

終了時評価調査結果要約表（英文）

I. Outline of the Project	
Country: The Republic of South Africa	Project title: Mpumalanga Secondary Science Initiative Phase 2
Issue/Sector: Basic education	Cooperation scheme: Technology Cooperation Project
Division in charge: Basic Education Team II, Group I (Basic Education), Human Development Department, JICA	Total cost (as of the time of evaluation): 238,803,000 yen
Period of Cooperation	(R/D): April 1, 2003 Three years (April 1, 2003 – March 31, 2006)
	Partner Country's Implementing Organization: Mpumalanga Department of Education
	Supporting Organization in South Africa: University of Pretoria
	Supporting Organization in Japan: Hiroshima University, Naruto University of Education, Okayama University
Related Cooperation: Japan Overseas Cooperation Volunteers “Science and Mathematics Education” Grassroots Grant Aid	
1. Background of the Project	
<p>Even today, with apartheid abolished, racial disparity in educational opportunity and quality still remains a problem. Especially in Mpumalanga Province, where there are many former homelands, the level of education is low compared to other provinces and improving the quality of teachers has been a problem.</p> <p>Implemented in this context, the Mpumalanga Secondary Science Initiative (MSSI) (November 1999 – March 2003) was confirmed in its terminal evaluation (conducted in 2002) to have fulfilled its project purpose, “To establish a school-based training system to enhance teaching ability among in-service (mathematics and science) teachers,” to a certain level, partly due to the high level of involvement of the Mpumalanga Department of Education (MDE) and the University of Pretoria¹, although the Initiative is still on the road to the overall achievement of its goal.</p> <p>The MDE highly appreciated the cooperation from Japan throughout the project, and requested a new cooperative effort comprised of three major factors, namely (i) to promote the realization of effects at the classroom level, (ii) to expand the target group from grades 8-9 to grades 8-12, and (iii) to rebuild the training system in accordance with the restructuring of administrative districts of the province. In response to this request, the MSSI Phase 2 started from April 2003 for a scheduled period of three years.</p>	
2. Project Overview	
(1) Overall Goal	
To improve the quality of teaching in mathematics and science in Mpumalanga Province through the improvement of teaching abilities and subject knowledge.	
(2) Project Purpose	
To establish and maintain school-based training systems ² for grades 8-12 mathematics and science teachers in Mpumalanga Province through cluster workshops ³ .	

¹ The University of Pretoria technically supported the MDE as a partner institution of this Project.

² A school-based training system is implemented by gathering teachers of the same subject in each school.

³ A cluster workshop is a workshop activity targeted to the representatives (cluster leaders) of a cluster (group of schools) (implemented 2-3 times a year in three regions).

(3) Outputs		
1) Improvement in the classroom practices of grades 8-12 mathematics and science teachers in Mpumalanga Province to be realized by implementing school-based training through cluster workshops.		
2) The establishment of a support system for school-based training through cluster workshops in Mpumalanga Province.		
3) The implementation of monitoring and research activities by the MDE to ensure the sustainability of school-based training through cluster workshop.		
4) Improvement in the abilities of secondary (grades 8-12) mathematics and science teachers through the academic education by the accreditation program.		
(4) Inputs (as of May 2006)		
Japanese side:		
Long-term expert: 2 people in total	Equipment: 885,000 yen	
Short-term expert: 39 people in total	Local cost: 34,418,000 yen	
Trainees received: 54 people in total	Total: 238,803,000 yen	
South African side:		
Counterpart: 6 people		
Land and facilities: Project office		
Local cost: 502,000 rand	Etc.	
II. Evaluation Team		
Members of Evaluation Team⁴	1. JICA Evaluation Team	
	Leader: Norio SHIMOMURA, Resident Representative, South Africa Office, JICA Evaluation planning: Shinichi ISHIHARA, Chief, Basic Education Team II, Group I, Human Development Department, JICA JOCV activities: Yuki KATO, Regional Team , Overseas Affairs Group, Secretariat of JOCV. JICA Evaluation Analysis: Shimboku MIYAKAWA, General Manager, Department of Project Activities, VSO Corporation	
	2. Joint Evaluation Team	
	MDE, University of Pretoria, JICA Project Team	
Period of Evaluation	January 24, 2006 – January 31, 2006	Type of Evaluation: Terminal Evaluation
III. Results of Evaluation		
1. Achievements		
(1) Project Purpose Achievements		
1) Improvement in the classroom practices by grade 8-12 mathematics and science teachers in Mpumalanga Province to be realized by implementing school-based training through cluster workshops. ⁵		
Cluster workshops are implemented on a regular basis (2-3 times a year) in each region.		
Cluster training ⁶ implemented by Cluster Leaders who have participated in cluster		

