

評価調査結果要約表 (英文)

Summary of Evaluation Result

<b>1. Outline of the Project</b>	
Country: Guatemala	Project Title: Improvement of Mathematics Teaching for Primary Education (GUATEMATICA)
Issue/Sector : Primary Education	Cooperation Scheme: Technical Cooperation Project
Division in Charge: Human Development Department	Total Cost: 120 million yen
Period of Cooperation (R/D): 1 April, 2006～ 31 March, 2009 (3 years)	Partner Country's Implementation Organization: Ministry of Education
	Supporting Organization in Japan: Tsukuba University, etc.
<b>1-1 Background of the Project</b>	
<p>Ministry of Education (MINEDUC) of Guatemala is promoting national Educational Reform, and the current government has established eight educational policies that aim at providing access to quality education for every boy and girl. Within these eight policies there are two policies that relate to the Project of Mathematics: “Strengthening of the national education system to enable it to meet national and international standards of quality education” and “Institutionalization of a permanent and regionalized program of pre-service and in-service teacher training at higher education level.” Furthermore, it is considered that educational services must: i) be adapted especially to the social groups that are considered to be highly vulnerable; ii) overcome the problem of high rates of repetition and dropout in primary education; iii) combat the children’s low educational level and improve the quality of learning practice; iv) train teachers continuously and enable their professional development; and v) be pertinent in a competitive world.</p> <p>In spite the efforts focused on improving the quality of education, according to the National Program of Evaluation of Academic Performance (PRONERE), the academic performance of children in rural areas is insufficient. This can be seen in the results obtained in 2001, in which the performance of third grade pupils was 55.29% in reading and writing and 46.1% in Mathematics; and in the sixth grade the results were 48.52% in reading and writing and 59.27% in Mathematics, respectively.</p> <p>Taking into account Guatemala’s educational situation and the results of PRONERE, in 2002 “Project for the improvement of academic performance in Mathematics” started with assistance of Japan Overseas Cooperation Volunteers (hereinafter referred to as “JOCV”). The objective of this project is to improve the children’s performance in Mathematics throughout four departments of Guatemala. This project targeted primary school pupils in the first, second and third grades and its outcomes included the production and approval of a students’ workbook (hereinafter referred to as “Workbook”), as well as an accompanying teachers’ guidebook (hereinafter referred to as “Guidebook”).</p> <p>The above project ended in 2005. Furthermore, since MINEDUC has officially requested that it be extended to the fourth and sixth grade, it is considered vitally important to continue the project for mathematics in order to adapt and validate the materials for the above-mentioned grades, as well as to revise and thus improving the quality of the existing first, second and third grade materials. The project will allow the monitoring and continuation of the work that was started with the assistance of JOCV, and will be implemented within the framework of the National Basic Curriculum and the regional JICA mathematics education project.</p>	
<b>1-2 Project Overview</b>	
(1) Overall Goal	
Teaching in mathematics at primary school level improved.	

(2) Project Purpose

Teachers' guidebook and students' workbook for primary school grades 1-6 in mathematics approved.

(3) Outputs

1. Capacity of the core group<sup>1</sup> relating to mathematics teaching strengthened.

1-1. Plan training.

1-2. Participate in training sessions organized by the regional project.

1-3. Share information and experiences through the communication network with the core groups in the other countries involved in the regional project.

1-4. Regularly publish updates of the progress of the project.

1-5. Train the trainers of GUATEMATICA in MINEDUC on the use of Guidebook and Workbook.

2. Guidebook and Workbook for primary school grades 1-6 in mathematics produced.

2-1. Conduct curriculum analysis.

2-2. Analyze the contents of PROMETAM documents.

2-3. Produce a version of Guidebook and Workbook that has been adapted to the Guatemalan context for approval.

2-4. Draw up a plan for the approval process.

2-5. Provide training sessions on the use of Guidebook and Workbook to the teachers in the participating schools.

2-6. Teachers conduct classes utilizing Guidebook and Workbook produced by the core group.

