

**NATIONAL UNIVERSITY OF MONGOLIA
SCIENCE EDUCATION CENTRE**

**SUMMARY REPORT OF SURVEY
FINDINGS AND PROJECT
ACHIEVEMENTS**

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FOREWORD

Justification

Within the project, titled “Poverty reduction through community-based Nature resource management”, implemented by WWF-Mongolia, three sessions of school-centered in-service teacher training sessions have been conducted in the academic years 2009-2010 and 2010-2011 respectively. The training sessions covered 7 soums, underlying the Onon River Basin e.g. Umnudelger, Batshireet, Binder, Bayan-Adraga, Norovlin and Dadal soums of Khentii aimag and Bayan-Uul soum of Dornod aimag. The trainings aimed at mainstreaming Education for Sustainable Development (ESD) principles into existing school curriculum in close alignment with ongoing educational policy changes and primary and secondary education innovation process of the country. The primary target audience of those activities are teachers of general secondary schools of afore-mentioned soums with secondary audience being the scholars and their parents to gradually increase their knowledge on importance of nature conservation, ecosystem services, ecological roles and consequently bring positive changes in their lifestyles to live in the harmony with nature and improve livelihood through sustainable use of nature resources. Methodological handbooks have been developed and widely disseminated among target teachers.

The baseline survey has been conducted among teachers prior to undertaking training sessions in order to identify at what level ESD is integrated in educational process of respective schools and to develop our training contents which would respond to the needs of teachers. The findings have been continuously reflected in the selection of training activities. The second survey has been undertaken to compare the results where we aimed at assessing our own efforts. As the project comes to end, this survey’s purpose is not only to assess the results, but also to issue recommendations towards sustaining project activities and identify the roles of different stakeholders.

Within the above-mentioned purpose, the objective of this study has been formulated as following:

Objective

To assess the school-centered in-service teacher training activities undertaken in general secondary schools of 7 soums, underlying the Onon River Basin, e.g Umnudelger, Batshireet, Binder, Bayan-Adraga, Norovlin and Dadal soums of Khentii aimag and Bayan-Uul soum of Dornod aimag within the project, titled “Poverty reduction through community-based Nature resource management” and identify framework for further activities beyond the project end.

ONE. SURVEY METHODOLOGY

1.1 Survey development process

1.1.1 Coverage

Qualitative and quantitative data have been collected within three issues, including teacher development, institutional development and support to teachers through methodological trainings and handbooks. Detailed contents are shown in table 1 below.

Table.1

No	Issue of interest	Indicator
1	Teacher development	<ul style="list-style-type: none"> • Knowledge about sustainable development and ESD • Acquisition of respective methodologies at different stages of study process, including preparation of lessons, study activities and their assessment
2	Institutional development	<ul style="list-style-type: none"> • Locally-relevant school-specific curriculum • Collaboration among teachers
3	Support to teachers through methodological trainings and handbooks	<ul style="list-style-type: none"> • Training content and methodology • Handbook content and methodology

1.1.2 Scope

Totally 148 teachers of 6 soums have been involved in the survey. Those are teachers from target general secondary schools from Umnudelger, Batshireet, Binder, Bayan-Adraga, and Dadal soums of Khentii aimag and Bayan-Uul soum of Dornod aimag which are covered by the project, titled “Poverty reduction through community-based Nature resource management”. The percentage of teachers’ involvement in this study per school can be found in the table 2.

Table.2

School	Total number of teachers	Total number of teachers involved in the study	Percentage of involvement
Umnudelger	51	32	63%
Batshireet	24	23	96%
Binder	45	29	64%
Bayan-Adraga	23	22	96%
Dadal	22	20	91%
Bayan-Uul	45	22	49%

Note:

The Norovlin soum was not involved in this study due to unforeseen audit by the aimag’s Education and Culture Department.

1.1.3 Methodology

The questionnaire survey has been distributed and collected.

1.2 Survey steps

1.2.1 Data collection

Data has been collected during the third teacher training session in the respective schools, e.g. 13-23 October 2011.

1.2.2 Data processing

The statistical analysis programme, SPSS11.5, has been used for processing the collected data.

TWO. SURVEY FINDINGS

2.1 Summary of Results

148 survey participants were asked to fill a questionnaire with 19 questions, out of which 12 are related to basic content and other 7 are associated with personal information for statistical analysis. The full questionnaire can be found in the appendix 1.

The questions, followed by summary of findings are outlined below:

1. Please name the activity from below list which rendered you a tangible support in learning methodologies to integrate ESD principles in respective curriculum.

98 percent of teachers have responded to this question and 2 percent kept silence. Out of those who responded, 45 percent preferred training sessions, 28 percent regard the handbooks most helpful and 25 percent respond that collaborative efforts of teachers in developing curriculum, testing and improving them respectively are most effective.

