

Process Analysis
on
Project of School-Based Collaborative
Teacher Training (SBCT) in Rwanda
(Analysis of Effect Development Process)

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JAPAN INTERNATIONAL COOPERATION AGENCY

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Appendix: List of Survey Respondents

Abbreviations

CBC	Competency-based Curriculum
CPD	Continuous Professional Development
DEO	District Education Office/Officer
DOS	Director of Studies
INSET	In-Service Teacher Training
OJT	On-the-Job Training
REB	Rwanda Education Board
SBCT	Project of School-based Collaborative Teacher Training
SBI	School-Based INSET
SBMP	School Based Mentorship Program
SEO	Sector Education Office/Officer
SIIQS	Project for Supporting Institutionalizing and Improving Quality of SBI
SLMP	School Leadership Management Program
SMASSE	Strengthening Mathematics and Science in Secondary Education Project
SSL	School Subject Leader
TDM	Teacher Development and Management Department

1. Outline of the Survey

1.1. Background of the survey

JICA conducts project evaluations with the aim of further improving projects through learning from past projects and fulfilling its accountability to the public and other concerned parties. It publishes the results of the evaluations. There are two types of ex-post evaluation: external evaluations by external evaluators (basically for projects with a project cost of 1 billion yen or more) and internal evaluation by overseas offices (basically for projects with a project cost of 200 million yen or more and less than 1 billion yen). The ex-post evaluation of technical cooperation projects is usually conducted three years after project completion, depending on the project size.

JICA has systematically worked to promote learning and improvement through project evaluation, and the Evaluation Department has been working to strengthen learning by not only examining the actual results of project effects (outcomes) but also by promoting “process analysis” which focuses on the implementation process of the project and confirms how the effects should be realized, from the viewpoint of connecting learning through the ex-post evaluation to project improvement.

The ex-post evaluation (internal evaluation) on the “Project of School-based Collaborative Teacher Training (SBCT)” in Rwanda, which was completed in December 2015, was implemented in FY2019. SBCT, in response to the increasing needs for in-service teacher training (INSET) in Rwanda, where education reform was progressing, aimed to implement the “School-Based INSET” (SBI) at target schools nationwide through the development of a method of SBI for mutual learning activities among teachers, the introduction of SBI to schools at the lower secondary education level nationwide, and the establishment of a monitoring and dissemination system for SBI, thereby contributing to the improvement of education in Rwanda.

In the education sector of JICA, projects have been implemented in several countries with the aim of strengthening the teaching ability of teachers and contributing to the improvement of the quality of education through the implementation of INSET that takes advantage of Japan’s superiority in areas such as improvement of teaching methods in science and mathematics, etc. SBCT takes a different approach from these conventional INSET projects (Refer to “2.3. Contents of the SBI approach” below for details).

In the terminal evaluation of SBCT, various effects were confirmed in the schools where SBI was implemented through the intervention of the project, such as improvement in student performance, the building of cooperative relationships among teachers, and the activation of student learning. However, the causal relationship between the project intervention (activities to support SBI implementation) and its effects, in particular the effect development process and the changes that were brought about by SBI in the knowledge, skills, attitudes and behavior of the project targets, has not been fully examined. If these can be verified, it will be possible to consider and apply activities that are more effective in achieving the target when forming and implementing similar projects in the future. It is this which led to the carrying out of this process analysis.

1.2. Objectives of the survey

In this process analysis, the survey was conducted for the following objectives.

- 1) The effects of the SBCT intervention will be confirmed based on the results of existing data and the internal ex-post evaluation, as well as the direct collection of information from the relevant parties. What activities, approaches and methods have produced the effects will be analyzed focusing on the implementation process at the time of project implementation.
- 2) SBCT took a different approach from the conventional INSET projects called SBI, and the following questions will be answered and analyzed: i) whether the SBI approach matched the project targets' view on capacity development of teachers; and ii) what are the reasons why the implementation of SBI led to changes in the behavior of teachers, or why it did not.
- 3) Based on the results of the analysis above, lessons that will be helpful in forming and implementing similar projects in the future will be presented and suggestions for improvement will be made to implementing agencies as necessary.

1.3. Surveyor

Sawa Hasegawa

Principal Consultant, OPMAC Corporation

1.4. Schedule and method of the survey

The survey was conducted from March 2020 to July 2021. The initial survey period was scheduled to be until February 2021, and it was planned that the survey would be conducted in parallel with the internal ex-post evaluation, in accordance with the procedures shown in <Plan> in Table 1 below. However, COVID-19 was prevalent worldwide by the launch of the survey in March 2020, and the first field survey was postponed from May to after October 2020. In addition, since it was expected that the first field survey after October would be postponed again, it was decided that all field surveys would be conducted remotely using online tools and a local consultant. Furthermore, due to the spread of COVID-19, the field survey of the internal ex-post evaluation was also delayed to December, and it became impossible to set the policy of the process analysis based on the results of the internal ex-post evaluation or to conduct the survey pertaining to the process analysis based on the analysis policy. Therefore, as shown in <Actual> in Table 1, both the survey schedule and procedures were significantly changed from the original plan.

Table 1 Schedule and Procedures of the Survey (Plan and Actual)

<Plan>		<Actual>	
Survey period	Procedure	Survey period	Procedure
Mar. to Apr. 2020 (1 st analytical survey)	(a) Preparation of draft analysis policy	Mar. to Sep. 2020	(a)&(d) Preparation of draft analysis policy; Collection of qualitative data related to the process analysis (partly)
May 2020 (1 st field survey)	(b) Collection of information on the status of the effects by the internal ex-post evaluation	Oct. to Nov. 2020	(c) Revision of the analysis policy based on the results of the process analysis survey

<Plan>		<Actual>	
Survey period	Procedure	Survey period	Procedure
Jun. to Aug. 2020 (2 nd analytical survey)	(c) Revision and finalization of the analysis policy based on the results of the internal ex-post evaluation survey	Nov. to Dec. 2020	(b)&(d) Collection of information on the status of the effects and qualitative data related to the process analysis
Sep. to Oct. 2020 (2 nd field survey)	(d) Collection of qualitative data related to the process analysis	Dec. 2020	(b) Collection of information on the status of the effects by the internal ex-post evaluation
Nov. 2020 to Feb. 2021 (3 rd analytical survey)	(e) Preparation of a report based on the results of the process analysis survey	Jan. 2021	(c) Finalization of the analysis policy
		Feb. to Jul. 2021	(e) Preparation of a report based on the results of the internal ex-post evaluation and the process analysis surveys

The survey was conducted by reviewing existing materials such as the SBCT project completion report, including the results of the end-line survey, etc., as well as by collecting information directly from those concerned with SBCT. This information was collected from through questionnaire surveys and interview surveys (online by the surveyor, face-to-face by the local consultant). The survey targets and data collection methods are as follows.

Table 2 Survey Targets and Data Collection Method

Survey Target	Data Collection Method
JICA experts	Questionnaire survey, Online interview survey
JICA officials	Interview survey
Former staff of Teacher Development and Management Department, Rwanda Education Board (REB-TDM) ^{Note}	Questionnaire survey, Online interview survey, Interview survey conducted by the local consultant
Current staff of REB-TDM ^{Note}	Questionnaire survey, Online interview survey
District Education Officers (DEOs)	Questionnaire survey through the internal ex-post evaluation
Sector Education Officers (SEOs)	Interview survey conducted by the local consultant
Headteachers/Directors of Studies (DOS)	Interview survey conducted by the local consultant
Teachers	Interview survey conducted by the local consultant

Note: One of the staff members of REB-TDM was transferred after SBCT and all the rest left REB, so information was collected from both former and current staff members.

As for DEOs, a questionnaire was distributed to all 30 districts and received responses from 23 districts. For SEOs, 2 SEOs were interviewed out of the 416 sectors where contacts were readily available. School officials targeted a total of 17 schools, including 15 schools that implement SBI and 2 schools that do not implement SBI. In order to identify the effects of SBI implementation, the schools implementing SBI were selected from schools with active implementation based on information from the JICA experts, and interviews were conducted individually with headteachers/DOS, and two teachers. The schools that did not implement SBI were selected based on information from SEOs interviewed, and interviews were conducted with headteachers in order to identify the reasons for not implementing SBI. However, it was not the case that these schools

had not actually implemented SBI at all, but that SBI had been implemented in the past, but this has stopped due to school closures by the spread of COVID-19 or that the school had not implemented SBI in accordance with its SBI implementation plan.

A list of the interviewees and the 23 districts that responded to the questionnaire is provided in the Appendix.

1.5. Constraints of the survey

There was the following constraint in conducting this survey. The initial survey procedure was to collect information on the status of project effects in the first field survey and to collect qualitative data on the process in which the effects were produced in the second field survey. However, as the schedule was significantly changed as described above, the survey procedure was changed so that qualitative data was collected before the status of effects was confirmed and the analysis policy finalized. As a result, it was difficult to set specific interview questions to confirm the contents of intervention and the factors that had affected them based on the confirmed effects when interview questions were being prepared for qualitative data collection.

