

Republic of Indonesia

FY2016 Ex-Post Evaluation of Technical Cooperation Project

“Strengthening In-Service Teacher Training of Mathematics and Science Education at
Junior Secondary Level (SISTTEMS)”

External Evaluator: Masako IWASHINA, ICONS Inc.

0. Summary

This project aimed to disseminate Subject Teacher Support Program for Secondary Schools (MGMP¹) activities applying Lesson Study and, through training for MGMP facilitators, principals and university lecturers, and training in Japan for counterparts, attempted to disseminate Lesson Study in the three target provinces and particularly to improve students' learning ability in mathematics and science in the target districts by constructing a model of MGMP activities applying Lesson Study. This project's objective is consistent with Indonesia's educational policy and development needs at the planning and completion stage of the project and Japan's aid policy in terms of qualitative improvement in science and mathematics in junior secondary education, and adopted an approach that benefited from Japan's comparative advantage. Therefore, its relevance is high. The project purpose and overall goals were almost achieved, and it was confirmed that the more frequently schools conducted School-based Lesson Study (Lesson Study Berbasis Sekolah; LSBS), the higher the national final examination (UN) score tended to be, which means that the project contributed to improved student's performance. In addition, many other positive impacts are confirmed. Therefore, the project's effectiveness and impact are high. The project period was in line with the plan, and the increase in the project cost was in line with the plan change that appropriately responded to the influence of the Central Java Earthquake on the target area; the increase in output corresponds to the increase in input. Therefore, efficiency is high. Regarding sustainability, it is expected that organizational, technical, and financial sustainability will be secured in the three target districts, but in the three target provinces, sufficiently clear policies and systems have not been established to sustainably disseminate Lesson Study. Organizations that promote Lesson Study have not changed since the project implementation period, organizational agreements on implementation and human resource development have not been documented in the Ministry of Education and Culture (MOEC). Training related to Lesson Study by Educational Quality Assurance Institution (LPMP) has not continued, even though agreements were made concerning the implementation of support to schools at the district/city level in Sumedang District, Pasuruan District, and Malang City. The standard curriculum at the training institutions under the Ministry of Religious Affairs (MORA) is maintained, even though some provinces have not implemented it due to poor budget conditions. Therefore, sustainability of the project effects is fair.

¹ MGMP stands for “Musyawarah Guru Mata Pelajaran” in Indonesian.

In light of the above, the project is evaluated to be very satisfactory.

1. Project Description



Project Locations (☆ indicates Jakarta, the Capital of Indonesia)

MGMP applying Lesson Study in SMP N² Sumedang 4 in West Java Province

1.1 Background

The Government of Indonesia set the target to achieve nine-year compulsory education by 2008 at the planning stage of the project by improving the school enrollment ratio, education quality, and strengthening school management. Knowledgeable people in and out of Indonesia noted severely stagnant in quality of education, particularly in science and mathematics. The “Medium-term Development Strategy of the Education Sector (RENSTRA) 2005–2009” emphasized three major themes: (1) expansion of educational opportunities, (2) improvement in education quality, and (3) enhancement of educational administration. In particular, the project is designed to assist “(2) improvement in education quality.”

The Ministry of National Education (MONE) and Japan International Cooperation Agency (JICA) executed the Technical Cooperation Project for Development of Science and Mathematics Teaching for Primary and Secondary Education in the Republic of Indonesia (IMSTEP) for five years beginning in 1998 to improve pre-service teacher training at undergraduate level by faculty of mathematics and science education (FPMIPA) at the Indonesia University of Education (UPI), the National University of Yogyakarta (UNY), and the National University of Malang (UM). Through IMSTEP, training syllabi for pre-service teachers were wholly revised, and materials such as textbooks, experiment teaching guidebook, and equipment manuals were developed. Beginning in 2003, follow-up was implemented for two years to improve the quality of education by encouraging effective collaboration between universities and schools and improving teachers’ teaching ability.

Meanwhile, in-service training for teachers, such as MGMP, were not organized effectively for professional development of teachers at the district level due to the chaotic conditions brought on by decentralization.

² SMPN means Public Junior Secondary School in Indonesian.

In this situation, this project aimed to revitalize MGMP through collaboration between schools and the three partner universities mentioned above and by making use of the progress gained through IMSTEP and its follow-up. Concretely, this project reorganized MGMP from the activities at district level to the rayon level and introduced Lesson Study³ as a new approach for the MGMP model, supporting both education administration and school level.

1.2 Project Outline

Overall Goal		<p>1. The model of in-service teacher training (MGMP) applying Lesson Study is disseminated as a form of teacher's continuous professional development in the target provinces⁴ (West Java Province, East Java Province, and Yogyakarta Province) as a form of continuing teacher's professional development.</p> <p>2. The level of students learning ability in mathematics and science is improved in the target districts (Sumedang District in West Java Province, Pasuruan District in East Java Province, and Bantul District in Yogyakarta Province).</p>
Project Purpose		The model of MGMP (Rayon ⁵) activities ⁶ applying Lesson Study for quality improvement of mathematics and science teachers is developed in the target districts.
Output(s)	Output 1	Education officers in the central government and target districts recognize the effectiveness of the MGMP (Rayon) activities and take necessary financial and administrative measures to sustain them.
	Output 2	Effective MGMP (Rayon) activities are regularly conducted in the target districts.
	Output 3	The mechanism of the MGMP (Rayon) activities applying Lesson Study is developed.
	Output 4	Under the SISTTEMS Bantul Emergency Program, TPKs and schools propose their own plans and conduct activities to rebuild and improve junior secondary education using SISTTEMS block grant.
Total cost (Japanese Side)		301 million yen
Period of Cooperation		May 2006 – October 2008
Implementing Agency		Ministry of National Education ⁷ (MONE)/ Ministry of Education and Culture (MOEC)

³ Normally, Lesson Study consists of planning, implementation, and reflection on a lesson. At the planning stage, one or multiple teachers plan a lesson. At the implementation stage, the planned lesson is executed and observed by fellow teachers as a big characteristic. Finally, at the reflection stage, the teacher who conducted the lesson and the observers exchange and share findings, opinions, and views based on observation of the lesson. This practice improves teachers' knowledge about subjects and lesson materials, their repertoire of lesson methods, and their understanding of children. (The ex-ante evaluation report)

⁴ The three provinces are called "target provinces" even though the direct targets of this project are the three target districts. This is because the overall goal is to disseminate MGMP applying Lesson Study that was introduced by the project to districts other than the target ones, and some officials at Provincial Education and Culture Offices joined training of national trainers.

⁵ The Japanese side described the unit of cluster of MGMP activities as "Wilayah" in Indonesia. However, both Japanese and Indonesian side finally agreed to use "Rayon", the Indonesian word of "a certain area" in the revised PDM (Report of Project Consultation, 2008, p.10)

⁶ The administrative division structure of Indonesia is: province - district/city - county - village/ward (as of April 2017, there are 34 provinces and 514 districts/cities throughout the country). Additionally, a regional cluster that consists of a few counties is called "Rayon". A common district-level Subject-based In-Service Teacher Training is called "MGMP" activities, while training at rayon-level (training for teachers who are in charge of the same subject in the same rayon) is called "MGMP (Rayon)" activities in this report. In the project, MGMP (Rayon) activities were attempted to provide training on a smaller scale at rayon-level, rather than at district-level.

⁷ MONE was reorganized to MOEC in 2011.

	Regional Education and Culture Office of the target provinces
Other Relevant Agencies / Organizations	Ministry of Religions Affairs (MORA) Regional Religious Office of the target provinces
Supporting Agency/ Organization in Japan	International Development Centre of Japan
Related Projects	”Project for Development of Science and Mathematics Teaching for Primary and Secondary Education” (IMSTEP), 1998-2005

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

The model of MGMP (Rayon) activities applying Lesson Study was almost developed in the target districts. Teachers greatly appreciated the MGMP (Rayon) activities that applied Lesson Study from the perspectives of the (1) contents, (2) methods, and (3) arrangements, and the mean composite score, which is the indicator of Project Purpose achieved the target. The usefulness of the MGMP (Rayon) activities did not achieve their target in terms of (1) increasing subject-matter knowledge, (2) improving teaching skills, and (3) exchanging ideas with other teachers, but the activities were to some extent appreciated by teachers. Therefore, the project purpose was almost achieved.