It can be concluded that the project entailed activities were all helpful for teachers to develop respective skills and acquire new methodologies to integrate ESD principles into existing school curriculum. This means that knowledge has been created, bringing positive changes in attitude and practice to mainstream ESD at school level.

Note: This finding can be compared with the results of question #12 in the questionnaire of baseline study and question #6 of focus group interview.

2. How do you assess the content and methodology of three training sessions, held within the project framework?

More than 70 percent of respondents rate the content and methodology of training sessions as "Good". This is because we conducted needs assessment as part of our baseline study prior to starting our trainings and every session was evaluated by teachers to meet their real demands which explains the tangible support for our target audience.

3. From number of information and practical exercises provided with the training sessions and methodological handbooks, which one do you rate have the highest effectiveness in using to integrate ESD concepts into the lesson curriculum that you are in charge of?

97 percent of teachers responded to this question and 3 percent left empty. 42 percent out of those who responded regard the practical exercises the most effective which were helpful in understanding inter-relationship of curriculum content and application of the methodology. 25 percent prefer case-based explanative recommendations to ground ESD concept and 22 percent consider examples of curriculum are most helpful while 8 percent would rather vote for updated information about ongoing changes in primary and secondary education sector of Mongolia in line with integration of ESD principles.

A conclusion can be made from above findings that the practical exercises and case-based explanative recommendations were the most effective in daily teaching practice of our teachers. Therefore, theoretical and practical exercises in close alignment with teachers' daily practices should further prevail in training session and handbook development.

Note: This finding can be compared with the results of question #16 in the questionnaire of baseline study.

4. How do you assess the increase of your knowledge and skills and the changes in attitude towards ESD?

In their self-assessment, teachers report significant progress in knowledge and skills and important changes in attitude towards ESD. It can be concluded that our activities responded to the needs of teachers while the organization of interactive training sessions along with supporting handbooks helped them to develop new skills and raise self-confidence. This finding enhances the prior three results described above.

Note: This finding can be compared with the results of question #4, #6 and #11 in the questionnaire of baseline study.

5. What kind of knowledge and know-how have you acquired in relation with ESD and study process innovation thanks to this project activity?

100 percent of teachers have responded to this key question. 27 percent regard that they learned a lot about new and interactive study methodologies and applied them for different subjects at different levels while 26 percent learned how to effectively integrate content and methodology within one specific subject. 13.5 percent feel more confident in teaching scholars to create knowledge, apply learning steps and plan effectively their lessons. 12 percent acquired knowledge about sustainable development and ESD while 11 percent picked up some tips and ideas for preparing lessons using low-cost and high-impact tools, and 6 percent learned to what extent the ESD has been integrated in the education standards and national curriculum. 3 percent learned how to effectively identify interlinkage between core elements of training curriculum while 1.5 percent are not sure about their answers.

We consider that teachers have firmly understood that the integration of ESD concepts into curriculum is tightly connected with primary and secondary education changes and ongoing innovation process. Moreover, teachers are now more confident in applying those new methodologies in their teaching practice because practical skills have been gradually developed.

Note: This finding can be compared with the results of question #4, #6, #8 and #11 in the questionnaire of baseline study.

6. What kind of positive changes are brought into your teaching practice?

Teachers have responded in 100 percent to this question. 41 percent observed their skills improved in enhancing scholars' participation and attracting their interest. They are proud to having acquired such effective methodologies and applying them in their teaching practice. 16 percent link ESD with locally-relevant specific issues and integrate them in the curriculum. 16 percent observed their enhanced ability to make students work in teams, improve their individual skills and manage time effectively so that scholars could have enough time to complete the given task. 12 percent recycle waste materials to prepare for their lessons so that it goes low-cost and high-impact. 11 percent closely collaborate among themselves to further enhance their skills in curriculum development, testing and improving while 4 percent responded that they are not sure what to write.

It can be concluded that teachers make significant progress in applying new knowledge on ESD to further improve their lessons and teaching practice.

Note: This finding can be compared with the results of question #8, #9 and #11 in the questionnaire of baseline study and question #10 of focus group interview.

7. Do you observe any positive changes in your attitude?

100 percent of teachers have responded to this question. 38 percent regard that they feel critical need to continuously seek keeping their methodology up-to-date in order to enhance scholars' development in critical thinking and knowledge creating. 30 percent regard that integration of ESD into school curriculum can contribute to the solution of locally-relevant development issues, 13 percent start to prioritize applying new methodologies into their teaching practice and curriculum development. 12 percent prefer to choose few ESD-related topics in line with prior developed criteria and work thoroughly on. 7 percent feel the necessity to refer to scientific data while preparing lesson plans to convey to scholars four pillars of learning competencies.