⁴ JICA Evaluation Team mainly evaluated actual activities and achievement of plans. Based on this survey, the Joint Evaluation Team summarized the evaluation based on the five evaluation criteria, recommendations and lessons learned in the Joint Evaluation Report in May 2006.

⁵ It was confirmed through consultation with the MDE that the “improvement in the classroom practices of mathematics and science teachers” is a purpose superior to the Project Purpose. Therefore, it is judged that the main element of this Output from the activities planned to achieve outputs is the “implementation of school-based training”.

⁶ Cluster training is training in which general mathematics and science teachers of the cluster (a group of neighboring schools) participate

workshops is also held for 4-5 times a year on average. However, school-based training is not in practice throughout the province, although it is being held in some regions. While cluster training is actively implemented at the Further Education and Training (FET) level, it is not so actively implemented at the General Education and Training (GET) level.

2) The establishment of a support system for school-based training through cluster workshops in Mpumalanga Province.

47 types of study guides and two types of reference materials on classroom practices were made available. In Ehlanzeni District, education support visits were implemented by the Curriculum Implementer (CI) and JOCV, especially targeting schools with poor performance, as part of the support for distant rural areas where it is difficult to implement school-based training.

3) The implementation of monitoring and research activities by the MDE to ensure the sustainability of school-based training through cluster workshops.

Although constant monitoring by the MDE has yet to be implemented, monitoring by the Joint Evaluation Team, namely the evaluation of cluster training from January to October 2005, was summarized in the Joint Evaluation Report.

4) Improvement in the abilities of secondary (grades 8-12) mathematics and science teachers through the academic education by the accreditation program.

The program, originally planned to take place at the University of Pretoria, did not start. The long-term training course administered by JICA solicited trainees, but there were no applicants fulfilling the qualifications, so none were accepted.

(2) Project Purpose

The originally-planned cascade training system, starting from JICA training at the country level that would then extend to school-based training, was rebuilt as a cluster training system that would accommodate the changes in the administrative districts of Mpumalanga Province. Cluster workshops are held regularly and cluster training is also being implemented actively especially at the FET level. Cluster training works as an effective approach in Mpumalanga Province, where there are many small-sized schools wherein the number of teachers of the same specialized subject is limited and there is a difficulty in implementing school-based training. However, school-based training is implemented only in some schools, so collaboration between cluster training and school-based training is an issue to be addressed.

(3) Overall Goal

The quality of teaching in mathematics and science could not be sufficiently evaluated as of the time of this terminal evaluation. However, many training materials are being developed through the Project, so it is expected that the continuation of training using these materials will result in the improvement of teaching in mathematics and science.

2. Evaluation based on the Five Criteria

(1) Relevance: High

The strengthening of mathematics and science education is a priority issue for the South African government, introducing super science school (i.e. Dinaledi School) policy. Thus, the relevance of this Project, with its aim to strengthen the training system targeted to in-service mathematics and science teachers in Mpumalanga Province, is high.