1.3.2 Achievement Status of Overall Goals at the Terminal Evaluation

Among the two overall goals, the dissemination of Lesson Study had not been achieved, but did show progress. The other goal of improving students’ learning achievement in science and mathematics through MGMP (Rayon) in target districts was on track to achieve its target level, although data from 2007/08 on was not available. In addition, the attitudes of many students toward mathematics and science had become more positive.

1.3.3 Recommendations from the Terminal Evaluation

Financial and institutional sustainability of MGMP (Rayon) and Lesson Study were secured through the commitment of each counterpart organization. However, there are still insufficient numbers of key personnel who understand Lesson Study and can provide appropriate reflection, even among the faculty of Teacher Training Universities and fellow teachers in the districts. Therefore, the following recommendations were proposed to further develop human resources who can be the core human resources for the sustainable implementation of Lesson Study.

Table 1 : Recommendations from the Terminal Evaluation Team

Recommendations	Details
(1) Capacity strengthening of major human resources	<ul style="list-style-type: none"> ▪ Refresher training and training for new MGMP facilitators (teachers). ▪ Strengthening the technical capacity of Supervisors for lesson observation and analysis by accompanying resource personnel of the partner universities⁸ to participate in the MGMP (Rayon) activities throughout the remaining period of cooperation. ▪ Integration of Lesson Study into Principal Management Training supported by the Directorate of Education Personnel of the Directorate General of Quality Improvement of Teachers and Education Personnel (DGQITEP) of MOEC; policy and administrative guidance from District Education and Culture Office to school principals on how to incorporate Lesson Study into School Development Plans with financial allocation. ▪ Promoting active participation of LPMP instructors in each cycle of Lesson Study.
(2) Arranging and strengthening institutional and financial foundations to effectively implement Lesson Study	<ul style="list-style-type: none"> ▪ Developing institutional and financial frameworks for partner universities to provide sustainable technical assistance and agreeing between 3 directorate generals of MOEC⁹ (Directorate General of Higher Education (DGHE),¹⁰ DGQITEP,¹¹ Directorate General of Primary and Secondary Education Management (DGPSEM), MORA, local governments, and universities. ▪ Strengthening collaboration between Provincial/District Education and Culture Offices and LPMP to disseminate Lesson Study in non-target districts in the target provinces. ▪ Strengthening financial accountability and transparency for the implementation and dissemination of Lesson Study.
(3) Expanding Lesson Study to other subject areas	<ul style="list-style-type: none"> ▪ Provincial/District Education and Culture Offices' initiatives to further strengthen and expand institutional collaboration with the universities beyond science and math faculties in order to disseminate Lesson Study to non-mathematics and science subject areas.
(4) Sharing good practices and experiences among stakeholders at the national level	<ul style="list-style-type: none"> ▪ Continuous strengthening of MGMP (Rayon) activities that apply Lesson Study in the target districts. ▪ Support at the policy level for a Lesson Study reference center set up by UPI to share knowledge and experiences of Lesson Study.

Source: SISTTEMS Terminal Evaluation Report (2009)

2. Outline of the Evaluation Study

2.1 External Evaluator

Masako IWASHINA, ICONS Inc.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: August 2016–August 2017

Duration of the Field Study: November 10, 2016–December 19, 2016 and February 26,

⁸ UPI, UM, and UNY.

⁹ Ministry of National Education (MONE) was succeeded by the MOEC at the organizational restructuring in 2011.

¹⁰ DGHE was transferred from MOEC to Ministry of Research, Technology and Higher Education in October 2014.

¹¹ DGQITEP became Office of Human Resources Development of Education and Culture and Quality Assurance of Education at the organizational restructuring in 2011, and then became Directorate General of Teachers and Education Staff in 2015.

2017–March 15, 2017¹²

2.3 Constraints during the Evaluation Study

It is difficult to extract the genuine effects of SISTTEMS for the purposes of the evaluation (mainly the impact and sustainability of the project) since, as a successor program to SISTTEMS, the Program for Enhancing Quality of Junior Secondary Education (PELITA, 2009-2013) continued to mainly support capacity development of central and regional education administration for the nationwide dissemination of Lesson Study and participatory school-based management through technical transfers from JICA Experts in the same target districts.

The evaluation framework was as follows: interviews with the implementing agency and other relevant agencies; questionnaire surveys (as those for beneficiaries) of 78 school principals, which accounted for around 15% each of general junior secondary schools and religious junior secondary schools in the target districts; and semi-structured interviews based on questionnaires of 48 mathematics and science teachers at 12 schools (4 teachers at each school) that the external evaluator visited and 60 Grade 9 students (5 students at each school). Surveyed beneficiaries and visited schools were randomly chosen from school lists submitted from the District Education and Culture Offices (For the details, see 3.2.2.1 Achievement of Overall Goal).

3. Results of the Evaluation (Overall Rating: A¹³)

3.1 Relevance (Rating: ③¹⁴)

3.1.1 Consistency with the Development Plan of Indonesia

The project purpose is consistent with RENSTRA 2005–2009, designated by MONE at the planning and completion stages of the project. RENSTRA 2005–2009 emphasizes three major themes: (1) expansion of educational opportunities, (2) quality improvement in education, and (3) enhancement of educational administration. In particular, the project is designed to assist “(2) quality improvement in education” through capacity development of teachers and concerned people of school education

3.1.2 Consistency with the Development Needs of Indonesia

The project purpose is consistent with the development needs of Indonesia. The results of Trends in International Mathematics and Science Study (TIMSS) by the International Association for the Evaluation of Educational Achievement (IEA) and the

¹² The field study was conducted in the same period as the ex-post evaluation of the Program for Enhancing Quality of Junior Secondary Education (Program Peningkatan Kualitas SMP/MTs: PELITA), which is the successor project of this project.

¹³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

¹⁴ ③: High, ②: Fair, ①: Low

OECD Programme for International Student Assessment (PISA) in 2003 showed low achievement of Indonesian primary and junior secondary school students in basic learning abilities and problem solving skills. The results of TIMSS and PISA at the completion of the project also showed low achievement: the score of TIMSS decreased from 411 in 2003 to 405 in 2007. The results of PISA in mathematics also declined from 391 in 2006 to 371 in 2009, and those of scientific literacy declined from 393 in 2006 to 383 in 2009, while the average mathematics scores of OECD member countries were 498 in 2006 and 496 in 2009, with average sciences scores of 500 in 2006 and 501 in 2009. These results showed lower achievement than the average of OECD member countries with statistical importance. The project was organized as a part of the assistance for expansion and quality improvement of junior secondary education, and the project's support for the quality improvement in mathematics and science meets the needs of the country during the planning and at completion of the project.

In addition, students need better teaching and learning materials such as exercise questions that are created by teachers, both at the completion of the project as well as at the time of the project's terminal evaluation.¹⁵

3.1.3 Consistency with Japan's ODA Policy

The project is consistent with Japan's Official Development Assistance (ODA) policy: The project is relevant to Japanese ODA's upper-level education policies such as Basic Education for Growth Initiatives (BEGIN, 2002), which strives for improvement in the quality of education and technical cooperation for science and mathematics education. Country Assistance Program for Indonesia (November 2004) and The Medium-Term Strategy for Overseas Economic Cooperation Operations for Indonesia (2006) emphasizes improvement of basic education and support for regional educational administration in the course of decentralization. Furthermore, Lesson Study is an educational practice developed in Japan that was meant to improve the quality of teaching-learning at the school level. Therefore, the project's approach has a comparative advantage.

Accordingly, this project has been highly relevant to the country's development plan and development needs, as well as to Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact¹⁶ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Achievement of Project Purpose

¹⁵ According to materials provided by JICA.

¹⁶ Sub-rating for Effectiveness is to be put with consideration of Impact. In general, effectiveness covers the situation at the completion of the project and impact covers the situation at ex-post evaluation. However, for the convenience, situation at the ex-post evaluation is described in effectiveness.