2-7. Carry out a study in the participating schools (lesson observations, interviews, etc.).

2-8. Analyze the results obtained by the study in the participating schools.

2-9. Improve the contents of Guidebook and Workbook utilizing the results of the analysis.

(4) Inputs:

Japanese Side :

1 Long-Term Japanese Expert (Mathematics Education/Coordinator)

1 Short-Term Japanese Expert (Mathematics Education)

Provision of Equipment 1,420 thousand yen

Local Support 44,575 thousand yen (2008/3)

C/P training in Japan 3 C/P in 2006, 2007

C/P training in Honduras 3 C/P in 2006, 5 C/P in 2007, 2008

Guatemala Side :

C/P allocation: 6 C/P

Building and Facilities: 570,601Q  
(1Q=¥14,001 2007/3)

(Salary of 2 full-time C/P, travel expense, office rent, lighting, heating and water expenses, internet fee, etc.)

**2. Evaluation Team**

Members of Evaluation Team	Leader: Toshio Murata Senior Advisor in Human Development Department, JICA Regional Cooperation: Kazuhiro Tambara Vice Chief Advisor on the PROMETAM II project Education Planning: Norimi Osaka Associate Expert in Basic Education Team II Human Development Department,
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core group: Project counterpart

	JICA Evaluation and Analysis: Yuki Ohashi Consultant, Interworks Co., Ltd	
Period of Evaluation	20 July-9 August, 2008	Type of Evaluation: Final Evaluation
<b>3. Evaluation Results</b>		
<b>3-1 Project Performance</b>		
<b>(1) Outputs</b>		
<p>In terms of Output No.1, it was confirmed that competence levels of the core group members in mathematics education was generally improved. This was demonstrated by the results of the pre- and post-tests of the regional training sessions as well as the self-evaluation provided by the members.</p> <p>Regarding Output No.2, the teachers' guidebook and students' workbook have already been extended to cover the first, second, forth and fifth grades, and those for the third and sixth grades will be finished in October 2008. Those for the first, second, forth and fifth grades are currently undergoing design changes, which will also be finished in October 2008.</p>		
<b>(2) Project Purpose</b>		
<p>It can be considered that the MINEDUC has approved the teachers' guidebook and students' workbook of GUATEMATICA for the following reasons.</p> <ul style="list-style-type: none"> <li>• The MINEDUC started to distribute a selection of GUATEMATICA materials throughout the country in 2007, and it plans to distribute all materials from 2010 onwards.</li> <li>• The GUATEMATICA is cited in the latest version of the National Curriculum.</li> </ul>		
<b>(3) Overall Goal</b>		
<p>Regarding the results of the lesson observations in the participating schools and the control group, the participating schools scored higher, and showed particular improvement in 2008. On the other hand, although the schools of the control group have been utilizing the materials of GUATEMATICA distributed by the MINEDUC since 2007, an improvement in classes was not observed. This result revealed the fact that in order to improve classes, adequate training and follow-up in addition to the distribution of improved materials is necessary.</p>		
<b>3-2 Summary of Evaluation Results</b>		
<p>In accordance with the 5 evaluation criteria, the results were rated "High", "Medium" or "Low."</p>		
<b>(1) Relevance: High</b>		
<p>The project is highly relevant in terms of the politics of the Guatemalan government, the development needs of Guatemalan society, and the Japanese ODA policy. Regarding the relevancy of the measures taken under the project, it was identified that the project, as a part of the Regional Cooperation Project, had advantages such as the synergy effect of sharing experiences and exchanging information between the 5 participant countries.</p>		
<b>(2) Effectiveness: High</b>		
<p>It is expected that the Project Purpose will be satisfactorily achieved as a result of achieving the Outputs. Therefore, it can be said that the "Effectiveness" is sufficiently high. In addition, it is also recognized that the quality of the GUATEMATICA materials is satisfactory.</p>		
<b>(3) Efficiency: Medium</b>		
<p>The Project Outputs were achieved smoothly. The Inputs were adequately utilized to produce the Outputs. Inputs such as human resources, equipment and expenses are indispensable to the implementation of the project.</p> <p>On the other hand, the resignation of a core group member who participated in 2 C/P training sessions in Japan and Honduras had a negative impact on the achievement of the Outputs, even though the reason for the resignation was both unrelated to the project and unavoidable.</p>		

