

Terminal Evaluation

Africa

1. Outline of the Project

Country:

Republic of South Africa

Project title:

Mpumalanga Secondary Science Initiative

Issue/Sector:

Education

Cooperation scheme:

Dispatch of Expert Team

Division in charge:

Africa Division,
Regional Department IV (Africa, Middle
East and Europe)

Total cost:

Approximately 468 million yen

**Period of
Cooperation**

15 November 1999
- 31 March 2002

Partner Country's Implementing Organization:

Mpumalanga Department of Education

Supporting Organization in Japan:

Ministry of Education, Culture, Sports, Science and Technology (MEXT), Center for the Study of International Cooperation in Education (CICE) of Hiroshima University, Naruto University of Education

Related Cooperation:

Country-focused Training; "In-service Teacher Education and Training in science and Mathematics", "Regional Educational Administration"

Long-term Training

Grant Assistance for Grassroots Projects

Dispatch of Japan Overseas Cooperation Volunteers; "Science and Math Teachers"

1-1 Background of the Project

During the era of apartheid in South Africa, the African communities were not provided with enough educational opportunities, and even in the present where the apartheid has already been abolished, the inequality in educational opportunity and quality still remains to be a problem. Particularly in the natural science field, inadequate education has been given to the blacks deliberately. As a result, there were many mathematics and science teachers who did not possess sufficient subject content knowledge and instructional skills. In the Mpumalanga province in particular, where there are many former "homelands" (The homelands were the reserves for african population under apartheid, and there were four independent homelands and six self-governing homelands when the first democratic election was held in 1994), the level of education was low compared to other provinces, and the improvement of the quality of teachers has been recognized as an urgent issue. In the province, it had become an urgent task to improve the quality of teachers under the circumstances. The introduction of a new curriculum, one project for primary school teachers of English, mathematics and science started in 1996 with the assistance by the DFID of U.K. The Government of Japan, together with DFID, had been providing assistance on the construction and repairs of the teachers' centers in the province, and was then requested by the province to assist the new project to upgrade the knowledge and skills of secondary school teachers on mathematics and science.

1-2 Project Overview

JICA implemented the Mpumalanga Secondary Science Initiative(MSSI) Project, to establish a school-based in-service training system for teachers on Grade 8 and 9 in the Mpumalanga Province in collaboration with the Mpumalanga Department of Education and University of Pretoria.

(1) Overall Goal

Grade 8 and 9 learners in the Province acquire enhanced skills in mathematics and science.

(2) Project Purpose

- 1) The quality of teaching in mathematics and science in the Province is improved through educator's enhanced teaching skills and subject knowledge.
- 2) A school-based in-service training system in the Mpumalanga Province is established.

(3) Outputs

- 1) District Education Managers (DMEs), and Curriculum Implementers(CIs) have basic knowledge and skill to work as coordinators through the training in Japan.
- 2) CIs are capable to support Heads of Department(HODs) in mathematics and science.
- 3) HODs are capacitated to conduct a School-Based In-Service Training session.
- 4) Create supportive environment for School-Based In-service Training in each school.
- 5) MDE is capacitated to plan, monitor and evaluate project activities.
- 6) Resources for School-Based In-Service Training are developed.
- 7) Teachers Centers (TCs) are utilized effectively by teachers for the Project Activities.
- 8) University of Pretoria develops a research on the "Adaptation of Japanese education practice to South Africa"

(4) Inputs

Japanese side:

Long-term Experts	2	Equipment	10 million yen
Short-term Experts	39	Local Cost	41 million yen

Trainees received 69

South African Side

Counterparts 50

Land

Local Cost Approximately 10 million yen

2. Evaluation Team

Members of Evaluation Team

Team Leader: Toshio MURATA, Senior Advisor on International Cooperation (Education), Institute for International Cooperation, JICA
Cooperation Method : Masahumi NAGAO, Professor, Center for the Study of International Cooperation in Education, Hiroshima University
Cooperation Assessment : Satoshi KADOWAKI, Staff, Africa Division, Regional Department IV, JICA
Impact Assessment: Hideaki HIGASHINO, Consultant, RECS International Inc.
External Evaluation : Zenda Ofir, Consultant, Evaluation Networks

Period of Evaluation	16 June 2002 - 20 July 2002	Type of Evaluation:
		Terminal Evaluation

3. Results of Evaluation

3-1 Summary of Evaluation Results

(1) Relevance

Improving education has been one of the most important issues in South Africa since the beginning of the democratic government. Education expenditure has significantly increased under the post-apartheid democratic government, from R31.8 million in 1994 to R51.1 million in 2000. The education sector's share of the Government investments in South Africa is one of

the highest in the world. The project purpose and the overall goal of the project are highly relevant to the needs of South African society. This project supports the government policy to enhance the ability of grade 8 and 9 students in mathematics and science and to improve the quality of mathematics/science education through the establishment of sustainable school-based in-service training. Moreover, Japan has been making great effort to maintain its quality in science and mathematics education and this has supported the back bones of the technology-oriented society of Japan today. Thus, relevance of the project is recognized.