Project Purpose: The model of MGMP (Rayon) activities applying Lesson Study for quality improvement of mathematics and science teachers is developed in the target districts.

MGMP (Rayon) activities applying Lesson Study were periodically implemented in the target districts owing to the following outputs: Central and regional education officers made efforts for administrative and financial measures; mathematics and science MGMP (Rayon) activities were implemented twice a month; training of MGMP facilitators were conducted; and principals adjusted teaching schedule and provided transportation fee for the teachers. MGMP Guidelines with related teaching materials and the MGMP Monitoring and Evaluation Guidelines with related tools were developed.

In addition, the SISTTEMS Bantul Emergency Program was executed to overcome the damages caused by the Central Java Earthquake that occurred at the Project's commencement, implementing activities to rebuild and improve junior secondary education in the Bantul District which is one of the target areas and was suffered from the earthquake severely. As shown above, the mechanism of MGMP (Rayon) activities applying Lesson Study was set up, and the project's purpose to develop the MGMP (Rayon) activities model applying Lesson Study for quality improvement of mathematics and science teachers was almost achieved.

Table 2: Achievement of the Project Purpose

Project Purpose	Indicator	Actual
The model of MGMP (Rayon) activities applying Lesson Study for quality improvement of mathematics and science teachers is developed in the target districts.	In the target districts, the mean composite score ¹⁷ (on a scale of 3–12) for teachers' evaluation of MGMP activities (content, method, and arrangement) is improved from 8.61 at Baseline Survey to 9.06 at Endline Survey.	Teachers' evaluation of MGMP activities increased from 8.61 to 9.46 in the target districts. On the other hand, teachers' evaluation of MGMP activities very slightly increased from 8.72 to 8.76 in non-target districts in the same provinces.
	In the target districts, the mean composite score ¹⁸ (on the scale 3–15) of teachers' evaluation of the usefulness of MGMP activities (subject-matter knowledge, teaching skills, and exchanging ideas with other teachers) is improved from 12.97 at Baseline Survey to 13.57 at Endline Survey.	Teachers' evaluation of the usefulness of MGMP activities increased from 12.97 to 13.32 in the target districts, but did not meet the target of 13.57. On the other hand, teachers' evaluation of the usefulness of MGMP activities decreased from 12.94 to 12.61 in the non-target districts in the same provinces.

Source: SISTTEMS Terminal Evaluation Report (2009)

Regarding project purpose indicators, the indicator 1 (the mean composite score [on a scale of 3–12] of teachers' evaluation of MGMP activities in terms of (1) content, (2) methods, and (3) arrangements) achieved the target. Indicator 2 (the mean composite score [on a scale of 3–15] of teachers' evaluation on the usefulness of MGMP activities in terms

¹⁷ The average score of teachers' evaluation on content, method and arrangement of MGMP activities.

¹⁸ The average score of teachers' evaluation on subject-matter knowledge, teaching skills and exchanging ideas with other teachers of MGMP activities.

of (1) subject-matter knowledge, (2) teaching skills, and (3) exchanging ideas with other teachers) did not achieve the target. However, the improvement was 58% of the expected target (0.35/0.60¹⁹). In addition, mean composite score of teachers' interest in students' learning²⁰ (on a scale of 1–5 for each item: “interest in the students' learning processes,” “helping each other between students in lessons,” and “the teacher learns from students”) was improved from Baseline to Endline Survey with statistical significance in the target districts (the significance probability was 0.026, less than 0.05). On the other hand, statistical significance was not confirmed in the non-target districts according to material provided by JICA. Therefore, the lack of attainment of the indicator 2 does not necessarily undermine the evaluation of the project's effectiveness.

From the above results, the project largely achieved its purpose.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

A Beneficiary Survey was organized to measure achievement of the overall goal. The Survey included a total of 78 junior secondary schools, approximately 15% of both general junior secondary schools and religious junior secondary schools in the three target districts. The surveyed schools were randomly selected from a list of all school names provided by each District Education and Culture Office. All 78 schools replied.²¹ In addition, a questionnaire survey was conducted with 48 math and science teachers of 12 schools (4 teachers per school), which the evaluator visited to research the teachers' evaluation of the MGMP applying Lesson Study and School Based Lesson Study (LSBS). Questions included teachers' evaluation of the MGMP and LSBS, times of participation per year, level of satisfaction, implementation times of open class and reflections each year. All 48 teachers replied.²² The visited schools were randomly selected from the list of all school name provided by each District Education and Culture Office, and each school was asked to have 2 science teachers and 2 math teachers take part in the survey.

According to the result of the above-mentioned survey, at the timing of the ex-post evaluation, MGMP activities that applied Lesson Study in the target districts were continued with the stable budget allocation from the District Education and Culture Offices. Nearly half of the mathematics and science teachers opened their class and organized reflection once a year or more in 2015/16, which is far beyond the target level. Teachers' evaluation

¹⁹ The difference between the target and the actual composite score at the baseline of the project was 0.6, and the difference between the target and the actual composite score at the endline of the project was 0.35.

²⁰ Tanaka, Y. (2011) (*Education in Indonesia: Did Lesson Study improve the quality of lessons?*). pp.168, 182–190 etc.

²¹ Valid responses were received from 14 general junior secondary schools and 8 religious junior secondary schools in Sumedang District, 13 and 3 in Bantul District, and 20 and 20 in Pasuruan District.

²² Valid responses were received from 8 general junior secondary school teachers in Sumedang District, 16 general junior secondary school teachers and 8 religious junior secondary school teachers in Bantul District, and 12 general junior secondary school teachers and 4 religious junior secondary school teachers in Pasuruan District.

of MGMP activities and LSBS achieved the target and even exceeded it. It was also higher than that of the Endline Survey. Many teachers recognized that their teaching schedules were adjusted appropriately by principals to allow them to participate in MGMP, and transportation costs were reimbursed. On the other hand, the percentage and annual average times of participation of mathematics and science teachers in MGMP did not meet the target; however, approximately two-thirds of mathematics and science teachers had participated in MGMP at the time of the ex-post evaluation. Teachers of religious junior secondary schools participated in MGMP a bit more frequently than those of general junior secondary schools, but the percentage of opening class and conducting reflection is remarkably small. Table 3 shows the data from 2015/16 in detail.

Table 3 : The Results of Beneficiary Survey and Questionnaire Survey to Teachers

Indicator No.	Description	Target	Score at Ex-Post Evaluation		
			Total	General	Religious
2-2-2	Teachers evaluation of MGMP activities (on a scale 3–12)	9.49	9.60	9.81	9.19
2-2-3	Principals' participation in MGMP (%)	Not stipulated	68	74	62
2-2-4	Percentage of teachers who had their schedules adjusted by principals to participate in MGMP (%)	Not stipulated	96	97	94
2-2-5	Percentage of teachers for whom principals arranged transportation fees for teachers to participate in MGMP (%)	Not stipulated	75	81	63
2-3-1	Percentage of math & science teachers who participated in MGMP (%)	80	67	59	81
2-3-2	Annual average times of math & science teachers who participated in MGMP (times)	10	3.42	3.16	3.94
2-3-3	Percentage of math & science teachers who opened class and conduct reflection once a year or more (%)	20	46	59	19

Source : Beneficiary Survey results

Regarding the indicator for the overall goal 1 (30% of district/cities in the target provinces organize MGMP activities applying Lesson Study by 2013), the following activities in the provinces were confirmed in the ex-post evaluation study:

① In West Java Province, the Provincial Education and Culture Office and UPI organized workshops at 15 out of 27 districts (56%) after the project's completion with the cooperation of Sumedang District facilitators.

② In Yogyakarta Province, UNY and the Provincial MORA Office individually expanded Lesson Study to 3 out of 5 districts (60%). The Provincial Education and Culture Office organized a dissemination workshop during the project period but did not continue doing so after the project due to a change of in-charge persons and the process of transferring authority over junior secondary education to district level during

decentralization.

③ In East Java Province, the Provincial Education and Culture Office and UM cooperatively organized dissemination workshops on Lesson Study in all 38 districts (100%) after the project's completion.