2. Outline of the Target Project

As the background of the survey above, SBCT took a different approach from the conventional INSET projects called SBI. While JICA has implemented a variety of INSET projects, including in-school training, SBI is a different approach from these in-school training programs, and has never been implemented for the main purpose of developing and disseminating the SBI approach other than SBCT.¹ Therefore, along with the outline of SBCT, the reason why the SBI approach was taken by SBCT and what the SBI approach taken by SBCT was, are summarized below.

2.1. Outline of SBCT

The outline of SBCT is as follows.

Table 3 Outline of SBCT

Project Period	January 2013 to December 2015 (Extended period: April 2015 to December 2015)
Project Site	Nationwide (30 districts and 416 sectors in total)
Implementing Agency	REB-TDM ^{Note 1}
Super Goal	Academic knowledge and skills of O level (7th to 9th grades) students are improved. ^{Note 2}
Overall Goal	Lessons become more effective to “allow students to be capable of doing it.”
Project Purpose	Planned SBI activities are implemented.
Output	1. Institutional framework to implement SBI is clarified. 2. Implementation mechanism of SBI is strengthened at DEO, SEO and school levels. 3. REB-TDM is able to coordinate DEOs, SEOs and schools to maintain SBI practice at school level.

Source: Made by the surveyor based on the final version of PDM (Version 3)

Note 1: TDM was changed to Teacher Development & Management and Career Guidance & Counseling Department (TDMCGC) through the reorganization of REB in 2018, and SEO was changed to Sector Education Inspector (SEI) by a cabinet decision in January 2019. However, “TDM” and “SEO” are used in this report.

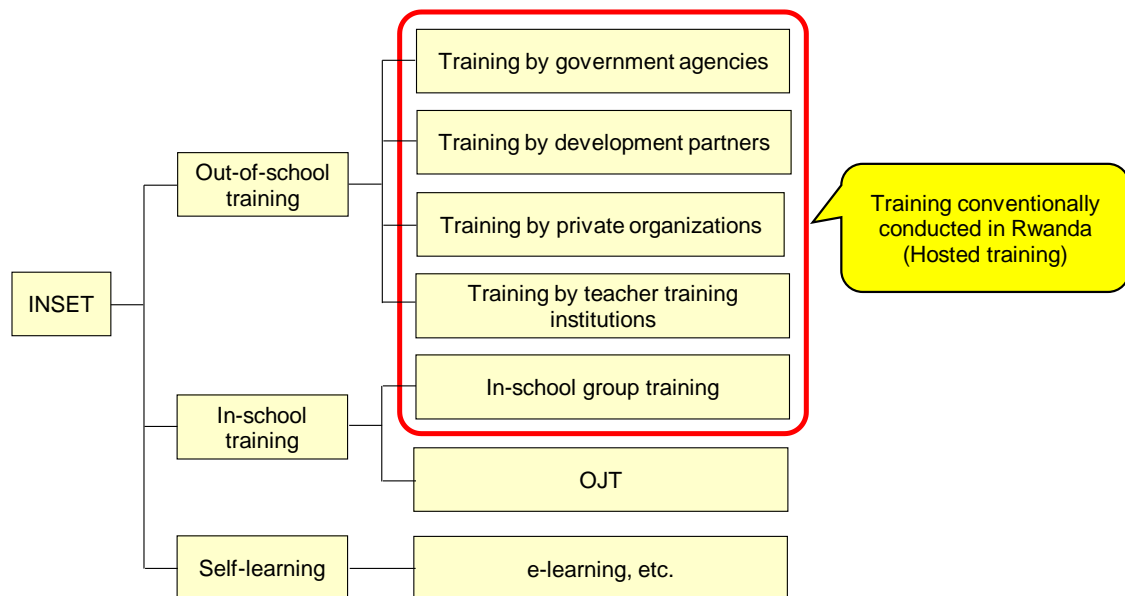
Note 2: Due to educational reform in 2009, the number of years of compulsory education increased to nine years, and lower secondary education (7th to 9th grades) became compulsory. As a result, the number of students at the same level increased sharply, resulting in a shortage of qualified teachers at the O level. There was also a particular increase in the training needs of teachers at the same level.

2.2. Background and intention of taking the SBI approach

In general, training for in-service teachers is roughly divided into three types, by type of training: out-of-school training, in-school training, and self-training, as shown in Figure 1. In Rwanda, a variety of INSET programs have been conducted, including out-of-school and in-school training programs provided by government agencies, training programs provided by development partners, including JICA, training programs provided by private organizations, training programs provided by teacher training institutions, mainly for acquiring teacher qualifications, and in-school group training programs provided by schools. Most of these

¹ As will be described later, SBI does not specify what is to be done. The approach in which teachers freely decide what to do in SBI was unique to SBCT.

programs were in the form of “hosted training,” in which training organizers prepare specific training contents for training participants. On-the-Job Training (OJT) was rarely implemented where senior teachers provided guidance to new teachers on a daily basis without training instructors or specific contents.²



Source: Made by the surveyor based on National Institute for School Teachers and Staff Development, *Guideline of Teacher Training 2018*, JICA and PADECO, *SBCT Project Completion Report*, January 2016.

Figure 1 Type of INSET

In general, while hosted training has the advantage that participants can learn new knowledge and skills, it is considered to have the following problems:

- 1) It is expensive to implement (both for the burden of hosts and the burden of participants).
- 2) The number of participants is limited, and the contents of the training can only be learned by the participants.
- 3) It is difficult to conduct continuous training because of the temporary nature of the training, such as the limited number of training days and duration, and it is also difficult for the contents of the training to be fixed among the participants.
- 4) Since the training contents are fixed, it is difficult to provide corresponding contents when the knowledge/experience levels and the needs of the training participants are different.
- 5) Participants are passive and it is difficult for them to acquire the ability to learn by themselves because the training instructor teaches them specific knowledge and skills from the top down.

² JICA and International Development Center of Japan, *Basic Education Sector Analysis Report - Rwanda -*, August 2012, JICA and PADECO, *SBCT Project Completion Report*, January 2016. The School Based Mentorship Program (SBMP), which started around the same time as SBCT, is a program to support the improvement of English proficiency of teachers by allocating English mentors nationwide in line with the introduction of English for all classes introduced by the educational reform in 2009. SBMP is a type of OJT.

Prior to the implementation of SBCT, JICA and REB conducted the “Strengthening Mathematics and Science in Secondary Education (SMASSE) Project” from 2008 to 2011. SMASSE was one of the hosted training programs to teach science and mathematics teachers to improve their teaching methods. Although the training content of SMASSE was recognized as effective by the Rwandan side, the following problems were raised, which were the same as the above-mentioned problems of hosted training.

- 1) It is expensive to implement.
- 2) It is difficult to continuously train teachers in the form of hosted training.
- 3) Although the number of participants in the training is limited, teachers who are inherently competent and do not need to be trained tend to be selected as participants, rather than teachers who do need to be trained, and it is difficult to sufficiently train those who need the training most. In addition, since it is intended for science and mathematics teachers, teachers of other subjects cannot participate in the training, and the training contents are not shared by participating teachers with other teachers, so only the science and mathematics teachers who participated in the training can be trained.³

Due to the above issues, the Rwandan side did not want to continue implementing SMASSE,⁴ so when a successor project was considered, JICA proposed SBI as INSET with a different approach from hosted training, and decided to implement SBCT for the purpose of introducing and disseminating SBI.

2.3. Contents of the SBI approach

The approach of SBI corresponds to “OJT” in the in-school training shown in Figure 1 above, and is defined as “mutual study activities (teaching and learning) among teachers.” Therefore, although SBI is a type of in-school training, it is a different approach from the hosted training-style in-school training, such as that conventionally conducted in Rwanda. It is synonymous with OJT, collaborative learning, and peer learning, but the difference is that in SBI, teachers do not teach and learn from each other in an ad hoc manner, but instead prepare an SBI implementation plan for each term, and participants regularly meet to carry out SBI activities as training.⁵ In hosted training, teachers only need to participate in the training, but in SBI, teachers themselves need to discuss and decide the training plan as well as what to do in the training. The characteristics of SBI introduced by SBCT are shown below.

³ Interview with staff of REB-TDM for 1) to 3).

⁴ Ex-ante evaluation sheet of SBCT, interviews with JICA officials and staff of REB-TDM.

⁵ Therefore, the project purpose of SBCT is expressed as “Planned SBI activities are implemented.”

Table 4 Definition, Characteristics and Implementation Method of SBI

Definition	Mutual study activities (teaching and learning) among teachers
Characteristics	What to do with SBI is unspecified. Teachers discuss and decide what to do. As a guideline for activities, teachers work on a process (PDCA) in which problems are set, measures for solving problems are considered by sharing the knowledge and experiences of teachers, the custom-made measures devised are put into practice, and evaluation and feedback are made to lead to further improvement. There is no specific content, but there are activities to share among teachers and utilize the content provided by other hosted training. There are also activities to implement good practices implemented at other schools.
Implementation method	Basically, an implementation plan is prepared for each term, which includes the number of activities (such as once a week) and what to do, and SBI activities are implemented according to the plan.
Practical examples	Comparison and analysis of the answers to the term exams, analysis of the results of the school's national exams, lesson observation and demonstration, analysis and preparation of lesson plans, lesson study, sharing and practice of contents of hosted training, examining how to use the laboratory, preparation of teaching materials, consultation with English mentors, etc.