(2) Effectiveness

Considering the relatively short term period of the project being carried out, it is evaluated that the project purpose has been accomplished to a satisfactory level. A good foundation of school-based in-service training has been laid out.

As part of the project, the CIs have joined the Country-focused Training held in Japan, planned workshops that would be carried out in groups in the next year, developed material needed for the project and attained the background knowledge and techniques of the material. The CIs carry out workshops for the HOD at the project site by making full use of the results of the training in Japan. The HODs of each school participate in the workshops and learn technique, knowledge and method to develop material which is necessary to conduct school-based in-service training regularly. Thus, the project adopted a system which transfer knowledge from top to bottom ("the cascade system"). According to the results of the interview surveys, the system has been introduced smoothly. It starts to function as seen in the fact that the CIs carry out the plan steadily under the directions and supervision of the Mpumalanga Department of Education. These are the results obtained through the Project activities such as communication with short-term experts and Country-Focused Training. The fact that the CIs have acquired ability to manage the school-based in-service training in two and a half years after the commencement of the project, has been witnessed by all the related personnel of the project. Nearly 60% of the secondary schools (313 out of 540) have also participated in the activities by the time of Terminal Evaluation, and the number is expected to increase.

(3) Efficiency

The output of the Project is almost achieved as planned. The dispatch of short-term experts and training are the major inputs by the Project. The CI who was dispatched to Country-Focused Training, have transferred the knowledge and experience to HOD at the workshop where the CI function as coordinators. Along with the instruction by the short-term expert dispatched at the time of workshop, these inputs contributed highly to the generation of the outputs. University of Pretoria made full use of the know-how and techniques of mathematics and science education that exist in South Africa and took the role of promoting "experience in Japan" in local areas, researching the situations of schools through the monitoring activities on workshops. Japanese professors of universities who were unable to be away from their duty for a long time, were sent as short-term experts and received trainings in Japan, which gave technical support to the coordinating team of Mpumalanga Department of Education. All the inputs from the Government of Japan were not considered as excessive. It is however regretted that installation of the equipment to TCs under the Grant Aid for Grassroots Projects was behind the schedule, and TCs were not fully functional at the time of evaluation.

The overall efficiency is considered to be high.

(4) Impact

The project has improved the image of school-based in-service training in Mpumalanga through the practice in the mathematics and science education. As a result, school-based in-service training on subjects other than science, such as language education, started to be carried out. As for the teachers of mathematics and science, there was previously no discussion between the teachers on how to carry out the classes and to utilize educational materials, and thus were not accustomed to receive advice from other people. However, the teachers have started to work in groups after their participation to the school-based in-service training, and this has led to the improvement of the level of the class lessons.

The fact that Naruto University and University of Pretoria have signed the International Agreement for Academic cooperation was considered to be one of the positive impacts. It is expected that the communication among them is promoted in the future.

University of Pretoria has reported its research on mathematics and science education related to the Project at a national conference. As during the time of apartheid, University of Pretoria only accepted whites, it would have been difficult for University to carry out the research of secondary education in Mpumalanga on its own. Through the activities, the project has contributed the whites and the african people work together through completing the research and establishing a mutual trust between the Mpumalanga Department of Education and University of Pretoria.

On the other hand, it is obvious that more time is needed to achieve its goals of "improving skills of grade 8 and 9 students in science and mathematics subjects in Mpumalanga" and "improving the quality of mathematics and science education of the state by the teachers improving teaching methods and acquiring more understanding on the subjects". Further information is needed for measuring the accomplishment.

(5) Sustainability

The budget allocation by the South African government for its education sector is substantial, and as long as the educational policy of Mpumalanga province is maintained, it is unlikely that financial problems jeopardize the project's sustainability. Since the implementation of the project was launched under the tripartite partnership among Mpumalanga Department of Education, University of Pretoria and the Government of Japan, the sense of ownership and the motivation among Mpumalanga Department of Education staff have been fostered.

To date, more than fifty trainees have been dispatched to the Country-Focused Training in Japan. It was observed that the trainees, consisting of a project coordinator teams and CI, had become familiar with the secondary school education system in Japan. They came to understand how to apply their experiences gained in the training to the same field in Mpumalanga province through the implementation of the project. Therefore, it is secure to conclude that the core project staff has become capacitated steadily. However, the CI who was taking on MSSl activities was allocated insufficiently and the guidance at school was not enough.

As a whole, the sustainability of the project has reached an almost satisfactory level.

3-2 Factors that promoted realization of effects

(1) Factors Concerning the Planning

1) In general, the cascade system will weaken its effects as it gets to the downstream of transfer of knowledge and technique, and monitoring activities become more difficult. However, in this project, the effects were maintained by focusing the information shared in workshops on the minimized practical contents. Also, the flow of information from bottom to top was reported in monitoring results by using a fixed form. This has eased the weaknesses of the nature of the cascade system. Moreover, the fact that knowledge and experiences were shared horizontally among the CI, HOD and teachers has led to significant effects.