Regarding the indicator for the overall goal 2 (the level of student learning ability in mathematics and science is improved in the target districts) was achieved partly (only in Pasuruan District). The ranking of the UN score of Bantul District in Yogyakarta Province has remained at a high level: that makes it hard to make difference before and after project implementation. UN scores of districts, including Sumedang District, in West Java Province are close to each other and the ranking easily fluctuates.

Table 4 : UN Score Mathematics Rankings of the Target Districts in the Three Target Provinces

District	Number of districts in the province	Ranking in each year					
		2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Sumedang	27*	8	6	19	27	26	23
Bantul	5	2	3	3	2	3	3
Pasuruan	38	18	24	11	7	6	4

Source: Prepared by the author based on UN score 2011–2016 from MOEC

*The number of districts in West Java Province, where Sumedang District is located, increased by one to 27 districts in 2014.

Based on the beneficiary survey results, a statistical analysis was conducted to examine the correlation between the yearly data of UN pass rate, UN score, repetition rate, and dropout rate²³ and the status of Lesson Study implementation such as teachers' evaluation on MGMP and LSBS, times of annual participation, level of satisfaction, times of organizing open class and reflection per year. The results show that schools that organized LSBS more in 2013/14 tended to have a higher UN score in 2015/16 with statistical significance (the significance probability was 0.048, less than 0.05). This result indicates that implementing Lesson Study may improve students' learning achievement.²⁴ Although the target year for achieving the overall goal was 2013, the ex-post evaluation study was conducted in fiscal year 2016 and used data from 2015/16. This is because PELITA, the successor project of this project, was carried out the same support of Lesson Study as SISTTEMS, in 2013 including the same three target provinces, and it was not possible to evaluate this project's impact. Therefore, the 2015/16 data used in this study may have been

²³ In this ex-post evaluation study, the trend of repetition rates and dropout rates was surveyed as an additional indicator for the overall goal following a recommendation from the terminal evaluation study of the successor project of this project. At most schools, however, the rates had been nearly 0% from 2011/12 on, and a statistical analysis showed no statistical significance about the decrease in the rates because the significance probability was more than 0.05 (0.103 about repetition rates and 0.051 about dropout rates).

²⁴ The possibility cannot be excluded that teachers at schools with high UN scores are eager to teach students and to do LSBS activities from the beginning, therefore it should be noted that the frequency of LSBS activities may not necessarily be a factor for the improvement of UN scores.

affected by PELITA, even though this study does not include the direct outputs of PELITA.

Table 5: Achievement of Overall Goal

Overall Goal	Indicator	Actual
1. The model of in-service teacher training (MGMP) applying Lesson Study is disseminated in the target provinces (West Java Province, Yogyakarta Province, East Java Province) as a form of continuing teacher's professional development.	30% of districts/cities in the target provinces organize MGMP activities applying Lesson Study by 2013.	Dissemination workshops ²⁵ were held; therefore, the target was achieved. , Although the dissemination here does not mean holding only one dissemination workshop, but rather continuous implementation of MGMP applying Lesson Study, the current situation whether Lesson Study is implemented or not in non-target districts is not grasped by each Provincial Education and Culture Office and MOEC.
2. The level of students' learning ability in mathematics and science is improved in the target districts.	Ranking of mathematics UN results of the target districts rises within the respective provinces from 2006 to 2011.	Pasuruan District shows improvement, but that improvement trend is not confirmed in Sumedang and Bantul Districts (see Table 4). Bantul District's ranking has remained high, and ranking in West Java Province fluctuates because the scores of every district are close.

Among the two overall goals, goal 1 (the model of in-service teacher training (MGMP) applying Lesson Study is disseminated in the target provinces as a form of continuing teacher's professional development) was largely achieved by holding dissemination workshops, and goal 2 (the level of students' learning ability in mathematics and science is improved in the target district) was partly achieved. Adding to these, it has been made clear, through a detailed analysis conducted in the ex-post evaluation study for this project and PELITA, that Lesson Study with the quality that the project aimed for has been continued, which means that the possibility it contributed to improving lesson quality is very high (for details, see the box below).

Therefore, the project has largely achieved its overall goals.

Box: Effects and points to be noted in introduction and continuation of Lesson Study (Summary of the detailed analysis)

To summarize the important points and effects that should be noted in introducing and continuing Lesson Study, Lesson Study quality was evaluated mainly by observations of activities and interviews by experts at three schools in Sumedang District in West Java

²⁵ They are called "socialization" in Indonesia. Socialization is the first step for disseminating MGMP, and after that training sessions are provided with the support of regional training centers, and then the role of school principals is enhanced (the Terminal Evaluation Report, p.17). In PELITA material JICA provided, socialization is explained as that in the model of SECI (Socialization-Externalization-Combination-Internalization).

Province and Banjarbaru City in South Kalimantan Province, which was one of the target areas of this project or the subsequent project and where Lesson Study activities could be observed on the day of visit. The evaluations revealed that the level of Lesson Study aimed at by SISTTEMS and PELITA was maintained as of the ex-post evaluation study, and that Lesson Study highly likely contributed to the qualitative improvement of lessons.

1. Effects of Lesson Study

Lesson Study introduces Lesson Design and enables teachers to better respond to students' reactions during class because they are more aware of how to respond to students' reactions during the class, and they can forecast reactions and prepare countermeasures. With repeated Lesson Study activities, teachers become increasingly aware of each student's learning, attentiveness, and difficulties in class. By exchanging ideas on how to respond, the content of the guidance from the project is being established, and reflection after the observed classes (retrospective discussion of classes) has become a forward-looking discussion of concrete actions to take next.

2. Factors that Promote Lesson Study

There are four factors that promote Lesson Study: the existence of facilitators who can promote the discussion of forward-looking reflection described above, cooperation of teacher-training universities, MGMP and coordination between schools and administrative organizations such as the District Education and Culture Offices, and efforts that are tailored to the culture of Indonesia²⁶.

3. Effective Approaches for Introducing Lesson Study to Other Countries

Effective approaches considered for introducing Lesson Study to other countries include (1) introducing it in science and mathematics first and then applying it to other subjects with local initiatives, (2) utilizing the existing MGMP framework, (3) incorporating Lesson Study into practical teacher training at universities, and (4) promoting understanding of Lesson Study among university education professors.

4. Disincentive factors for dissemination and continuation of Lesson Study

According to some teachers, a problem that impeded the dissemination and continuation of Lesson Study was that, even if Lesson Study was understood and practiced, teachers tired of repeated similar classes and reflections.

5. Lessons

Based on the analysis results, the following four points are suggested.

²⁶ Local wisdom including tradition and legend in the area.

- ① Find human resources who can be involved in Lesson Study for a long time without being affected by personnel changes and train them as facilitators/resource persons.
- ② Respect the ownership of the countries concerned to enable dissemination by incorporating that country's culture and values.
- ③ Instruct school principals as key people of the training in the school about the importance and methods of Lesson Study, and create an environment in which Lesson Study is easy to be disseminated within each school.
- ④ Motivate teachers by having them establish training subjects to improve teaching process for each subject and each unit with emphasis on contents, thereby establishing Lesson Study.

Particularly, item ④ will work to counter the above-mentioned problem of losing interest in Lesson Study, and it is necessary for teachers' professional development to accurately grasp their own problems and continue training after recognizing their weaknesses. Teachers' professional competence will continuously develop through continuous Lesson Study activities.

3.2.2.2 Other Positive and Negative Impacts

(1) Expansion from primary to senior secondary education and to other subjects

Interviews with the District Education and Culture Offices and teacher training universities in the three target districts confirm that all the districts have implemented Lesson Study not only in junior secondary schools but also in primary, senior secondary, and vocational schools. In Sumedang and Pasuruan Districts, teachers of all junior secondary school subjects had implemented Lesson Study. In Bantul District, Indonesian language and English teachers as well as mathematics and science teachers had implemented Lesson Study. As a result, the number of teachers in junior secondary education who work to improve their teaching through Lesson Study has been increasing beyond mathematics and science which the project supported.