**(4) Impact: High**

The MINEDUC has distributed GUATEMATICA materials on a nationwide scale. Also, other donors, schools and departments have taken the initiative to support GUATEMATICA, and various positive impacts were observed. In addition, it was confirmed that it had a positive influence in both technical and behavioral terms on students and teachers who had adequately utilized GUATEMATICA. Considering these ripple effects, the Joint Evaluation Committee concluded that the “Impact” was high.

On the other hand, although the teachers’ guidebook and students’ workbook are important tools for improving teaching methods, the Overall Goal would be to carry out training and follow up. For that reason, the casual relation between the Project Purpose and the Overall Goal was not set properly.

In addition, the probability of achieving the Overall Goal is not sufficiently high, since the MINEDUC has not decided on the strategy to expand its utilization in classrooms across the country.

**(5) Sustainability: Medium**

It can be evaluated that the ownership of the MINEDUC toward GUATEMATICA has been growing. Educational policies have promoted consistent improvement of the quality of education as well as the development of plans and budgets for the printing and distribution of GUATEMATICA materials. On the other hand, it appears that there are institutional, organizational and technical issues, because of the lack of diffusion strategies and the shortage of personnel with the necessary skills.

However, considering the fact that the budget for the distribution of materials for 2010 has been prepared, the Joint Evaluation Committee rated “Sustainability” as Medium.

**3-3 Factors promoting the production of effects**

<Factors pertaining to Planning>

- By appointing a member of the team with a lot of experience in project implementation and a good relationship with various key actors in the education sector as project coordinator, and contracting a functional local coordination team, the project advanced steadily according to plan.

<Factors pertaining to the Implementation Process>

- Adequate, opportune and detailed planning enabled the smooth running of the project.
- Effective coordination with each actor contributed to the establishment of better relationships and the maximization of the achievement of the project.
- Clear demarcation of roles of each team member increased their sense of responsibility.
- A good relationship with the MINEDUC and other related organizations was maintained, which had a particularly positive impact on coordination of the National Curriculum.
- During the project period, there was continuous and exclusive access to Japanese technical assistance.
- Additional inputs were provided on a flexible basis.
- Good communication with various actors in the Guatemalan education sector was maintained and PR activities were actively realized, which enabled the project to have a wide-ranging impact..

**3-4 Factors inhibiting the production of effects**

<Factors pertaining to Planning>

- The balance between the volume of work and human resources inputs was not analyzed sufficiently. Although the Project Purpose will be achieved satisfactory, if more members of the core group had been available, the volume of work would have been easier to manage for the core group members. Also, technical sustainability would have been more firmly established if we could have transferred skills to a greater number of team members.
- Although GUATEMATICA cannot be diffused without teacher training, the component

necessary to diffuse on a nationwide scale was not included in the design of the project. Capacity building of the second core group (national trainers) was not part of the project activities at the beginning of the project.

< Factors pertaining to the Implementation Process >

No factors inhibiting the production of effects in the implementation process were identified.

### **3-5 Conclusion**

The project will achieve the Project Purpose satisfactorily within the project period, owing to the effective implementation of the activities by the Project Team and the active participation of the Educational Development Unit and the participating schools of the Department of Guatemala. The effectiveness of the GUATEMATICA methodology was confirmed through lesson observations, testing of students at participating schools (including the 4 departments where JOCVs are allocated, such as San Marcos, Quetzaltenango, Sololá, and Suchitepéquez), and teachers' questionnaires. Recognizing the effectiveness of the GUATEMATICA materials (teachers' guidebook and students' workbook), the MINEDUC has distributed the materials and is running teacher training sessions on a nationwide scale. Also, various impacts were identified such as the diffusion of GUATEMATICA by other donors, as well as pilot and other collaborating departments.