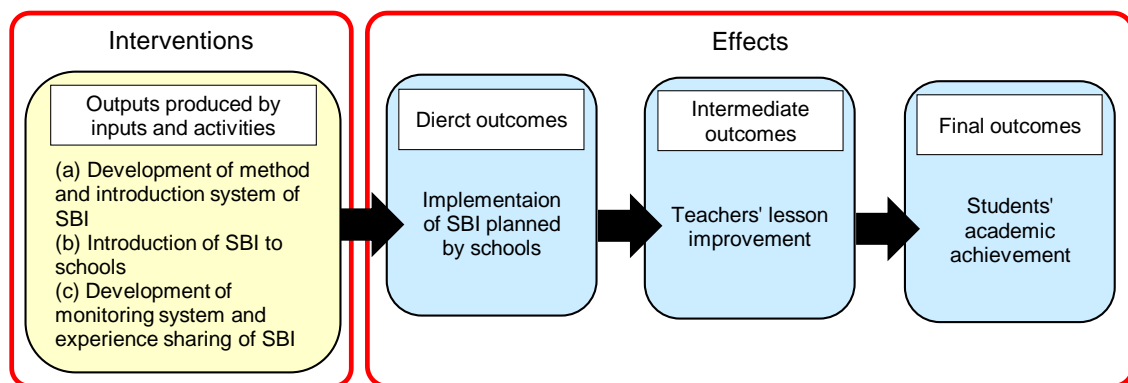
Source: Made by the surveyor based on various materials and information collected through interviews

3. Analysis Policy

3.1. Setting of analysis policy

In this survey, an analysis of the effect development process of SBCT was conducted. However, there is no specific analysis method called “process analysis” and no methodology for analysis has been established. Although there is no specific analysis methodology, the methodology based on this analysis was the process evaluation in the program evaluation theory. Process evaluation mainly analyzes processes that produce effects such as “what is happening in the process of implementing the project,” “how the project is structured and organized” and “how participants are involved in the project and how they perceive it” on the basis of qualitative data, with the aim of utilizing this mainly in improving project operations.⁶

Regarding the setting of the policy for this process analysis, the process of intervention/effect development planned by SBCT is shown as follows, based on the outline of SBCT.



Source: Made by the surveyor based on the final version of PDM

Note: The outputs of (a), (b), and (c) in the interventions above were modified from the three outputs of PDM to reflect the nature of the project activities.

Figure 2 Intervention/Effect Development Process Planned at SBCT

With the intervention/effect development process shown above, based on the background and intention of adopting the SBI approach, as well as the content of the SBI approach above, the approach to intervention/effect in setting analysis policy shall be set as follows.

- 1) As to whether the implementation of SBI, which is a direct outcome, can be regarded as an effect, outputs are naturally produced when inputs are provided and utilized, whereas outcomes are not naturally produced when outputs are produced. The implementation of SBI is regarded as an outcome because the introduction of SBI in some cases does not lead to the

⁶ Although there is no specific definition for process evaluation, the concept of process evaluation based on this process analysis was based on the following two documents:

• Yuriko Minamoto, Process Evaluation of Development Assistance Projects: A Case Study of a Participatory Community Development Project, *Journal of Governance Studies* No. 4, 2009.

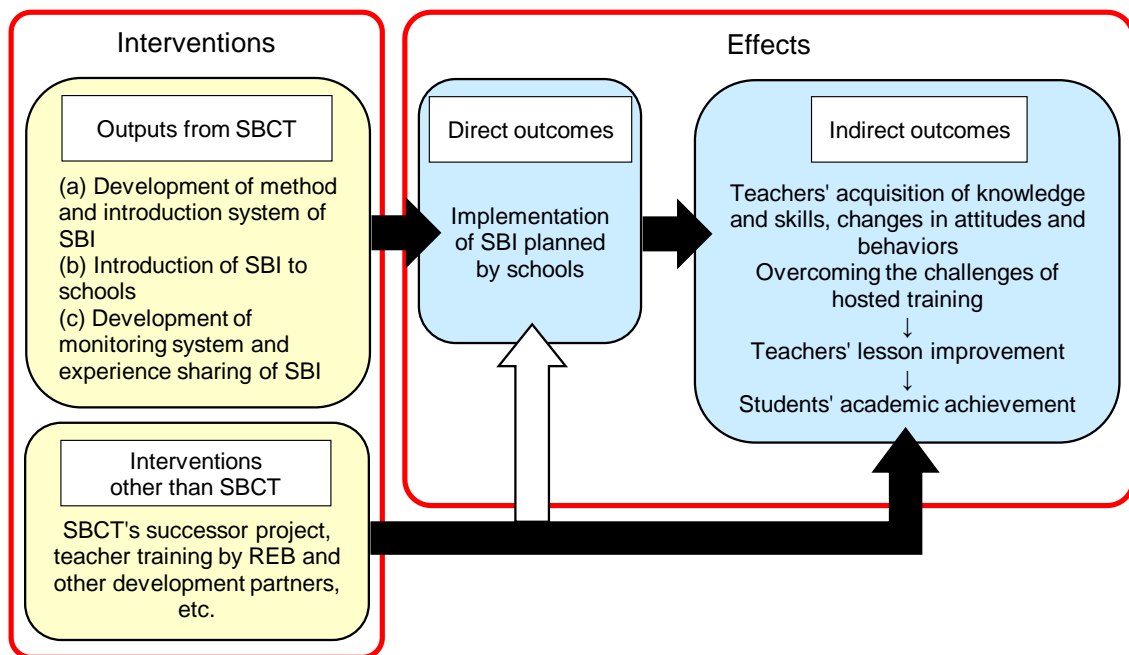
• Kiyoshi Yamaya supervised, Yuriko Minamoto and Iwao Oshima written and edited, *Handbook of Program Evaluation*, 2020.

implementation of SBI even though SBI was introduced in some schools.

- 2) There is a somewhat logical leap between the implementation of SBI, which is a direct outcome, and the improvement of teachers' lessons, which is an intermediate outcome, and between them, there seems to be changes in the knowledge, skills, attitudes and behavior of teachers caused by the implementation of SBI. These changes are therefore regarded as part of the effects. In addition, since the SBI approach was adopted to address the problems of hosted training, if these problems could be overcome through the implementation of SBI, this would also be one of the effects of SBCT.
- 3) Since SBI is a training method, contents provided by the past hosted training, including SMASSE, may be used by SBI. In addition, during and after the implementation of SBCT, training contents provided by a successor project of SBCT, other training by REB, and teacher training by development partners have been also used by SBI, and the effects of the implementation of SBI have been influenced by interventions other than SBCT.

Based on the above concept of intervention and effect, the direct effect of SBCT intervention is set as the implementation of SBI in each school, and the indirect effect of SBCT intervention is set as any change (effect) resulting from the implementation of SBI. Indirect effects include teachers' acquisition of knowledge and skills, change in attitudes, change in behavior, overcoming the problems of hosted training, the improvement of teachers' lessons, and improvement of students' academic performance. In addition, interventions other than SBCT also influence the development of indirect effects.

Based on the above, the hypothesis of the intervention/effect development process of SBCT in this process analysis is as follows.



Source: Made by the surveyor

Note: Since interventions other than SBCT directly affected one of the outputs of SBCT, “(b) Introduction of SBI to schools,” and indirectly affected the production of direct outcomes, it is indicated by a white arrow (See “4.1. Interventions” below for details).

Figure 3 Hypothesis of the Intervention/Effect Development Process of SBCT
in this Process Analysis

In this process analysis, the interventions (production of outputs), the production of direct outcomes, and the production of indirect outcomes are confirmed based on the hypothesis of the intervention/effect development process in the figure above. Next, the factors that affected the production of the outputs and the direct and indirect outcomes will be analyzed.

3.2. Constraints of the analysis

The following constraints apply to the above analysis.

- 1) In a process analysis, while the process in which project effects are produced is analyzed mainly based on qualitative data, it is desirable that the status of effects produced on an evidence basis is verified based on quantitative data in order to ensure objectivity.⁷ Although data on the production of effects is mainly collected through the internal ex-post evaluation, in this case it was difficult to collect data on the number of samples necessary for verifying the production of effects through the internal ex-post evaluation. Therefore it was not possible to verify the production of effects on an evidence basis, although the number of project targets,

⁷ Yuriko Minamoto, Process Evaluation of Development Assistance Projects: A Case Study of a Participatory Community Development Project, *Journal of Governance Studies* No. 4, 2009.

which is a parameter, was enormous since SBCT targets primary and secondary schools nationwide.⁸

- 2) Since the project period of SBCT was 3 years and, at the time of this survey, more than 5 years had passed since the end of the project, the proportion of post-project interventions in the implementation of SBI and the changes (effects) resulting from its implementation is higher than the proportion of interventions during the project period. In particular, during and after the implementation of SBCT, the Rwandan education sector has undergone teacher training provided by a successor project of SBCT and other development partners, and interventions other than SBCT have had a significant impact on teachers implementing SBI. Furthermore, due to the nature of the “training method,” SBI has a high affinity with other teacher training, which can be conducted using the SBI approach. Therefore, as a process analysis, although it was possible to analyze which activities were conducted during project implementation and what approaches and intervention methods had an impact on the implementation of SBI as direct effects, it was difficult to analyze which activities and what approaches and methods of the SBCT intervention and other interventions had an impact on teachers by the implementation of SBI as indirect effects.