(2) Expansion to other universities and provinces

UPI, UM, and UNY cooperated to implement Lesson Study in neighboring universities by acquiring a subsidy from DGHE for three years for each batch of 10 universities from 2009 to 2015.²⁷ Fifty universities are now belong to Lesson Study Association of Indonesia (ALSI), initiated by UPI. Among those 50 universities, 6 universities are partner universities of the project and its successor project, PELITA, and 43 universities received training on Lesson Study by PELITA. This subsidy will be obtained again from 2016. In addition, UPI and UM received support from the

²⁷ Supports were provided to five batches, 50 universities in total in 2009-2011, 2010-2012, 2011-2013, 2012-2014, 2013-2015.

Putera Sampoerna Foundation and UM received additional support from Pertamina, Indonesian state-owned oil and natural gas corporation; these universities received approximately 109,967 million Indonesia Rupiah in total from 2009 to 2016 in total. With the above support, UPI, UM, and UNY introduced Lesson Study to a total of 30 provinces among the 34 provinces in the country.

(3) Reception of Third-Country Training and Seminars

UPI repeatedly received Third-Country Training organized by JICA and contributed to the implementation and development of Lesson Study outside of Indonesia. For example, each year UPI received trainees from about 12 countries, including Cambodia, Myanmar, Bangladesh, Nepal, Ethiopia, Kenya, Uganda, Ghana, Burkina Faso, and Malawi. Third-Country Training has been conducted 8 times between 2009 and 2013 with 96 total trainees. In addition, UPI received Third-Country Training from Ethiopia, “Triangular Cooperation in Capacity Development of Mathematics and Science Teacher Educators”; from 2012–2016, a total of 24 trainees were trained for 10 months every year in practical teaching of mathematics and science and Lesson Study. Furthermore, UPI hosted many international seminars and workshops, such as the World Association of Lesson Study (WALS) 2014, and provided opportunities for other countries to learn about Lesson Study and the progress made during the project in districts such as Sumedang.

(4) Changes in students’ learning attitude and process in mathematics and science

Regarding attitude and the process of students’ learning of mathematics and science (which means they try to understand how to write formulas, not just memorize them), it was confirmed in the Detailed Study of the Ex-post Evaluation with Lesson Study observations in West Java Province that teachers conducted scientific experiments using materials familiar to students, encouraged students’ to find the reason why a phenomena happened, and enabled them to grasp how to draw formulas.

In addition, a questionnaire survey on students’ attitude toward classes was conducted with a 5-point scale from 1 (not at all) to 5 (always think so). Participants included 60 Grade-9 Students at the 12 schools in the three target districts that the evaluator visited. All 60 students replied. The results show when teachers continued Lesson Study, students’ interest and achievement in mathematics and science improved. The details are shown in Table 6.

Table 6 : The Results of Questionnaire Survey for Students (Average Value)

No.	Item	At Endline Survey	At Ex-Post Evaluation
1	We have group discussions in our class.	Not stipulated	3.53
2	Our teacher uses a large variety of materials.	Not stipulated	3.57
3	In class, our teacher uses materials available in everyday life.	Not stipulated	4.32
4	In our math class, we take part in activities such as experiments, counting, and drawing.	Not stipulated	4.07
5	In our class, the teacher encourages us to listen to other students' ideas and thoughts.	Not stipulated	4.32
6	In our class, I enjoy sharing my thoughts and ideas with other students.	Not stipulated	4.17
7	I enjoy mathematics and science classes.	Math 3.87, Science 4.01	4.27
8	I normally understand and follow mathematics and science classes.	Both Math & Science 3.86	4.17

Source : SISTTEMS Terminal Evaluation Report (2009). Material provided by JICA. Beneficiary Survey results.

This project largely achieved the project purpose of developing the MGMP (Rayon) model that applies Lesson Study for the quality improvement of mathematics and science teachers in the target districts. The overall goal was also largely achieved with the effects of the successor project: 30% or more districts/cities in the target provinces participated in dissemination workshops of MGMP on applying Lesson Study, and UN score ranking improved in one district. In addition, the statistical analysis confirmed that schools with more frequent implementation of LSBS tended to have better UN scores; this project likely contributed to the improvement of students' learning achievement. In addition, many other positive impacts were observed. Therefore, effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

Inputs	Plan	Actual
(1) Experts	59MM*	0 long-term expert, 9 short-term experts (in total 64.86 MM, number of experts were not specified.)
(2) Trainees received	About 10 people/year	Total: 47 people (Costs for seven persons among the 47 were defrayed by the Indonesian Government)
(3) Equipment	Audio-visual equipment (amount was not specified.)	Video camera, Handycam video camera, projector, computer, printer, etc. (about 2.3 million yen)
(4) Other	Costs for teachers and principals to participate in the training and evaluation workshop held in the district level.	93 million yen
(5) Japanese Side: Total Project Cost	260 million yen	301 million yen
(6) Indonesian Side: Total Project Cost	Not stipulated - Counterpart personnel - Offices for Japanese experts - Local cost	7,215,146,000 Rupiah (about 80 million yen ²⁸) - Counterpart personnel - Offices for Japanese experts - Local cost • DGQITEP: 5,916,146,000 Rupiah • Sumedang District Education and Culture Office: 335,500,000 Rupiah • Bantul District Education and Culture Office: 227,500,000 Rupiah • Pasuruan District Education and Culture Office: 364,000,000 Rupiah • Concerned personnel expense of Partner universities: 372,000,000 Rupiah/year

* MM stands for man-month.

Source: SISTTEMS Terminal Evaluation Report

3.3.1.1 Elements of Inputs

Dispatch of experts and reception of trainees were implemented within the project budget to achieve the project purpose.

3.3.1.2 Project Cost

The project cost exceeded the planned cost (115%; plan: 260 million yen, actual: 301 million yen) because Output 4 (Bantul Emergency Program) was added in response to the Central Java Earthquake.²⁹ Because school buildings had collapsed in the Bantul District, one of the target sites, a pre-condition of the project implementation was damaged and restoration of the education infrastructure was needed to implement the project. The Bantul

²⁸ Conversion according to JICA adjustment rate in October 2008.

²⁹ The most affected area of the Central Java Earthquake (magnitude 6.3) that occurred on May 27, 2006, was Bantul District.

Emergency Program was implemented within the planned period, and the budget, based on the experience of “Regional Education Development and Improvement Program: REDIP” (2004–2008).

3.3.1.3 Project Period

The project period was as planned (100%).

Although the project cost exceeded the planned cost, this increase was appropriate to restore the education conditions following the Central Java Earthquake in the target district, and the project period was as planned. The additional input produced outputs that were worth the cost and brought about the achievement of project purpose. Therefore, efficiency of the project is high.

3.4 Sustainability (Rating: ②)

All three target districts were continuously supported by PELITA (2009-2013), the successor project to SISTTEMS. Therefore, the effects of the successor project are involved in the ex-post evaluation of political, institutional, organizational, and technical sustainability of this project.

3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects

According to Indonesian Government policy, junior secondary schools must meet MOEC’s National Education Standard (Government Regulation, No. 19, 2005); this goal is one of the Target Strategic Objective Performances (SS) in RENSTRA 2015–2019. The Standard includes an interactive and motivational learning process adjusted to each student’s level of understanding and teachers’ continuous professional development through MGMP. However, many teachers responded in the interview that their school did not organize LSBS because Lesson Study is not included in the National Education Standard, and MOEC’s policy did not emphasize the importance of Lesson Study. This shows that the policy is not clear enough to allow teachers to promote Lesson Study. The certification system that evaluates teachers’ portfolios ³⁰ includes Lesson Study, the same as project implementation period, but the teachers’ competency exam was added in 2012 as a core method to evaluate the capacity of teachers. MOEC’s Directorate General of Teachers and Education Staff conducts in-service teacher training of individual teachers according to their competency examination results, and the degree to which Lesson Study implementation is considered has decreased. Further, teachers receive credits by attending MGMP, and the District Education and Culture Offices of the target districts continue recommending that

³⁰ Qualification certification system to evaluate and judge the four abilities (teaching method, expertise, personality, and sociability) of individual teachers.

teachers attend MGMP, but there is no distinct instruction from MOEC to organize Lesson Study in MGMP. Meanwhile, the Directorate General of Primary and Secondary Education Management (DGPSEM) commenced set-up of one Reference School³¹ in each district from 2016. In the Reference School Guidelines, Lesson Study is described as one of the 41 activities under “Become a center of excellence,” one of the six indicators used to select Reference School. At this moment, expanding Lesson Study in the arrangement of Reference Schools is the only possible way from the policy aspect. This fact implies that excellent schools will implement Lesson Study to become model schools, but the policy is not sufficiently clear for the sustainable dissemination of Lesson Study in the future. Lesson Study is included in MORA’s standard in-service teacher training curriculum and is institutionally supported.