Meanwhile, comparing the participating schools and the control group revealed that it is important to provide not only the materials but also the adequate orientation in the utilization of materials, in order to improve mathematics teaching methods. It is necessary to improve the nationwide diffusion process (mainly training and follow-up) which the MINEDUC is in charge of. Currently, the planning and implementation structure of the MINEDUC are not defined and there is a shortage of skilled MINEDUC personnel. It is necessary to strengthen sustainability in order to achieve the Overall Goal in the future.

### **3-6 Recommendations**

- (1) Strengthen the training of Second Core Group.
- (2) Submit the final version of Guidebooks and Workbooks to the MINEDUC by the beginning of November.
- (3) Utilize the GUATEMATICA methods in the design of strategies to improve quality of education.
- (4) Improve the quality of the training sessions on the utilization of GUATEMATICA.
- (5) Define a mechanism of work for C/P in order to implement technical transfer.
- (6) Investigate the possibility of introducing GUATEMATICA into secondary schools.
- (7) Incorporate the teacher training schools (Escuela Normal) in GUATEMATICA training.
- (8) Maintain the communication and information-sharing network with the core groups of other countries involved in the regional project.
- (9) Define rules of revision, printing and utilization of GUATEMATICA materials.

### **3-7 Lessons Learned**

(1) Effective utilization of capable local resources and coordination team

The structure of the project consisted of a coordination team, a long-term Japanese expert and C/Ps. The project employed a coordinator who had held a major position in the MINEDUC and has knowledge and understanding of JICA's projects. Her rich network, experience and knowledge enhanced the impacts of the project. Also, by allowing the coordination team to take charge of logistics support, it was possible for the Japanese expert to devote himself to technical assistance and leave the material development and technical transfer to C/Ps.

For that reason, it is conceivable that the utilization of a local project team with capable local human resources can improve the effectiveness and efficiency of the project. However, in such a case, it is necessary to contrive ways of promoting ownership of the Partner Country's Implementation Organization.

(2) Importance of analyzing implementation feasibility at the project planning stage.

In terms of the implementation structure, the project was designed to be implemented and managed by the coordination team and the technical transfer by PROMETAM regional experts. However, the volume of work for further developing of materials was greater and the mathematics capacity of the local consultant was lower than expected, which was problematic for technical assistance. For that reason, the implementation structure was redesigned by the JICA Guatemala Office.

In addition, regarding the allocation of C/Ps, initially, 3 C/Ps were assigned as the core group, and then, after the mid-term evaluation, 1 C/P in charge of developing further the materials as well as 3 C/Ps in charge of implementing national training were added. However, only a C/P who was engaged full time from the beginning of the project received sufficient technical transfer. Considering the actual organizational structure and capacities of C/Ps, it can be assumed that difficulties remain relating to the implementation of various activities following the termination of the project.

For that reason, taking the implementation process and sustainability into consideration, it is important to analyze implementation feasibility in detail at the project planning stage.

(3) Importance of training and follow-up for material development

It is necessary to follow the process “Material Development - Impression – Distribution - Training – Follow-up” to improve mathematics lessons. Because of the nature of the project, it is difficult for the technical cooperation project to distribute them across the country. However, if recipient country promises to make positive efforts to distribute on a nationwide scale, the project should at least endeavor to train the necessary core resources, regardless of whether the training and follow-up systems exist.

(4) Implementation structure of the regional cooperation

The project has published some detailed Spanish reports about its experiences. Also, this evaluation identified some useful information from the project regarding mechanisms for collecting impressions and distributing materials, approval process, lesson observation, self-evaluation of the C/Ps’ competency in mathematics, and the academic achievement assessment of the students. Since this information can be used to enhance the effectiveness of the projects among the counties involved in the regional cooperation, it is important that JICA take the necessary action in this direction.