⁸ Ministry of Education, *2019 Education Statistics*, Primary schools: 2,961 schools and 43,878 teachers. Secondary schools: 1,783 schools and 23,585 teachers. Including private schools, excluding management positions such as headteachers.

4. Results of the Analysis

4.1. Interventions

The outputs of SBCT are “Development of the method and introduction system of SBI,” “Introduction of SBI to schools,” and “Development of a monitoring system and experience sharing of SBI.” The status of these outputs and interventions other than SBCT is shown below.

(1) Development of the method and introduction system of SBI

This output was produced. Materials necessary for introducing SBI, such as the SBI Implementation Guideline, sample teaching materials, video materials, monitoring sheets, etc. were prepared and the “Rwandan SBI program” was developed. A system to introduce SBI to each school was established by holding SBI induction workshops nationwide.

(2) Introduction of SBI to schools

This output was also produced. Although it was planned that SBI would be introduced to schools at the lower secondary education level throughout the country (30 districts and 416 sectors), due to a lack of implementation funds for SBI induction workshops, it was introduced to only 19 of 30 districts, with 11 districts shelved. Meanwhile, Rwanda officially decided to adopt a new Competency-based Curriculum (CBC) from 2016, and the Curricula and Materials Production Department⁹ in charge of CBC development at REB and TDM started to provide training to introduce CBC to schools at the primary and secondary education levels nationwide from 2015. The CBC training is a hosted training with CBC as the content and it has been carried out using the cascade method. After CBC was delivered to each teacher by in-school training at the lowest layer of the cascade, the practice of CBC was learned by teachers through SBI activities. This led to the introduction and implementation of the SBI approach in the 11 districts where the SBI induction workshops could not be held. In addition, SBI was intended for teachers in charge of the lower secondary education level, but since the CBC training was intended for teachers in charge of the primary education level as well as the upper secondary education level, SBI was introduced to schools in the 11 districts as well as to primary schools in the 19 districts. The table below shows the changes in the target schools and teachers of SBI.

Table 5 Change of Target Schools/Teachers of SBI

Original Target Schools/Teachers	Changed Target Schools/Teachers
Teachers in charge of the O level (7th to 9th grades) from the following schools	All teachers from the following schools
✧ 9-year basic education schools (1st to 9th grades)	✧ primary schools (1st to 6th grades)
✧ 12-year basic education schools (1st to 12th grades)	✧ 9-year basic education schools
✧ secondary schools (7th to 12th grades)	✧ 12-year basic education schools
	✧ secondary schools

Source: Made by the surveyor based on SBCT Project Completion Report

⁹ Currently, Curriculum, Teaching & Learning Resources Department by the reorganization of REB in 2018.

(3) Development of a monitoring system and experience sharing of SBI

This output was not sufficiently produced. A monitoring sheet from each school, a sector monitoring report summarizing the monitoring sheets of each school in the sector by each SEO, and a district monitoring report summarizing the monitoring reports of each sector in the district by each DEO were supposed to be prepared and submitted on a regular basis. However, there were differences in the submission rate of reports among schools, sectors, and districts, and the submission rate of SBI monitoring reports among all target schools was only about 20%. In REB-TDM, the implementation status of SBI nationwide was to be grasped based on the monitoring reports from each district, but the implementation rate of SBI nationwide remains unclear due to the low submission rate of reports. Due to insufficient monitoring, feedback to schools by REB-TDM, DEOs, and SEOs, and the introduction of the good practices of SBI were not sufficiently performed. Furthermore, during the implementation period of the project, SBI newsletters were regularly prepared as publicity materials, but were not distributed to target schools nationwide.

(4) Interventions other than SBCT

As the successor project of SBCT, the “Project for Supporting Institutionalizing and Improving Quality of SBI (SIIQS)” was implemented from 2017 to 2019 and support for the strengthening of lesson practice based on CBC through lesson study was provided for 5 pilot schools.¹⁰ The interventions other than SBCT include the CBC training, SBMP (see Note 2) conducted during and after SBCT, the School Leadership Management Program (SLMP), and teacher training programs by other development partners.¹¹

For each intervention, SBMP includes consultation with an English mentor in SBI activities, who plays the role of a resource person¹² in the activities. SLMP is a program that supports the improvement of school management for management staff such as headteachers and DOS, and it is recommended that the strengthening of teachers’ capacities is promoted on a school-by-school basis. The CBC training, SIIQS, and training by other development partners have supported the capacity building of teachers through SBI activities.

4.2. Status of the effects

The status of the direct and indirect outcomes is shown below.

4.2.1 Status of the direct outcomes

As for the outputs produced above, SBI was introduced to the target schools (primary schools, 9-year basic education schools, 12-year basic education schools, and secondary schools)

¹⁰ JICA and PADECO, *SIIQS Project Completion Report*, January 2020.

¹¹ Community of Practice by Building Learning Foundation (British Council), Soma Umenye by USAID, Leaders in Teaching by VVOB, Teacher Development for Quality Results for Children by UNICEF and IEE (Inspire Educate and Empower Rwanda), Teacher Training Program by AIMS (African Institute for Mathematical Sciences) and Mastercard Foundation, etc.

¹² Although there are no instructors in SBI, there are resource persons who play the roles of providing contents used in other hosted training, sharing their knowledge, skills, and experience with other teachers, and receiving consultations in SBI activities.

nationwide. Since there are still problems in the monitoring of SBI, the implementation status of SBI at target schools nationwide has not been identified in REB-TDM. In this survey, a questionnaire was distributed to all DEOs to ascertain their implementation status, but since only 23 of the 30 districts responded, the implementation status nationwide remains unclear. However, according to the responses from 23 districts, more than 99% of schools conducted SBI activities.¹³ Although the number of schools implementing SBI activities in a district was obtained from the results of the responses of DEOs, the status of the preparation of SBI implementation plans for each school, the frequency and method of implementation of SBI activities, and the participation rate of teachers are unknown.

The following is a summary of the situation of SBI implementation based on the results of interviews with 15 schools implementing SBI conducted in this survey.

Table 6 Implementation Situation of SBI

Frequency	SBI activities are conducted, setting a specific day and time. Many schools set this as once a week for 1 to 2 hours.
Participation rate of teachers	90 to 100% of teachers participate.
Details of implementation	<ul style="list-style-type: none"> ● In most schools, groups are formed for each subject, but there are also cases where activities are conducted by all teachers or all teachers gather irregularly at schools where groups are formed. ● SBI activities include lesson observation and lesson presentation (demonstration), analysis and preparation of lesson plans, lesson study, sharing and examining of practice methods of other hosted training such as the CBC training, development of teaching materials, preparation of schemes of work, consultation with English mentors, etc. ● When consulting with an English mentor, the English mentor will be the resource person. Teachers in charge of the School Subject Leader (SSL), who have been trained as instructors for in-school training of the CBC training, often serve as resource persons for the SBI activities of the subject group. ● Activities such as visiting or welcoming neighboring schools to inspect SBI activities of other schools, introducing SBI activities of each school, and exchanging information and opinions among teachers with other schools are also conducted on an irregular basis. Interactions with other schools are mainly led by headteachers, DOS and SEOs.

Source: Interviews with schools

Since the above implementation is for only 15 schools, it is unclear whether all of the schools implement SBI activities once a week, or whether 90 to 100% of the teachers participate as in the 15 schools, even if more than 99% of the schools implement SBI activities.

¹³ Conducted at 2,243 out of 2,264 schools in the 23 districts.

4.2.2 Status of the indirect outcomes

The status of the respective indirect outcomes is shown below.

(1) Teachers' acquisition of knowledge and skills, changes in attitudes and behavior

As a result of quantitative data, an end-line survey conducted by SBCT found the following changes in teachers.¹⁴

Table 7 Items with significant differences in answers between SBI-implementing schools and non-implementing schools

1	The school leaders encourage us to give comments/ideas to contribute to school improvement. **
2	I will participate in training when I get instructions from my head teacher. **
3	There is a cooperative system among different subjects in my school. *
4	I use the feedback/advice given by my colleagues to improve my teaching and learning process. *
5	School activities are proceeded as planned in my school. *
6	I know the points in which my students often make mistakes in advance. *
7	There are clear aims or objectives in my school. +
8	The objectives and plans are achieved successfully in my school. +
9	The vision/mission of my school is shared with school community members. +
10	Results from national examination are analyzed by all teachers together. +
11	I give advice/consultation to my colleagues to improve their teaching. +

Source: SBCT, *End-line Survey Report*, November 2014

Note: **p<0.01, *p<0.05, +p<0.1. A questionnaire survey was conducted in which 72 questions were answered in scales of 1 to 7, using a sample of 177 teachers from 23 schools where SBI was implemented and 149 teachers from 20 schools where SBI was not implemented, for a total of 326 teachers from 43 schools. T-tests were performed based on the response data of the teachers from SBI-implementing schools and that from non-implementing schools. Of the items 1 to 11 listed above, only item 2 is “more applicable” to non-implementing schools, while the remaining items are “more applicable” to SBI-implementing schools.