(2) Effectiveness: Medium

Although different from the originally planned cascade system due to changes in the administrative districts of Mpumalanga Province, a cluster-type training system has been established. While the school-based training system has yet to be established, the cluster training is functioning. However, the activities of cluster training are mainly based on managing work such as preparation for examinations, rather than on technical training for improving the quality of classroom practices, so a problem remains in terms of the quality of training.

(3) Efficiency: Medium

Major input from JICA consisted of two training courses by country (“In-Service Teacher Education and Training in Science and Mathematics for the Republic of South Africa” and “Local Educational Administration and management for the Republic of South Africa). These training courses worked effectively for educational administrative officers and mathematics and science teachers in Mpumalanga Province, allowing them to acquire the knowledge and skills necessary for implementing training for in-service teachers. The activities of the Project were performed efficiently. However, due to substantial changes in the administrative districts of Mpumalanga Province, significant time and energy were spent restructuring the training system, which had a negative impact in terms of efficiency.

(4) Impact: High

It was recognized by the instructors of Mpumalanga Province’s teachers and educational administrative officers that the training system in-service teachers is effective in improving teaching practices in the classroom. This resulted in the extension of the cluster framework constructed by the Project to the areas of new curriculum introduction training, evaluation method training, and training for subjects other than mathematics and science, which can be recognized as the impact of the Project.

(5) Sustainability: High

Cluster training is a program regularly implemented by the MDE, so it is judged that its sustainability in terms of policy and finance is ensured. The cluster is being established as a unit of training and it is highly probable that the training will be continuously implemented. That being said, in order for the teachers to utilize what they have learned in the cluster training, the understanding and support of the CIs, heads of the school districts, and principals will be essential. It is also necessary to establish a monitoring system for the improvement of the quality of training for in-service teachers.

3. Factors that Promoted the Realization of Effects

(1) Factors Concerning Planning

- Training by country was effective in transmitting the methods for improvement of classroom practices, mainly consisting of research into classroom practices.
- Cluster training by subject, consisting of 10 schools in average, was effective in Mpumalanga Province, where there are many small-sized schools with only one or two teachers who specialize in specific subjects.

(2) Factors Concerning the Implementation Process

- In the alignment workshop held during the second year of the Project, the policies of activities focusing on cluster training as well as ideas on the roles of the MDE, the University of Pretoria, JICA, and collaboration between them, had been streamlined and confirmed. This contributed to promoting their operation thereafter.
- The formation of the Joint Evaluation Team contributed to activating the overall

activities of the Project and to reinforcing the sustainability of the Project through their monitoring activities. It also resulted in the active commitment of the University of Pretoria, which until that time had shown rather weak commitment.

- Although the JOCV (mathematics and science teachers) was not included in the Project input, it prepared materials for workshops and demonstrated experiments in collaboration with the CIs, which were the counterpart, and contributed in the progress of the Project.

4. Factors that Impeded the Realization of Effects

(1) Factors Concerning Planning

- The PDM prepared in this Project was revised in accordance with the institutional reform of the MDE. However, because uncertainty remained in the Project Purpose and Outputs, it resulted in impeding the common understanding among the relevant parties of the Project.

- Influenced by the start of the new curriculum introduction training, which was implemented in the same period, it was necessary to alter the training schedule of this Project and was impossible to secure sufficient time for technical contents that would have resulted in the improvement of classroom practices.

- Although the successful performance of the experienced, Phase 1 CIs was expected, the number of CIs without experience increased significantly due to personnel reshuffle brought on by institutional reform and the expansion of targeted grades (from grades 8-9 to grades 8-12). Consequently, more time and effort was required for the re-training of CIs, which resulted in delays in the Project.

(2) Factors Concerning the Implementation Process

- Due to a failure in the office procedures of the MDE, traveling expenses for cluster workshops were not provided, which caused some participants to boycott the cluster workshops.

- Effective measures for the strengthening of a monitoring system were not taken in the initial stages of the Project, and monitoring activities remained weak for awhile.

