectures

Training at Uliastai (aimag center)
Group work

Training at Numrug (regional central school) Lectures

Training at Numrug (regional central school)
Ice breaking

Training at Numrug (regional central school) presentation on group work



Vast grassland

Mobile teacher training in Numrug soum, Zavkhan aimag