From the above results, it can be seen that the implementation of SBI has resulted in changes such as: headteachers and DOS have asked teachers for their opinions on school improvement; cooperation among teachers has improved; the goals and visions of schools have been shared; school activities have progressed as planned and school management has improved. Furthermore, the number of teachers who responded that they would participate in the training when instructed to by the headteacher was larger in the non-implementing schools than in the SBI-implementing schools, suggesting that teachers voluntarily participate in SBI activities.

Based on the results of interviews with schools in this survey, examples of changes in the knowledge and skills, attitudes, and behavior of teachers caused by the implementation of SBI are shown below.

¹⁴ JICA and PADECO, *SBCT Project Completion Report*, January 2016.

Changes in knowledge and skills

- ✓ Got new knowledge about one's subject.
- ✓ Improvement of skills such as teamwork, current situation analysis/problem analysis, planning, problem-solving, communication, facilitation, presentation, teaching material development, improvisation, classroom management, etc.
- ✓ Teachers themselves develop implementation plans for SBI activities, set issues, devise solutions, etc. so these skills were improved by training teachers in planning, problem analysis, and problem solving.
- ✓ Although teachers could understand the concept of CBC through the in-school training of CBC, they could not learn the concrete methods of how to practice lessons based on CBC. They learned how to practice them through SBI activities.
- ✓ Although teachers understood the concept of learner-centered lessons, they did not know how to put it into practice. Through SBI activities, they learned concrete ways to practice it.
- ✓ The interaction with English mentors through SBI activities improved teachers' English ability.
- ✓ Now teachers can understand how to evaluate the achievement of learners.

Changes in attitudes

- ✓ Before, teachers were hesitant to share and discuss with other teachers their own weaknesses and problems in lessons, but this reluctance has gone.
- ✓ Before, teachers used to think of other teachers as competitors, but they have come to see them as colleagues who share the same school goals and have recognized that it is important to work together toward those goals.
- ✓ Teachers in charge of SSL have become more conscious of actively sharing their knowledge, skills, and experiences with fellow teachers.
- ✓ Teachers gained the attitude of "thinking for oneself" by devising what to do in SBI activities together, rather than just passively participating in training.
- ✓ Teachers are usually on the teaching side, but by participating in SBI activities, they have become more conscious of the learning side and learner-centered lessons.
- ✓ Teachers became more confident in their own lessons and in their English lessons.
- ✓ Teachers learned the concept of continuous professional development (CPD) and lifelong learning.
- ✓ In the past, the purpose of participating in training was to obtain a certificate, but after participating in SBI activities, teachers came to realize that the original purpose of training was to strengthen their abilities and that it was important to improve their own abilities.

Changes in behavior

- ✓ Teachers' absenteeism has decreased.
- ✓ Teachers have become more supportive of school activities and school management has improved.
- ✓ The number of teachers who prepare lesson plans has increased and they have come to make effective lesson plans.
- ✓ Opportunities for exchanging information and opinions with other teachers have increased, and teachers have become more active in exchanging opinions about lessons.
- ✓ Opportunities to interact and exchange information and opinions with teachers from other schools have increased.
- ✓ By being able to talk openly with other teachers, teachers have come to be more open to students in class.

- ✓ Teachers have learned and practiced how to find, analyze, and solve educational problems on their own.
- ✓ Teachers practice PDCA through SBI activities and utilize the PDCA cycle in their own lessons such as in planning (preparation of lesson plans), practicing, reviewing, and improving.
- ✓ In addition to teaching students the content of subjects, teachers have come to provide lessons that make students think.
- ✓ Teaching aids were developed through SBI activities, which leads to the more effective use of teaching materials in lessons.

As mentioned above, changes in knowledge and skills, attitudes, and behavior cannot always be distinguished as they are interrelated, but it was confirmed that the implementation of SBI caused each change in teachers. These changes include not only the subjective changes recognized by teachers themselves, but also the objective changes recognized by headteachers and DOS for teachers at their schools.

As to whether the changes confirmed above can be regarded as an improvement in the abilities of teachers, when each teacher was asked in interviews about the “growth of oneself” that they had in mind, many teachers replied that they wanted to “be confident in their own lessons.” In addition, although the purpose of participating in hosted training was simply to participate in the training, many respondents answered that they participated in SBI activities for the purpose of enhancing their own abilities. Therefore, it can be said that teachers participate in SBI activities to strengthen their own abilities, and that the above changes overlap with their own growth, and that they recognize their own growth and understand that their own abilities have been improved through the continuous implementation of SBI.

With regard to changes in students recognized by teachers, many teachers replied that students were more actively participating in lessons than before, that their understanding of lessons had improved, and that they were now not only listening to what teachers say but also thinking for themselves.

There are several interesting points regarding the above examples of the changes in knowledge and skills, attitudes, and behavior that have occurred in teachers. These changes are similar to the changes that have occurred in teachers who participated in the training provided by the SMASSE projects conducted by JICA in Rwanda and other countries. SMASSE did not particularly show changes in the improvement of cooperation and communication among teachers and the improvement of school management, which are common to the results of the end-line survey. However, the changes in knowledge and skills, attitudes, and behavior related to lesson delivery, such as the practice of learner-centered lessons, are similar to those seen in SMASSE. In other words, the changes in lesson improvements made by teachers resulting from the implementation of SBI are similar to those resulting from the implementation of JICA projects’ hosted training aimed at strengthening the teaching abilities of teachers.

Since the end-line survey was conducted three to six months after the introduction of SBI into the target schools, it could be said that the changes identified in the end-line survey are short-term

changes caused by the implementation of SBI and that they are changes that more strongly reflect the characteristics of SBI. On the other hand, since the above results were confirmed more than 5 years after the completion of SBCT, it can be said that the changes identified above are long-term changes caused by the implementation of SBI and affected by interventions other than SBCT. In other words, it is expected that the implementation of SBI will improve cooperation and communication among teachers in the short term, and that continuous implementation of SBI will have the same effect as the implementation of hosted training in the long term.

Since SBI activities are mutual study activities (teaching and learning) among teachers, it is natural that the implementation of SBI improves cooperation and communication among teachers. In addition, since SBI is a training method that has a high degree of affinity with other training, it is reasonable to conclude that interventions other than SBCT, such as SMASSE and teacher training by CBC training, SIIQS, and other development partners, have provided technical input to the implementation of SBI, and that the continuous implementation of SBI has led to the improvement in the teaching abilities of teachers.

(2) Overcoming the problems of hosted training

Hosted training is a problem in that it is costly to implement and thus the number of participants is limited. Although hosted training can be offered to more teachers at less cost than out-of-school training if it is conducted as in-school training, it requires instructors to teach the training content, and it is costly to invite instructors from outside or train teachers as instructors. CBC training was also conducted at the bottom of the cascade through in-school training, but there was a large implementation cost since the training was conducted to train SSL who are instructors of the in-school training. Although there are also costs for the implementation of introduction workshops for SBI, there is no need to train instructors, and it is possible to target more teachers at a lower cost than with hosted training.

In SBI activities, it is possible to discuss how to practice in lessons using the contents of hosted training conducted in the past and present, such as SMASSE and CBC training, so that even teachers who do not participate in hosted training can also share the content, and each teacher can learn specific practical methods through SBI activities. In other words, the knowledge and skills acquired through hosted training will be put into practice in the classroom, which, in turn, will lead to changes in the behavior of teachers. In addition, SBI activities are premised on continuous training rather than limited-time training. In fact, SBI activities are actually conducted for more than five years after the completion of SBCT, providing teachers with continuous opportunities to learn.

In this way, SBI overcomes such problems as the “costly implementation,” “limited number of participants,” and the “transient and unsustainable learning” of hosted training. As mentioned above, the continuous implementation of SBI activities, including the acquisition of knowledge and skills, changes in attitudes, and changes in the behavior of teachers, is expected to have the same effects as the implementation of hosted training. Therefore, SBI is an effective approach to enhance the abilities of more teachers at a lower cost than hosted training.

(3) Teachers' lesson improvements

Lesson improvement was set as the overall goal of SBCT, but what kind of improvement this would be was not made clear at the time of project planning. The indicators used as criteria for judgment were set based on the teachers' recognition that their lessons had improved, and so were not set to judge based on objective data. For this reason, quantitative data to objectively judge lesson improvement by SBCT has not been collected. In the interviews with the 15 schools in this survey, changes in knowledge and skills, attitudes, and behavior related to lesson improvement were observed, which were similar to those caused by hosted training aimed at enhancing the teaching abilities of teachers. However, objective data on how lessons have been specifically improved by these changes were not obtained.

Furthermore, interventions other than SBCT have had an impact on lesson improvement. For example, among the 15 schools interviewed, pilot schools of SIIQS, a successor to SBCT, were included. At SIIQS, lesson study activities were conducted in which project experts were directly involved with the pilot schools. Improvement in the quality of lesson plans before and after the intervention (see the picture on the right) and the effects of objective lesson improvement using quantitative data were confirmed. Therefore, the changes related to lesson improvement observed in the pilot schools are considered to have arisen mainly from the lesson study at SIIQS.