It can be pointed out that teachers start seeking continuous development in keeping their methodologies up-to-date and enhancing the dynamic process of curriculum. There's no doubt that this positive change in the attitude of teachers is the key point for further professional development.

Note: This finding can be compared with the results of question #11 in the questionnaire of baseline study.

8. Have you piloted the case curricula developed within the framework of the project?

99 percent of teachers have provided concrete answers whereas 1 percent abstained. Out of those who answered, 72 percent replied "yes" and 27 percent did not use any curriculum. The fact that almost three quarters of teachers piloted the curricula proves their relevance where ESD concepts have been integrated. This also encourages us because teachers develop in teams their own curriculum within different topics and at different levels of study.

9. If you replied "yes" to the previous question, what progress is observed in the knowledge and attitudes of scholars after piloting new curriculum?

Concrete answers were provided by 81 percent of respondents whereas 29 percent kept silence. Out of those who responded, 28 percent observed that students are more motivated to contribute to the environment protection activities, 22 percent consider that collaboration among scholars has been improved and the self-learning capacity has been increased. 17 percent regard that student are more active in in the classroom whereas 14 percent observe increase of knowledge about nature and environment and cultural/historical heritage of their respective areas.

We consider that this positive change brought to children is the result of increased awareness about key concepts of sustainable development. They are more willing to actively participate in the curricular and extra curricular activities. Teachers seem to have understood the core steps of developing curriculum that support learning process of students.

Note: This finding can be compared with the results of question #8 and #9 in the questionnaire of baseline study.

10. How do you plan to further use your newly acquired skills and knowledge about sustainable development and ESD?

Teachers provided responses in 100 percent. 24 percent plan to further study about pressing issues faced in their respective areas and reflect them in the curriculum whereas 23 percent responded they will more thoroughly prepare for their lessons and 18 percent expressed their willingness to collaborate with other teachers and share experience in order to keep their methodology up-to-date. 16 percent said they will use curricula, developed within the project framework, pilot them and improve accordingly. 8 percent expressed their interest in developing their own curriculum in a more enhanced quality whereas another 8 percent will make appeals to other teachers in working together and 3 percent of teachers plan to organize open classes.

A conclusion can be made from above statements that teachers are becoming creative not only in working individually, but also in team building. They seem to understand that collaborative efforts would lead to a greater success.

11. What changes are observed in collaborative working practice among teachers after being involved in the project activities?

97 percent of teachers gave responses and 3 percent abstained. 34 percent of those who responded consider that teachers collaborate to improve their teaching methodology, 20 percent prefer to share experiences and ideas within their "Teachers' Methodological Team", and 15 percent start to make collaboratively lesson surveys. 11 percent start to work in teams to integrate locally-relevant ESD challenges into curriculum and 3 percent start to pilot the case curricula, developed within the project activities and organize contests among themselves and conduct experience sharing open classes to see whether the curricula meet the needs of scholars. 2 percent are already working in team and have developed several ESD-integrated curriculum whereas 12 percent are not sure about this question.

We can conclude that the study plan, lesson preparation, monitoring and evaluation activities at the school level are started to be implemented through collaborative efforts. One of the results is the platform for discussion, exchange of ideas and experience sharing events that teachers commence to undertake.

Note: This finding can be compared with the results of question #11 in the questionnaire of baseline study and question #7 of focus group interview.

12. What kind of activity do you think will be further helpful in mainstreaming ESD integration at school level?

93 percent provided responses while 7 percent did not mention anything.

33 percent out of those who responded, consider that teachers should keep working in teams throughout the whole process, e.g. development of locally-relevant curriculum, its testing in the open classroom, evaluating success and failure and improving its content. 28 percent regard that regular organization of experience sharing events and contests would boost further teachers' motivation whereas 7 percent think that school-centered teaching training sessions should be further organized using school's own

resources. Only 1 percent considers that something very tangible should be undertaken to change teachers' way of thinking and bring positive changes in their attitude.

We could conclude from here that all afore-mentioned activities are feasible, yet there's a need for integrated management within the school so that teachers can be supported and motivated to ensure the sustainability of the project. If schools can apply such an integrated approach, there will be significant progress in ensuring quality education to scholars and self-development of in-service teachers.

13. Out of three school-centered in-service teacher training sessions, how many were you involved in?

72 percent of teachers have been involved in three sessions, 12 percent – in two and 14 percent – in one session respectively. The fact that almost three-quarters of teachers have been fully covered by project activities, we can assume that data collected within this study is accurate.

14. The school you work at

22 percent of all respondent are teachers from Umnudelger soum of Khentii aimag, 20 percent from Binder soum, 15 percent from Batshireet, Bayan-Adraga and Bayan-Uul soum respectively and 13 percent from Dadal soum.