3.4.2 Organizational Aspects for the Sustainability of Project Effects

Organizations to promote Lesson Study have not been changed since the project implementation period, but organizational agreements on implementation and human resource development have not been documented in MOEC during the decentralization of junior secondary education to the district level, even though agreements were made concerning the implementation of support to schools at the district/city level in Sumedang District, Pasuruan District, and Malang City.

Regarding the number of MGMP facilitators and fund/budget for activities, retraining, and further hiring of facilitators, all the three districts had maintained the same level of 32 facilitators since the completion of the project. In particular, Sumedang District increased the number of facilitators to 50.

The role of LPMP as MGMP advisor has been declining since 2015. LPMP of Yogyakarta and West Java Provinces has not organized in-service teacher training, including Lesson Study. Their main tasks are collecting and analyzing information for mapping of teachers’ capacity, making recommendations based on competency examinations for teachers, and conducting in-service teacher training for promoting the 2013 curriculum. LPMP of East Java Province organized in-service teacher training, including Lesson Study, in 2014, but has not done it since. The number of LPMP trainers who can provide training on Lesson Study has been decreasing. While 42 trainers of West Java LPMP can provide training on Lesson Study, there is only one trainer in East Java LPMP and no one in Yogyakarta LPMP.

3.4.3 Technical Aspects for the Sustainability of Project Effects

Technical sustainability in the target three districts is high. There are resource

³¹ Sekolah Rujukan, which means an approach to setting up a model school. “Panduan Pembinaan dan Pengembangan, Sekolah Rujukan, Tingkat Sekolar Menengah Pertama,” Directorate of Junior Secondary Education, DGPSEM of MOEC, 2016

persons, mainly in teacher training universities, who can organize training and workshops to disseminate Lesson Study and provide decent quality training at schools and facilitators who can appropriately implement Lesson Study at school level.

Among the three target provinces, West Java and East Java Provinces have sufficient capacity. In collaboration with Teacher Training Universities, Education and Culture Offices of West Java and East Java Provinces organized workshops to disseminate Lesson Study. The detailed study also found that workshop quality was high. In Yogyakarta Province, UNY, Bantul District Education and Culture Office and school principals commented that the frequency of LSBS and participation of teachers have declined since the completion of the project, and teachers commented that they participated in Lesson Study less than before because they grew weary of Lesson Study. Therefore, the technical capacity of the concerned parties to continuously provide training/encourage Lesson Study which bring about teachers' professional development according to the needs of teachers would be insufficient. In Bantul District and Yogyakarta Province, Education and Culture Offices do not provide any retraining for facilitators or training for new facilitators. In Pasuruan District, a facilitator workshop (equivalent to refresher training) on Lesson Study is conducted annually. On the other hand, according to the qualitative interview of teachers in West and East Java Provinces, teachers who participated in LSBS did not report growing disinterest, but rather noticed that the attendance of resource persons from teacher-training universities increase the effectiveness of Lesson Study. In order to continue Lesson Study, concerned people need to organize Lesson Study and LSBS that can provide new knowledge and skills to teachers by mobilizing resource persons.³²

3.4.4 Financial Aspects for the Sustainability of Project Effects

Financial allocation to MGMP (Rayon) activities in the three Education and Culture Offices is sufficient to sustain these activities. However, according to a resource person at UNY, the frequency of participation of resource persons in Lesson Study had decreased in Bantul City, which was said to be attributable to the reduction in budget from the Education and Culture Office after the project's completion.

³² One interviewee at UPI expressed that it might be necessary to devise measures to prevent boredom with continued Lesson Study.

Table 7 : Expenditure to MGMP (Rayon) and Lesson Study Activities by the District Education and Culture Offices

(Unit : million Indonesian Rupiah)

District/City	Activity	Yearly Expenditure				
		2011/12	2012/13	2013/14	2014/15	2015/16
Sumedang	MGMP	45.0	0	50.0	50.0	140.0
Bantul	MGMP	29.6	29.6	29.6	29.6	29.6
	LSBS ³³	31.3	31.3	31.3	31.3	31.3
Pasuruan	MGMP	350.0	350.0	350.0	400.0	400.0

Source: District Education and Culture Offices

In the target provinces, technical and financial sustainability had been secured until 2015; However, Provincial Education and Culture Offices have not organized training or workshops on Lesson Study since 2016³⁴ due to decentralization of authority over junior secondary education to district level (which began in 2001³⁵). Therefore, implementation of training on Lesson Study now depends on the prioritization and budget allocation by District Education and Culture Offices, and Provincial Education and Culture Offices and MOEC have not grasped the implementation status in non-target districts. Expenditures associated with the support of Lesson Study in the three target provinces and its dissemination to non-target districts is shown in Table 8. Training by LPMP was conducted only in East Java Province in 2014/15, but LPMPs in West Java³⁶ and Yogyakarta Provinces have not yet conducted training on Lesson Study.

³³ Bantul District separated the budget for LSBS and MGMP, but the others included the budget for LSBS in that for MGMP.

³⁴ During the project implementation period, the counterpart organization can obtain the counterpart budget from the Indonesian government, but it is not available after project completion.

³⁵ Preparatory Study Report (2006), p.105.

³⁶ LPMP in West Java Province wrestled with Lesson Study in a World Bank project “Better Education through Reformed Management and Universal Teacher Upgrading Project : BERMUTU” (2008–2013). In an interview with LPMP in West Java Province, it was mentioned as an impact of the successor project (PELITA), so it is described in the PELITA ex-post evaluation report.

Table 8 : Expenditure of the Three Target Provinces to Implement Lesson Study and Disseminate Lesson Study to Non-Target Districts

(Unit : million Indonesian Rupiah)

Province	Organization	Activity	Yearly Expenditure				
			2011/12	2012/13	2013/14	2014/15	2015/16
West Java	Education and Culture	Workshop	3,942	6,769	5,189	0	0
Yogyakarta	MORA Office	Workshop	15	15	15	15	15
East Java	Education and Culture	Workshop	300	300	300	300	0
		Monitoring	70	70	70	70	70
		LSBS	600	713	763	759	0
	LPMP	Workshop	0	0	0	349	0

Source: Provincial Education and Culture Office, LPMP and Provincial MORA Office

Some minor problems have been observed in terms of the policy background and organizational and technical aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed to disseminate MGMP activities applying Lesson Study and, through training for MGMP facilitators, principals and university lecturers, and training in Japan for counterparts, attempted to disseminate Lesson Study in the three target provinces and particularly to improve students' learning ability in mathematics and science in the target districts by constructing a model of MGMP activities applying Lesson Study. This project's objective is consistent with Indonesia's educational policy and development needs at the planning and completion stage of the project and Japan's aid policy in terms of qualitative improvement in science and mathematics in junior secondary education, and adopted an approach that benefited from Japan's comparative advantage. Therefore, its relevance is high. The project purpose and overall goals were almost achieved, and it was confirmed that the more frequently schools conducted LSBS, the higher the UN score tended to be, which means that the project contributed to improved student's performance. In addition, many other positive impacts are confirmed. Therefore, the project's effectiveness and impact are high. The project period was in line with the plan, and the increase in the project cost was in line with the plan change that appropriately responded to the influence of the Central Java Earthquake on the target area; the increase in output corresponds to the increase in input. Therefore, efficiency is high. Regarding sustainability, it is expected that organizational, technical, and financial sustainability will be secured in the three target districts, but in the three target provinces, sufficiently clear policies and systems have not been established to sustainably disseminate Lesson Study. Organizations that promote Lesson Study have not changed since the project implementation period, organizational

agreements on implementation and human resource development have not been documented in the MOEC. Training related to Lesson Study by LPMP has not continued, even though agreements were made concerning the implementation of support to schools at the district/city level in Sumedang District, Pasuruan District, and Malang City. The standard curriculum at the training institutions under the MORA is maintained, even though some provinces have not implemented it due to poor budget conditions. Therefore, sustainability of the project effects is fair.