LESSON PLAN

School Name: COLLEGE SAINT ANDRE... Teacher's name: NUNGUKIYEHE AZARIAS

Term	Date	Subject	Class	Unit	Lesson	Duration	Class size
I	15/01/2019	MATHEMATICS	S.C	1	1 OF 6	80Minutes	

Type of Special Educational Needs to be catered for in this lesson and number of learners in each category: No one

Unit title: Sets

Key Unit Competence: To be able to use sets, Venn diagrams and relations to represent situations and solve problems

Title of the lesson: DEFINITION OF A SET AND SET NOTATION

Instructional Objective: Using a paper and a pen learners will be able to define and try to write a set accurately

Plan for this Class (location: in / outside): Inside the classroom

Learning Materials (for all learners): Student books, exercises note books, chalks, pens

References: Learner's book for mathematics by Geoffrey Kyamuhariwe Edison Mwebesa, 2016 (Rwanda National Curriculum, Secondary)

Timing for each step	Description of teaching and learning activity	Generic competences and cross-cutting issues to be addressed with a short explanation
Introduction	Ask learners to join their groups write the activity (exercises on the black board) explain the goal of the given activity related to the number of students girls and boys	Leadership and organization Problem solving
5min	Learners move to their groups they choose a group leader learners start the given activity And present their findings	*gender in formation of the group

Lesson plan developed at College St. Andre in Nyarugenge District, one of the SIIQS pilot schools.

On the other hand, it is not clear which of the SBI activities led to lesson improvement in terms of similar changes or other changes that were confirmed at schools other than the pilot schools. Since various types of SBI activities are carried out in each school, and each school conducts the same lesson study activity in a different way, it is difficult to specify the “type” of SBI activities that lead to lesson improvement.

Although accurate data on the implementation status of SBI nationwide, which is a direct outcome, was not available in this survey, it is desirable that objective data is used as much as possible to identify the development of effects.

(4) Students' academic achievement

In the end-line survey conducted by SBCT, a comparison of graduation exam data before and after SBI implementation at SBI-implementing schools and at non-implementing schools showed that the results of the graduation exam of students had improved at the SBI-implementing

schools.¹⁵ Interviews with the schools also indicated that students' performance on term and graduation exams had improved after the implementation of SBI. However, the graduation exam data collected in the end-line survey is not highly reliable evidence due to the results being from only a limited number of schools.

(5) Other indirect outcomes

In addition to the above indirect outcomes, the following outcomes were also confirmed through the intervention of SBCT.

<u>Examples of other indirect outcomes</u>	
✓	In Rwanda, there was no existing system for training all in-service teachers nationwide. However, in order to introduce and disseminate CBC, the SBI approach was applied to CBC training for all teachers in primary, 9-year, 12 year, and secondary schools nationwide. As a result, the burden of training implementation by the government was reduced to the delivery of training content to each school, and the delivery of training content in schools was conducted by SBI.
✓	At the time of SBCT, most of INSET conducted in Rwanda was hosted training, and OJT-style in-school training was rarely conducted. With the introduction and dissemination of SBI by SBCT, in addition to the CBC training, other teacher training programs by development partners have come to be conducted using the SBI approach (see Note 11).
✓	Since SBI is premised on continuous implementation, awareness of CPD among Rwandan educators has increased. In the TDM sector of Rwanda, a TDM task force was established by development partners including REB-TDM and JICA, and by the proposal of the task force, the District CPD Committee led by DEO and the Sector CPD Committee led by SEO were established in all districts and sectors to promote CPD activities. DEO is the center of all counties and districts promoting CPD activities. In addition, the importance of school-based CPD has been clearly stated in the TDM policy, and CPD has become active in Rwanda.
✓	Although the initial plan for SBCT was to introduce and disseminate SBI nationwide, it simply aimed to be one of the initiatives of REB-TDM, which is the implementing agency, and to enable REB-TDM to spread SBI to teachers in charge of the lower secondary education level nationwide in cooperation with DEOs and SEOs. On the other hand, the incorporation of SBI into the CBC training led to the introduction of SBI to teachers in charge of grades 1 to 12 nationwide, and SBI has become more widespread and firmly established in Rwanda than initially planned.

4.3. Factors affecting the development of outputs and outcomes

The factors that affected the development of outputs, direct outcomes, and indirect outcomes, respectively, and how these factors affected them, are shown below. It should be noted that among the factors that affected each, some actually affected all of the outputs, direct outcomes, and indirect outcomes, and they are not clearly distinguished. In addition, each factor can affect another in a complicated way, with the effects of one factor being both positive and negative, another factor affecting both, etc.

¹⁵ JICA and PADECO, *SBCT Project Completion Report*, January 2016.

4.3.1 Factors affecting the development of outputs

(1) Influences on the development of the method and introduction system of SBI

Presence of a local key person with understanding

The involvement and ownership of the REB-TDM staff in the implementation of the project activities was high, due largely to the presence of the Acting Director of the Teacher Training Unit of REB-TDM, who was the project leader on the Rwandan side at the time of the project implementation. He was involved with SMASSE and was aware of the problems of hosted training and sought to implement effective INSET using a different approach. He had originally experienced study abroad at a graduate school in Japan and had a deep understanding of OJT and peer learning. He also had a strong enthusiasm and motivation to provide opportunities to strengthen the teaching abilities of the teachers who needed them. According to a project expert, when introducing SBI, which is a different approach to the hosted training that had been implemented in Rwanda in the past, it was at first difficult to make other REB-TDM staff understand the significance of SBI. However, as REB-TDM staff worked together to develop and create SBI programs and to conduct introduction workshops, the acting director encouraged other staff members to understand SBI and to cooperate with the project. According to one of the REB-TDM staff, the content of the SBI itself was easy to understand. However, since they had little experience in training in the form of teaching specific content provided by training providers, such as in hosted training, it was difficult to devise and create a Rwandan version of the SBI program from scratch. However, as the acting director held internal meetings with other staff members and had regular meetings among staff members and experts, discussions continued and understanding and trust in SBI grew. In this way, the presence of a local key person with understanding, such as this acting director, was a contributing factor in enhancing ownership of the project and promoting the implementation of activities.

(2) Influences on the introduction of SBI to schools

Lack of project budget

With regard to the SBCT budget, it was agreed at the time of project planning that all costs for conducting the SBI introduction workshops would be borne by the Rwandan side. The original plan was to conduct the introduction workshops in a cascade system from the central level to the district level and on to the school level, completing the workshops at the school level in the first half of the project period, and implementing SBI activities at each school in the second half. However, since the project started in January 2013, and Rwanda's budget year began in July, REB was unable to secure the cost of conducting the initial central-level workshops and invite all 30 DEOs to the central-level workshops. Therefore, the cascade system was changed to a cluster system in which neighboring districts were grouped together to form a cluster, and REB-TDM staff visited each cluster to conduct introduction workshops for DEOs, SEOs, and schools. Although this change reduced the cost of conducting the workshops, the implementation schedule was significantly delayed, and the timing of the

workshops varied from district to district. While in the first cluster districts the workshop was held in October 2013 and SBI was implemented accordingly, in some districts the workshops were only held 3 months before the end of the project period, which prevented SBI from being fully implemented within the project period.

Furthermore, after the introduction workshops in 19 districts were completed, and just before the workshops in the remaining 11 districts were to be held sequentially from November 2014, the implementation of the workshops was temporarily postponed due a fatal traffic accident involving one of those concerned with the project. The Rwandan government budget allocation does not allocate funds to specific projects, so if a planned project is not implemented, the budget is allocated to other projects, and the workshop budget for the 11 districts was diverted to other projects. In 2015, the budgets of all ministries were temporarily frozen due to the austerity policy of the Rwandan government, and as a result, the workshops for the 11 districts were shelved.

Although the traffic accident was an unforeseen situation, the planned cost of conducting the SBI introduction workshops was completely borne by the Rwandan side. However, the mismatch between the timing of the start of the project and Rwanda's budget year caused a shortage in the project budget, resulting in the delay of the schedule and the change in activities.

Change of SBI introduction workshops from a cascade system to a cluster system

As mentioned above, the approach for the SBI introduction workshops was changed from a cascade approach to a cluster approach. This resulted in varying the timing of SBI introduction from district to district, and consequently, workshops could not be held in 11 of the 30 districts, although the cost of conducting workshops could be reduced. In addition, this change resulted in REB-TDM staff having the opportunity to conduct not only one workshop at the central level, but multiple workshops in each cluster, with staff visiting the site and providing direct peripatetic guidance to DEOs, SEOs, and school representatives. As a result, REB-TDM staff's understanding of SBI was enhanced, and they became more aware of the significance of SBI by directly absorbing the on-site issues faced by schools. According to a project expert, the quality of reporting by staff also improved through multiple workshops. On the other hand, as a result of repeated workshops, some staff became accustomed to and tired of the workshops, and the implementation of the workshops became a mere formality, with some not taking them seriously. In such cases, the acting director of REB-TDM gave detailed instructions to the staff, and their attitudes changed.