2), The project not only transferred successful experiences and knowledge to South Africa, but also took the method of urging them to select and reestablish what is useful to them. This made the related personnel realize that it was important to make the suitable arrangement for the actual situation and ownership of the local side.

(2) Factors concerning the Implementation Process

1) People from the Japanese side carried out the project with full awareness of its devotion to "supporting the MDE". They also set this project activity in routine work of the Mpumalanga Department of Education and increased the cost of managing workshops being paid by the Mpumalanga Department of Education step by step. These measures have fostered the sense of ownership and the sustainability among the staff of Mpumalanga Department of Education.

2) Normally, in the case of technical cooperation with limited time and input, there are many cases that they choose a part of the district as a pilot project and spread the outputs to other areas. However, through the experience of the DFID Project, it was known that this would cause concentration of benefit to the pilot area and discontent concerning the concept of "equal opportunities" in South Africa. Therefore, the entire area of Mpumalanga was selected as the project site. Due to this, the project purpose, which was considered rather too ambitious for the scope of the project, was set out to cover all the secondary schools in Mpumalanga Province within the project period. By the above mentioned reasons, the project has been carefully designed and implemented with the attention for its efficiency and effectiveness.

3-3 Factors that impeded realization of effects

(1) Factors Concerning the Planning

As mentioned in the previous section, a rather ambitious purpose (full coverage of all the secondary schools) was set out for the project of this scope. The purpose was hard to be achieved within three years of the project period.

(2) Factors concerning the Implementation Process

N/A

3-4 Conclusion

By taking the geographic size of Mpumalanga and the number of schools into consideration, the project was considered to be difficult in order to achieve the project purpose within a three-year period. In order to finish carrying out MSSl on 540 schools in the province by 2003, it is more practical to extend the project period.

3-5 Recommendations

(1) In order to ensure the project achievements, the tripartite partnership among the Mpumalanga Department of Education,

University of Pretoria and the Government of Japan should be maintained.

(2) In order to maintain functions of school-based in-service training and to expand its scale, continuous maintenance of budget and the staff allocation in the Mpumalanga Department of Education and contribution of mathematics from University of Pretoria should be achieved.

(3) In order to monitor operational condition of school-based in-service training, the output of MSSI project should be revised.

(4) Information and data needed for advanced management should be set. A project monitoring system installed for collecting, analyzing and disseminating information to decision makers is required.

(5) In order to evaluate project impacts, results should be studied through the examination on the level of achievement on the subjects of science and mathematics.

3-6 Lessons Learned

(1) In order to produce the awareness on the ownership of the local side and to increase sustainability, Japan's experience should not be directly transferred but should take the approach of extracting and localizing the experiences as much as possible, using parts and mechanisms that are applicable to the situation of the country.

(2) In case of taking an integrated approach that includes the several different types of cooperation activities, it is important that each activity is planned and carried out complementary and that the activities are managed in terms of their order of input.

(3) Efforts to assure the sustainability of the project are indispensable. It is essential to incorporate the project activities as part of the routine work of the recipient country, cover all the area in the target region without setting pilot areas, involve not only technicians (who are teachers in case of this project) but also managers (school principals and administrators in case of this project), and carry out quality management using resources in the respective country (partnership with University of Pretoria in this project).

(4) Maintaining incentive of project participants is effective in promoting the project activities through persons on a managerial level such as principals, state and central ministers and politicians by declaring effectiveness of the project, or providing awarding systems such as a citation system or degree system to relevant parties.

(5) It is effective not to finish the flow of cooperation effects in one-way for the achievement of significant results. This was done by horizontally sharing techniques, knowledge and experiences obtained through activities among people of the same level when cooperation effects were vertically spread through the impact of feedbacks and lessons learned whether be positive or negative, by evaluating qualities of techniques, knowledge and experiences.

3-7 Follow-up Situation

The project purpose "A school-based in-service training system in the Mpumalanga Province is established" was not achieved at the terminal evaluation. Therefore, Phase II of the Project is under consideration, which conduct the same scaled activities for three years from April 2003. The difference from Phase 1 is as follows;

(1) An approach to improve the quality of lessons based on the in-service training should be taken by gradually prompting an approach that emphasizes the establishment of the in-service training system at each school.

(2) It is necessary to activate training activities by installing cluster activities among neighboring schools and responding to the morale of teachers resulting from the previous cascade method (state -> region -> school). This accompanied the change of educational and administrative districts (from 10 district systems to 3 regional systems) by the administrative reform of the state government.

(3) It is necessary to work on the promotion of project effects on schools which could not participate in the previous project because they were too remote.

(4) It is necessary to secure the sustainability of the project effects by promoting resources accumulated by previous activities and the textbooks organized and revised to more practical contents for the participants.

There is a plan to seek the system of maintenance and improvement during the project period so that the South African side could continue the activities with their own efforts even after the completion of Phase II.