In light of the above, the project is evaluated as very satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

Recommendation to the District Education and Culture Offices and District Religious Offices

In the interview with teachers in Yogyakarta Province, some teachers said, “I got bored with Lesson Study” or “We acquired knowledge and new information of subjects from resource persons from teacher training universities during the project period, but we cannot now because resource persons do not often participate in our activities.” According to a resource person at UNY, the frequency of participation of resource persons in Lesson Study had decreased, and it was attributable to the reduction of the budget from the District Education and Culture Office. That teachers can acquire new knowledge and techniques through MGMP activities that apply Lesson Study augments teachers’ willingness to participate and improves the quality of education at schools. It is desirable that, each District Education and Culture Office and District Religious Office secures the MGMP budget in order to ensure participation of resource persons at teacher training universities, and monitors teachers’ participation in MGMP and the situation of schools that do not actively conduct LSBS.

4.3 Lessons Learned

Improving fairness concerning intervention targets at the time of project implementation

Lesson Study in private religious schools are relatively weak in many districts, but the intervention at the time of project implementation was also relatively small for religious junior secondary schools compared to the proportion of their school type. Especially for private religious junior secondary schools, the intervention by the project was made “based on voluntary participation,” and schools were not actively approached to participate in the project even though it was for general junior secondary and public religious junior secondary schools. Religious junior secondary schools are under the jurisdiction of MORA in Indonesia, but management and improvement of religious schools are not high-priority work in the ministry; the administration does not sufficiently care about the current state of

religious schools. Private religious schools away from urban areas use much of the school grant (BOS) (see the Box below for details) for teacher salaries and do not have much money left to improve lessons. They do not fully enjoy the project's improvement of lessons with Lesson Study, which can be implemented with a relatively small budget, because they still do not understand Lesson Study well. In many cases, private religious schools in Indonesia, as described in the Box below, do not have good financial foundations and cannot provide high-quality education. Thus, an equal approach and support in proportion to the number of schools by school type from the time of the project implementation and lesson improvements through Lesson Study were desirable.

Therefore, when setting targets at the start of the project, it is desirable, while sufficiently investigating the situation and conducting stakeholder analyses, to conduct surveys that involve all related ministries and agencies even if multiple ministries and agencies are related, and to take positive action from the Japanese side to achieve equity, reduce inequality, and promote inclusiveness, goals that are mentioned in Goals 4 and 10 of the Sustainable Development Goals (SDG).

Box: Overview of private religious junior secondary schools

(1) Outline of junior secondary schools in Indonesia

The educational system in Indonesia has two lines; general schools controlled by MOEC and religious schools under the jurisdiction of the MORA. Both use the same curriculum made by MOEC, but religious schools teach Islam in more detail. The religious schools are called madrasa and play a major role in securing access to education. As of 2016, there were 16,741 religious junior secondary schools (statistics from 2014/15³⁷) and 37,741 general junior secondary schools. 22% of junior secondary school students studied at religious schools.³⁸

Most of religious schools are private. Of the above 22%, 16.5% studied at private religious schools and the remaining 5.5% at public religious schools.

(2) Outline of financial resources for public junior secondary schools and private junior secondary schools

The budget of private religious junior secondary schools is less than that of general and public religious junior secondary schools, and many of the schools do not meet the Minimum Service Standard of education in Indonesia.³⁹

At public schools, the national or local government that supervises the school

³⁷ "Statistics of Islamic Education School Year 2014/2015," Direktorat Jenderal Pendidikan Islam, Ministry of Religious Affairs, 2016

³⁸ "Madrasah Education Financing in Indonesia," Education Sector Analytical and Capacity Development Partnership, Agency for Research and Development (BALITBANG), Ministry of Education and Culture, 2013. The country-wide data in this column is based on this document.

³⁹ *Ibid.*

bears the expense of the school's land and teacher salary. Other expenditures are supposed to be covered by the government's support, especially school subsidies (BOS). Communities, companies, and foreign organizations can also support public schools. Separately from BOS, some public schools receive other government support.⁴⁰

Private school's incurrent costs of land and teacher salary are covered mainly by the organization managing the school (such as a foundation). The government supplies professional allowances for teachers. In principle, expenditure for students is covered by BOS, but it can also be supported by the organization managing the school and parents or guardians.

Religious junior secondary schools vary in their budget size, financial resources, and quality of school administration and guidance. There are large inequalities, especially between public and private schools, but also between schools managed by foundations with networks and those by individuals, big and small schools, and schools in urban and rural areas.⁴¹

Among the schools visited this time, general and public religious junior secondary schools use about 50% of BOS for teachers' salary according to regulations; however, many private religious junior secondary schools use much of BOS for teacher salary and some use almost all BOS. Occasionally, BOS was not used for improving educational practice.

Teacher salaries also tend to be lower in private religious schools. According to the East Java Provincial Religious Office, salaries of private religious school teachers tended to be lower than salaries of public religious school teachers, and the Office wants to improve salary equality.

(3) The course of private religious school students after graduation

After graduation, private religious junior secondary school students went on to general secondary school 39% of the time, religious secondary schools 29% of the time, and general vocational secondary school 27% of the time (2014/15); 66% go on to general schools. In addition, 2% of the students enter Islamic boarding schools (Pesantren) and 0.8% find employment.

(4) Education at private religious schools

Compared to general schools, religious schools are recognized as having problems in the quality. According to the Serang District Religious Office, the

⁴⁰ MOEC and Provincial and District Education and Culture Offices provide computers and other equipment to some schools according to the situation of the budget allocation, as confirmed at some schools visited.

⁴¹ "Analysis of the Current Situation of Islamic Formal Junior Secondary Education in Indonesia," p.7, the Decentralized Basic Education 3 (DBE3) Project Consortium, USAID, 2006.

madrassas are overwhelmingly private and supported by the community, so principals have the capacity to manage schools involving the community to some extent, but there is a wide gap in terms of the quality of education. The Office wanted to raise the madrassas to the same level as general junior secondary schools. According to the Banten Provincial Religious Office, 98% of madrassas are private and belong to the community, and their school facilities and all the budgets were supported by the community. 90% of teachers were not government officials and were supported by the community. While most of the general junior secondary schools have received accreditation according to the eight educational quality standards, 30% of madrassas have not reached these quality standards and have not gained accreditation.

At private religious schools, teachers' academic background tend to be lower than those at public schools. According to an interview with the Banjarbaru City Religious Office, teachers at public religious schools are 100% college graduates following the legal requirement, but about 40% of the teachers at private religious schools are secondary school graduates. The Office encouraged them to attain a bachelor's degree by providing scholarship.

Approximately 17% of all junior secondary school students in Indonesia study at private religious schools. Considering that the schools do not always have sufficient management bases and quality in comparison with general junior secondary schools, and that some students study there for tuition exemption, both private religious schools and general schools should be included in target groups of support.

Table 9: Achievement of outputs (at completion of the project)

Output	Indicator	Achievement
Output 1: Education officers in the central government and target districts recognize the effectiveness of the MGMP (Rayon) activities and take necessary financial and administrative measures to sustain them.	① At least one officer (from MONE, Provincial and District Education and Culture Office) attends each training and workshop.	Almost achieved. The District Education Offices have achieved the output. The attendance rate of MONE was 56%, and the attendance rate of the Provincial Education Offices was 13%. Considering that they themselves were not candidates to be a trainer or facilitator of Lesson Study but rather were in a position to promote model construction and dissemination of Lesson Study in the target districts, and that no particular recommendation was made in the termination evaluation report of the project about necessity of improving the ability of the Provincial Education Offices and MONE as trainers, minimum participation was secured.
	②-1 Commitment of District Education and Culture Office to implement MGMP (Rayon) activities applying Lesson Study is clearly articulated in the target districts.	Achieved. Education offices in the three target districts have announced that they would continue MGMP (Rayon) activities applying Lesson Study after the completion of SISTTEMS (October 2008).
	②-2 The target districts' budget for MGMP (Rayon) activities increases from 2006 to 2008 at least by	Almost achieved. Achieved in Bantul and Pasuruan Districts. In Sumedang District, reasonable efforts were made because the reduction of the budget for Lesson Study activities was just under 4.1%, while the district government's total budget was reduced by 30%.