(3) Influences on the development of a monitoring system and experience sharing of SBI

Different lines of government at the central and local levels

The implementing agency of SBCT is REB-TDM, under the Ministry of Education, and at the central level, REB-TDM was responsible for the introduction, dissemination, monitoring, and feedback of SBI. On the other hand, DEOs and SEOs, who play the same roles at the district

and sector levels, are under the Ministry of Local Autonomy, and both the personnel and budget authority of DEOs and SEOs are under the Ministry of Local Autonomy. Thus, the administrative lines of REB-TDM at the central level and DEOs and SEOs at the local levels were different, and the command system from REB-TDM to DEOs and SEOs did not function sufficiently, which resulted in a lack of thorough monitoring and feedback.

Extensive work scope of DEOs and SEOs

REB-TDM, DEOs, and SEOs have different administrative lines, and while the Teacher Training Unit of REB-TDM is in charge of teacher training, DEOs and SEOs are in charge of all the educational tasks in their jurisdictions. In addition to teacher training, they are in charge of all tasks related to school education, including the expansion of schools, the maintenance of school buildings, the recruitment of teachers, etc. SEOs regularly visit and monitor the schools in their jurisdiction, but the items to be monitored cover a wide range of areas, such as school building conditions, teacher sufficiency, student attendance rate, etc., in addition to monitoring of the implementation status of all teacher training, including SBI. This made it difficult for DEOs and SEOs to focus on the monitoring and feedback of SBI, which was also a cause of the lack of thoroughness. The results of the questionnaire for DEOs and the interview with SEOs indicated that dedicated staff should be assigned to improve the monitoring and feedback of SBI.

Difficulty in nationwide monitoring and weak IT infrastructure in rural areas

Since SBCT was targeted nationwide, it was necessary to introduce SBI to approximately 5,000 schools across the country. However, there was no substantial system in Rwanda for transmitting information from the central government to schools nationwide and for ascertaining whether the information had been transmitted to each school. Therefore, it was very difficult to grasp the implementation status of SBI for schools nationwide.

Although Rwanda has been set up as an IT nation in Africa, its IT penetration rate and IT infrastructure development are lagging behind its neighbor, Kenya, for example. In particular, most schools in rural areas do not have access to IT infrastructure such as PCs and Wi-Fi, and some schools in rural areas are not electrified. The SBI newsletters and monitoring sheets were not sent online but were sent and submitted in paper form, which resulted in low delivery and submission rates.

enabling the evaluation of what kind of SBI activities were effective for teachers' capacity development and led to lesson improvement.

Set-up of model schools

Although it was not originally planned as a project activity, the set-up of two SBI model schools was added during the project implementation. At the SBI introduction workshops, many participants agreed that the content of SBI itself was simple and understood by the participants, but because each school had to come up with its own ideas about what to do with SBI, participants who were used to hosted training did not know specifically what to do with SBI. As for specific examples of SBI, it was planned that extract good cases would be picked up, introduced and disseminated after the trial at each school. However, but the introduction of SBI was delayed by each district, and the picking-up of good cases of SBI, their introduction and dissemination did not progress because monitoring and feedback did not function sufficiently well. Therefore, two model schools were set up, and project experts gave them direct advice on the effective implementation of SBI, with specific good examples being extracted.

As mentioned above, the SBI introduction workshops were to be held sequentially in clusters, but in the workshops held after the set-up of the model schools, teachers who were implementing good examples of SBI activities in the model schools, were to participate as instructors. In other words, instead of instructors trained through the cascade training, teachers who had experience of SBI activities and who were trained through OJT, became instructors at the workshops and introduced SBI with specific examples, deepening participants' understanding of SBI and increasing the persuasiveness of the merits of SBI. Furthermore, having teachers from model schools provide the workshops and guidance as traveling instructors, also led to the learning of the model school teachers themselves, and produced the synergistic effect of further improving the quality of SBI at the model schools. According to a project expert, at the end of the project, the two model schools had reached a level that did not require expert guidance in the implementation of SBI, and had become "graduated schools."

4.3.2 Factors affecting the development of direct outcomes

Development of a versatile and user-friendly SBI program

Although the background and intent behind the introduction of the SBI approach in SBCT was clear, there was no existing example of a SBI program that embodied the SBI approach, and there was no successful example of active participation and engagement on the part of teachers in the content of such a program. It was therefore necessary for SBCT to develop a new Rwanda version of SBI program. Whether the program is good or bad affects whether each school implements SBI and whether teachers participate in it. SBCT had set lesson improvement that promotes students' understanding as its overall goal. Had the SBI program been developed with the achievement of this overall goal as a primary purpose, the program

content would have been designed for the learning of existing learning theories, such as Project-Based Learning and Active Learning, through the SBI approach. However, the project experts focused on what kind of programs teachers, who are users, would like to participate in, avoided using teaching/learning theories, and made the implementation method as simple as possible so that teachers could enjoy SBI activities. As a result, the SBI program has become more versatile, resulting in a high implementation rate even after more than five years have passed since the end of the project.

Encouragement by school management staff

According to REB-TDM staff, DEOs, SEOs, and project experts, encouragement by headteachers and DOS who are school management staff has facilitated the implementation of SBI. It is difficult to implement SBI without the participation of a certain number of teachers, even if there are one or two teachers who are highly motivated. However, it is easy to promote it if management staff actively encourage teachers at their own school to implement it.

In interviews with headteachers and DOS, many of pointed out that the advantages of SBI were that it can be implemented at low cost (cost effective) and that it directly addresses the problems that teachers face in their daily lessons. Most of the hosted training conducted in Rwanda is free of charge, but the number of participants is limited. It is difficult for each school to provide training using its own budget, even if the management staff have a strong desire to develop the capacity of all teachers at their schools. The evaluation of SBI by the management staff was generally high because SBI could be implemented within the school budget and because it provided learning opportunities to all participating teachers. Furthermore, in Rwanda, since there are few opportunities for management staff and teachers to meet together, such as in staff meetings, the implementation of SBI has been recognized as an advantage because it facilitates smooth communication from schools to teachers and has a positive impact on school management.

Encouragement by DEOs and SEOs to implement SBI

In some districts and sectors, encouragement by DEOs and SEOs has promoted the implementation of SBI within their districts and sectors, although this impact is not as great as that of the encouragement by school management staff. In Rulindo District, for example, the district has budgeted for the SBI activity costs of DEOs and SEOs, and they are more active in monitoring SBI activities at the schools in their jurisdiction than in other districts, promoting SBI activities at schools through workshops to share SBI activities among schools in the district and sectors.

Realization of the benefits for teachers in implementing SBI activities

Since participation in SBI activities is not mandatory, participating teachers are assumed to be willing to participate. In interviews, many teachers said that they participated in SBI

activities because they wanted to improve their teaching skills and update their existing knowledge. In addition, teachers in charge of SSL answered that they participated in SBI activities as resource persons to share knowledge and skills with other teachers and contribute to the activities. Furthermore, when asked whether hosted training or SBI was more effective, many respondents said SBI was the best training method. There was a trend that many of the teachers who are SSL answered that both SBI and hosted training are necessary, and they seem to feel the necessity to continue to update their knowledge and skills as resource persons.

Hosted training is effective for learning new knowledge and skills, but because it uses lectures and a role-play format to provide an overview of the knowledge and skills introduced from other sources, it is more difficult for teachers to put them into the context of their own classroom and thus put them into practice in their lessons. On the other hand, according to the interviews with teachers, the merit of participating in SBI activities is that teachers recognize that the themes dealt with in the SBI activities can be put into practice more quickly and realistically in their lessons because they directly address the familiar issues that teachers face on a daily basis.

Presentation of data on improvements in students' performance at SBI-implementing schools

According to the results of the end-line survey conducted for SBI-implementing schools and non-implementing schools, students' graduation exam scores had improved at SBI-implementing schools. Although the results were not highly reliable as evidence and a causal relationship between the implementation of SBI and the improvement of student performance was not verified, the fact that student performance was improved at schools where SBI was implemented contributed to increased interest in SBI among DEOs, SEOs, and school management staff.

Difficulty in securing time for SBI activities due to the excessive workload of teachers

As a factor hindering the implementation of SBI, almost all the survey respondents pointed out that teachers could not secure enough time for SBI activities due to their large workload and the large number of classes. In Rwanda, the number of teachers' classes per capita has increased,¹⁶ especially in primary schools, due to increases in the number of students and schools.¹⁷ In addition, it is difficult for teachers to set aside time for SBI during off-class hours because some teachers do other work or work at multiple schools. Some primary school teachers found it difficult to attend every SBI meeting because they were scheduled during class hours. As a countermeasure to this factor, many respondents pointed out that SBI hours should be stipulated and secured as regular school hours or the number of classes should be

¹⁶ According to interviews with teachers, each teacher had 40 to 60 classes per week, and some primary school teachers had 70 classes per week.

¹⁷ The number of schools covered by SBI increased from 4,232 in 2014 to 4,744 in 2019, increasing at a pace of 100 schools a year.

reduced.¹⁸

Lack of implementation costs for SBI activities and an undeveloped physical environment for SBI activities

Among the SBI activities, lesson observation can be carried out at no cost, but some activities, such as the preparation of teaching materials, require costs. There are also cases where schools cannot implement activities to strengthen ICT even if they want to because they do not have PCs or other IT equipment. In addition, when inviting teachers from neighboring schools to exchange information and opinions on SBI, there is a financial burden on the host schools. All SBI activity costs are borne by each school, and in this way there are some activities that teachers are unable to implement due to cost constraints. In Rwanda, the number of schools is increasing due to the increase in the number of students, but the number of school buildings is not keeping up with the increase. For example, in rural areas, all educational institutions in a region, such as primary schools, secondary schools, vocational training schools, junior colleges, etc. may share one school building. In such schools, there is a restriction on the gathering of teachers for implementing SBI activities. In addition to the lack of implementation budgets for SBI activities, the lack of a physical environment in which SBI activities can be carried out is also a factor that hinders implementation.