Note: We could not involve the teachers from Norovlin soum in this study due to unforeseen audit in the school by provincial Education and Culture Department.

15. Profession

41 percent of educators are primary education teachers, 22 percent are math and natural science teachers, 16 percent are social science teachers and another 16 percent are human science teachers. 5 percent did not provide any response.

16. Number of subjects taught

The survey suggests that two and more subjects are taught by 67 percent of respondents. This finding partly explains why the school-centered methodological support was successful where one teacher is able to work on integration of ESD principles on two and more subjects.

17. Years of service in education sector

29 percent of teachers has worked for 1-5 years, 19 percent for 6-10 years, 20 percent for 11-15 years and 7 percent for 16-20 whereas 20 percent for 21-30 years and 5 percent for 30+ years.

18. Sex

94 percent of teachers have provided responses while 6 percent abstained. 82.5 percent of those who responded are female and 11.5 percent are male teachers.

CONCLUSION

The following analysis is made from the ESD-related survey conducted among teachers from Umnudelger, Batshireet, Binder, Bayan-Adraga and Dadal soums of Khentii aimag and Bayan-Uul soum of Dornod aimag.

From the teacher development perspective

- Through capacity-building training sessions teachers developed skills and gained knowledge about sustainable development and ESD issues. They have also gained experience in developing, testing and improving curricula for different subjects at different levels where ESD is streamlined. We consider that this significant progress has been attained thanks to effectiveness of team work among teachers in elaborating locally-relevant curriculum and encouraging self-development and self-confidence of scholars.
- We have observed that teachers start to rely on science-based data and fact sheets when developing their curriculum. This is the result of adopting new methodologies in teaching practices, which are gradually improved due to individual and team work efforts in elaborating and testing relevant curriculum.

From the institutional development perspective

- There's an opportunity open for sustainable collaboration among school management board and teaching staff to further firmly integrate ESD concepts into the school-level curriculum thanks to mutual understanding and integrated approach towards ESD.
- Mutual cooperation among teachers within one "Teacher's Methodological Team" and within other teams at school level has been significantly improved. From the other hand, the fact that teachers start to work in teams at every step of curriculum development, e.g. discussion, selection of topics, elaboration, testing and ameliorating respectively, improves considerably the logical sequence of subject content and methodological tools.
- A platform for experience sharing is being provided and reciprocal learning process is started, which we think, is one of the major achievements and the basis for further improvement from the institutional development perspective. This is because teachers start to understand the value and benefit of working together in teams at every single phase of teaching process, which is a pure dynamic process, including curriculum elaboration, testing, monitoring and evaluating and further improvement.
- The capacity of trainers' team, its close cooperation with ESD-knowledgeable staff from teacher training institutions and regular contacts with international ESD experts brings an asset to transferring of those skills to in-service teachers of target areas. Multi-year experience makes the newly developed curricula more applicable at grassroots level.

Impacts of training sessions and teacher support handbooks

- The basis of afore-mentioned success underlies in training sessions and methodological handbooks which provided a tangible support in streamlining ESD principles into existing school curriculum. The approach that we have chosen is "school-centered" training, which provides the fair and equal

access for all teachers. The contents covered up-to-date information about ongoing policy changes and innovation process of education sector in alignment with ESD integration in the learning and teaching practices. For our target schools, positive changes started to be reflected in daily teaching practices of teachers, including preparing lesson plans, implementing the plan, monitoring and evaluating the results and further enriching the curriculum. The balanced combination of theory and practice brought an asset to enriching the contents of training sessions and handbooks.

- As we conducted a baseline survey in order to identify teacher's knowledge level and find out their needs, this enabled us to plan realistically our activities prior to commencing the project and meet needs of our target audience. The practical exercises prevailed both in training and handbook contents which is also driven by teachers as they were asked to fill up a small questionnaire after each session.

Recommendations to be considered by relevant stakeholders

1. Make every effort in exchanging information and sharing experience about success and challenges within and among schools
2. Continuously seek improving and enriching study plans and curriculum, diversify methodologies and keep working in teams. Constantly looking forward expanding knowledge about sustainable development and ESD and sharing with others. The school management approach should be directed towards encouraging and supporting teachers in every effort and initiative.
3. As schools plan to seek other opportunities to improve skills of teachers towards ESD, the provincial Education and Culture Department should support and monitor them and reflect respectively in its annual workplan.
4. Open classes and various contests among teachers within and among schools should be regularized and those should be initiated by teachers themselves and supported by management board. The selection of best curriculum can be considered as one tool where locally-relevant issue is reflected. Textbook and training handbook development is also important aspect for further consideration.