	5%.	
	③ MONE's commitment to implement and disseminate MGMP (Rayon) activities applying Lesson Study is clearly articulated.	Achieved. DGQITEP instructed LPMPs in the three target provinces to allocate about 20% of the 2008 block grant budget to activities intended to disseminate Lesson Study.
Output 2: Effective MGMP (Rayon) activities are regularly conducted in the target districts.	① MGMP (Rayon) activities in math and Science are organized in the target districts twice monthly.	Achieved. Rayon was set up in each district and activities were conducted on mathematics and science every other week.
Output 2-1: MGMP facilitators are trained in the target districts.	② More than 85% of MGMP facilitators attend the Facilitator Training continuously.	Achieved, except for the third facilitator training in Bantul District. In Bantul District, since the number of facilitators was not clearly set at the beginning of the project, the invitation letter was not appropriately distributed at the third facilitator training, and no additional training was held until the project's completion.
Output 2-2: Principals of the target schools recognize the effectiveness of the MGMP (Rayon) activities and take necessary measures.	③ More than 85% of principals in the target schools attend School Management Training continuously.	Not achieved (The rate varied each time and was between 64.8%–102.2%). No additional training was held until the project's completion. This was not a problem, however, because an indicator shown below achieved the target rate of teachers participating in MGMP (Rayon) activities in science and mathematics owing to the principals' efforts to adjust teachers' class schedules and compensate them for transportation expenses.
	④ In the target districts the score (on the scale of 3-15) for teachers' assessment on school-based teacher development improves from 7.99 at Baseline Survey to 9.49 at Endline Survey.	Largely achieved. The average value of the evaluation for the in-school teacher training by teachers in the target districts increased from 7.99 to 9.41, although it did not reach the target value of 9.49 (the significance probability was 0.000 and less than 0.01, and statistical significance was confirmed) ⁴² . Given that the evaluation scale was 3–15 points and the increase in the average value of the evaluation for the in-school teacher training by the teachers in target districts was 1.42, while the increase in the average value of the control group was 0.03, the target was largely achieved even though the value did not reach the target of 9.49 by 0.08. As for the target value setting history, no information is left.
	⑤ Principals understand the effectiveness and usefulness of MGMP (Rayon) and actively involve themselves in MGMP (Rayon).	Achieved. The proportion of principals in the target district who understood the contents of MGMP (Rayon) activities improved from 69.0% to 95.2% (out of 84 persons).
	⑥ Principals adjust the school timetable to enable teachers to attend the MGMP (Rayon) activities.	Achieved. According to the questionnaire survey, ⁴³ 98.4% of principals and 97.8% of teachers responded that the principal had adjusted their class schedule so that teachers could attend MGMP (Rayon) activities.
	⑦ Principals provide transportation allowances for teachers to attend the MGMP	Achieved. According to the questionnaire survey, 97.9% of principals and 95.1% of teachers replied that the principal paid the transportation expenses so that teachers could attend MGMP (Rayon) activities.

⁴² According to materials provided by JICA.

⁴³ 32, 20, 32, and 7 schools are selected respectively from Sumedang District in West Java Province, Bantul District in Yogyakarta Province, Pasuruan District in East Java Province, and Pasuruan City in East Java Province, following consultations with the District Education Offices. The total numbers of junior secondary schools in the districts at the completion of the project were 94 in Sumedang District, 99 in Bantul District, and 127 in Pasuruan District and City (according to materials provided by JICA).

	(Rayon) activities	
Output 2-3: Mathematics and science teachers improve the practical teaching competency through the MGMP (Rayon) activities applying Lesson Study.	⑧ In the target districts, the percentage of teachers who attend MGMP (Rayon) activities in math and science increases from 43.2% in 2005/06 to 80% in 2006/07	Achieved. The proportion of science and mathematics teachers in the target districts that participated in MGMP (Rayon) activities in science and mathematics increased from 43.2% to 87.6% (participation rate increased from 48.9% to 90.2% for science teachers and from 37.7% to 85.2% for mathematics teachers).
	⑨ The average number of MGMP (Rayon) activities that teachers attend increases from 0.9 through MGMP District in 2005/06 to 10 through MGMP Rayon in 2006/07.	Not achieved. At the time of the project's completion, the average number of science and mathematics teachers in the target districts participating in MGMP (Rayon) activities increased from 0.90 at the district level to 7.14 at the Rayon level, but did not reach 10. Meanwhile, according to the endline survey, the average number of teachers participating in MGMP (Rayon) activities in the control districts increased just slightly from 1.72 to 2.63 (data provided by JICA). This means that the average number of MGMP (Rayon) activities in math and science increased greatly in the target districts.
	⑩ More than 20% of teachers of MGMP (Rayon) activities in math and science conduct an open class and reflection at least once in 2006/07.	Achieved. On the other hand, this output indicator measures the number of activities participation and implementation, and is not necessarily suitable for Output 2-3. In the endline survey, students were asked whether they understood the content of lessons, whether they enjoyed classes, and whether they wanted to learn science and mathematics in higher grades, to examine whether their interest in science and mathematics increased as a result of the improvement of teachers' teaching abilities. The result confirmed with statistical significance that interest in both science and mathematics increased between the project commencement and completion ⁴⁴ (data provided by JICA). The growth of interest of teachers in students' learning was confirmed with statistical significance only in science. Therefore, to a certain extent, science and mathematics teachers acquired practical teaching abilities through MGMP (Rayon) activities applying Lesson Study.
Output 3: The mechanism of the MGMP (Rayon) activities applying Lesson Study is developed.	① MGMP guidelines and materials are developed by the end of the Project.	Achieved. The MGMP guidelines and teaching materials were completed in October 2008.
	② MGMP Monitoring and Evaluation guidelines and tools are developed by the end of the Projects	Achieved. Both MGMP monitoring and evaluation guidelines and tools were completed in October 2008.
Output 4: Under the SISTTEMS Bantul Emergency Program, TPKs and schools propose their own plans and conduct activities to	① Disbursed block grant is correctly spent for the planned activities.	Achieved. On September 25, 2006, a total of 3,000 million Rupiah were allocated to 106 schools and TPKs in 15 counties, and the next week the payment was confirmed in each school and the TPK account.
	② All proposed activities are completed effectively by the end of January 2007.	Largely achieved. Although delay occurred in completing all suggested activities, all the activities were completed at the end of March 2007.

⁴⁴ Comparison between students' interest in science and mathematics at project commencement and completion (whether they understood the content of lessons, whether they enjoyed classes, and whether they wanted to learn science and mathematics in higher grades) showed the significance probability of 0.000 in science and 0.001 in mathematics, both of which are less than 0.01 and indicate statistical significance. The growth of interest of science teachers in students' learning was confirmed with statistical significance because the significance probability was 0.026, less than 0.05, while statistical significance was not observed for mathematics teachers (data provided by JICA).

rebuild and improve junior secondary education using SISTTEMS block grant.	③ Number of schools which conducted following activities using block grants: <ul style="list-style-type: none"> - Rehabilitation of school buildings/facilities - Construction of emergency classrooms - Procurement of classroom furniture - Procurement of textbooks/teaching aids. - Trauma counseling and similar activities 	Achieved. The number of schools that carried out the following activities using the allocated fund is as follows. <ul style="list-style-type: none"> - Repair of school buildings: 77 - Construction of emergency classrooms: 7 - Procurement of textbooks: 58 - Procurement of teaching materials / equipment: 71 - Procurement of computers: 59 - Contests (by subject, arts, sports, religion): 43 - Activities relating to trauma counseling: 12
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Source: SISTTEMS Termination Evaluation Report (2009), materials provided by JICA