5. Conclusion

Although the originally-planned training system was rebuilt due to changes in the administrative structure of Mpumalanga Province, it can be said that the purpose of the project was basically fulfilled in terms of the establishment of a system for in-service teacher-training, resulting in the improvement of mathematics and science education. However, the quality of the training (the implementation of technical training that will result in the improvement of classroom practices) must be kept in mind for the future.

5. Recommendations

(1) Recommendations to the MDE

1) It is desirable to establish a science and mathematics coordination committee to ensure the continuous implementation of high-quality cluster trainings.

2) It is recommended that a permanent monitoring system to promote in-service teacher training and an active exchange of information among clusters be established.

3) It is desirable to formulate a systematic and continuous training program to strengthen the instruction capacity of the CIs.

4) In order to reinforce the leadership of the CLs, it is desirable to take measures such as expanding the CL's term of office from one year to multiple years and providing internship opportunities and other (non-financial) incentives.

5) In order to further activate cluster training, it is desirable to strengthen the collaboration between the CIs and the heads of the school districts at the Regional

Offices, and to establish a system for support by the Regional Offices.

6) Because many staff members of the Teachers Centre participated the training by country before going back to the home country, because the Centers are also staffed by JOCV (mathematics and science teachers), and because some Centers have mathematics and science experimental equipment that was provided by Japan through Grassroots Grant Aid, it is desirable to effectively utilize the Center.

7) In order to create a “culture of continuous improvement” at the school level, the role of school principal is critical. The planning and implementation of a training program to reinforce the leadership of principals in terms of teaching is encouraged.

8) In the past, the MDE has simultaneously implemented many educational improvement efforts, including this Project. However, the schedule and content of this Project's activities were frequently altered because of insufficient coordination in the activities of different projects. It is recommended that in the future clear guidelines on the relevant priority of in-service training and on the implementation methods thereof be established.

9) Many practical efforts for the improvement of mathematics and science education are derived from reciprocal learning among teachers. It is recommended that annual meetings be held so that clusters can share the details of successful case examples.

(2) Recommendations to the University of Pretoria

1) From the perspective of sustainability, it is recommended that the joint partnership with the MDE be maintained.

2) Cooperation in continuing to prepare reference materials on research approaches to classroom practices is recommended.

3) It is recommended that an investigative research unit be established to serve as a leader in developing theories and practical methods for classroom practices in Africa.

(3) Recommendations to JICA and supporting universities in Japan

1) In order to continue high-quality cluster training, it is desirable to further improve the series of reference materials on classroom practices research and to extend the period of training by country, “In-Service Teacher Education and Training in Science and Mathematics for the Republic of South Africa”

2) In the future, it is desirable for the Japanese universities to be engaged in investigative research on educational development in Mpumalanga Province.

7. Lessons Learned

(1) Cluster training becomes effective only when what is learned by the teachers who participated the training is shared among colleagues during school-based training and eventually utilized in classrooms. To this end, it is necessary for the clusters and schools to build collaborative relationships, and the role of principals, who are the managers of their schools, is important in achieving this. It is desirable to promote a raised level of awareness among the principals on their duty to improve their schools' management and to institutionalize training for principals.

(2) The approach of “learn while moving forward” is one of the characteristics of the Project. In order for this approach to become effective, it is necessary not only to establish a monitoring/mechanism that will work and to precisely understand the progress and development, but also to promote information sharing related to the quality of activities.

8. Follow-up Situation

Based on the results of this Terminal Evaluation, it was agreed that a follow-up activity will be implemented, namely “In-Service Teacher Education and Training in Science and Mathematics for the Republic of South Africa” by country, to be targeted to the GET level, wherein cluster training has remained less active compared to the FET level, and

scheduled to have a duration of three years. This training aims to improve the quality of cluster training and to introduce and spread research into classroom practices in particular.