Entrance to GS Rosa Mystica in Kamonyi District. Educational institutions including kindergartens and vocational training schools are concentrated on the same premises.

4.3.3 Factors affecting the development of indirect outcomes

(1) Influences on teachers' acquisition of knowledge and skills, changes in attitudes and behavior

Existence of resource persons

Although there are no instructors in SBI, resource persons are responsible for providing content used in other hosted training, sharing their knowledge, skills, and experiences with other teachers, and receiving consultations. Without such a resource person, SBI activities can only lead to the sharing and consultation of problems among teachers. This leads to the

¹⁸ According to a project expert, Rwanda has a system called "Umganda" in which all Rwandans participate in community service activities during the morning of the last Saturday of each month, and it was regarded as a problem when some schools implemented SBI during the Umganda hour. Parties concerned are said to be divided over the pros and cons of implementing SBI during the Umganda time.

improvement of cooperativeness and school management, but also means that it is difficult to improve teachers' teaching abilities and lessons. It can be said that the existence of resource persons who can provide appropriate solutions to problems leads to the acquisition of knowledge and skills on the part other teachers, and contributes to the improvement of teaching abilities and lessons.

Interventions other than SBCT

Interventions other than SBCT, such as training conducted in the past such as SMASSE, CBC training, and teacher training by SIIQS and other development partners, provide technical inputs to SBI activities and affect the improvement of teachers' teaching abilities and lessons. Technical inputs through non-SBCT interventions include the provision of new content and the training of resource persons. For example, the 15 schools interviewed included the SIIQS pilot schools, and at SIIQS project experts were providing intensive advice and guidance on lesson study for practicing CBC lessons in SBI activities, which resulted in objective lesson improvements using quantitative data, such as improved lesson plan content and improved classroom teaching and learning processes.

(2) Influences on overcoming the challenges of hosted training

Design of SBI which is devised based on the problems of hosted training

SBI overcame the problems of hosted training. This was possible not so much because these kinds of activities were carried out or these kinds of methods and approaches were taken in SBCT, but rather because the SBI approach itself was introduced to address the problems of hosted training and was designed to deal with them. However, as mentioned in the factors affecting the development of direct outcomes, the fact that the developed SBI program was actually highly versatile and user-friendly also contributed to overcoming the problems.

(3) Influences on students' academic achievement

Analysis of term exam answers in SBI activities

In interviews with schools, there were multiple responses that students' term exam scores at their own school had improved after SBI was implemented. As an example of SBI activities, an analysis of the answers to the term exam was introduced. Until then, many schools had not analyzed the answers after they conducted exams, but by comparing and analyzing the students' answers, they were able to discover the questions of which students had a low level of understanding, and teachers began to carefully teach the questions that had a high rate of error in lessons. This is considered to be one of the factors that has contributed to the improvement of the exam results.¹⁹

¹⁹ Interview with staff of REB-TDM

(4) Influences on other indirect outcomes (activation of CPD)

Active efforts for aid coordination and the dissemination of information

SBCT originally did not plan to engage in aid coordination activities, but based on the policy and suggestions of project experts, assistance coordination through information sharing and exchange of views was actively carried out. This included collecting information related to project activities from development partners supporting the education sector of Rwanda, and actively disseminating information if there was knowledge to be shared. In the TDM subsector, a TDM task force was established by REB-TDM and development partners, and JICA office staff, project experts, and REB-TDM staff actively participated in the task force meetings and disseminated SBI information, which led to the promotion of CPD in Rwanda. Through this effort, experts and REB-TDM staff became familiar with the discussions on promoting CPD in the national TDM policy and led the discussions at policy level. The results of this effort were used to summarize the significance and validity of SBI in the CBC concept note when it was incorporated into the CBC training, to lead discussions on developing a plan that is consistent with the TDM policy, and to contribute significantly to REB-TDM's consensus building with stakeholders.²⁰

4.4. Problems for teachers in lesson delivery

As mentioned above, it was confirmed that the addition of interventions other than SBCT to SBI activities has led to the improvement of the teaching abilities of teachers. On the other hand, when teachers were asked in this survey what difficulties they had in conducting lessons, their answers were as follows.

Difficulties in conducting lessons

- ✓ There are too many lessons to perform, so there is not enough time for each lesson.
- ✓ Because of the large number of students in class,²¹ it is difficult to make every student concentrate and practice lessons to meet the level of understanding of each student.
- ✓ There are too many topics for some subjects and it is difficult to cover all the topics in one year.
- ✓ Since textbooks are not distributed to all students, there is a limit to making them understand the contents by lessons only.
- ✓ The textbooks are based on the old curriculum, and there is no textbook corresponding to CBC.
- ✓ It is difficult to teach cross-cutting issues such as gender, as addressed in CBC.
- ✓ Experiments cannot be conducted because the school does not have a science laboratory.
- ✓ Even if there is a teacher in charge of IT subjects, the school does not have access to electricity or does not have a PC.
- ✓ There are students who need special support, but do not know how to deal with such students.
- ✓ Especially in the lower grades, students have a low level of understanding of English and it is difficult to make them understand the lesson content in English. Sometimes teachers

²⁰ JICA and PADECO, *SBCT Project Completion Report*, January 2016.

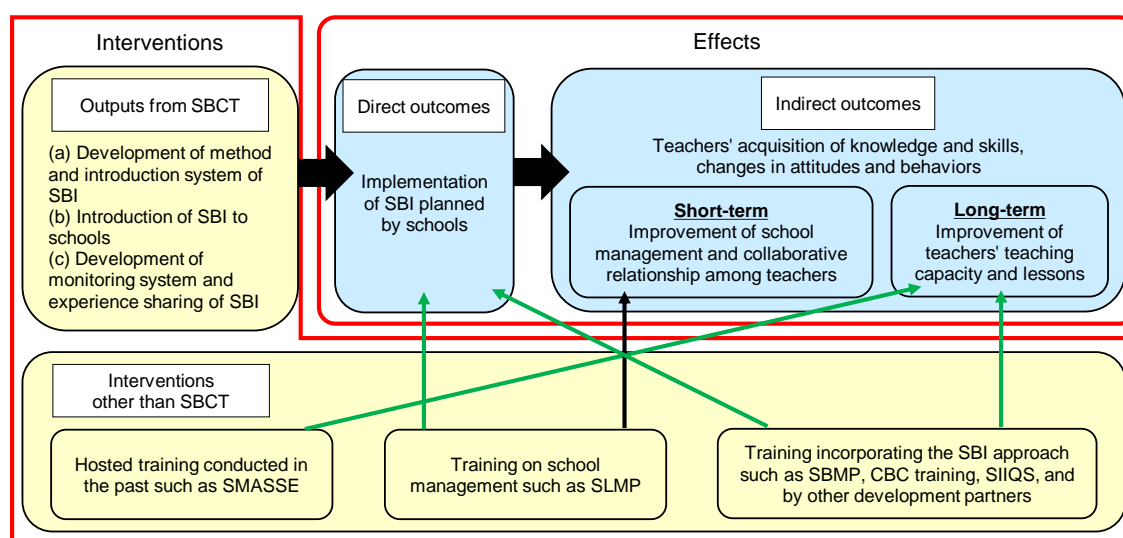
²¹ In the classes that the teachers interviewed were in charge of, the number of students per class was about 70 to 80, and some teachers had 100 students per class.

themselves find it difficult to teach in English.²²

As mentioned above, many of the difficulties in conducting lessons were caused by the physical environment, such as an excessive curriculum, an excessive number of classes, an excessive number of students per class, insufficient textbooks, insufficient teaching materials (including equipment such as PCs), and so on. Although there are some issues, such as responses to students who need special support, that can be addressed by SBI if it is possible to secure resource persons with specialized knowledge, it can be said that it is necessary for the lesson improvement not only to strengthen the teaching abilities of teachers, but also to improve the elements that are not attributable to teachers' abilities. These include appropriate curricula, appropriate number of students per class, the distribution of textbooks to all students, the provision of teaching materials, the development of classrooms and school facilities, etc.

4.5. Conclusion

The intervention/effect development process of SBCT confirmed from the above analysis results is shown below.



Source: Made by the surveyor

Note: SLMP has an effect on improving school management, but it is not an effect of SBI implementation, so it is indicated by a black arrow. In addition, the process and each arrow in the figure show the main influences in a simplified manner, and in reality, the influences are more complicated.

Figure 4 Intervention/Effect Development Process of SBCT

As a result of the introduction of the SBI approach to schools nationwide by SBCT, more than 99% of schools, as far as it has been confirmed, were implementing SBI activities at the time of

²² In Rwanda, educational reform in 2009 made it compulsory for all lessons in all grades, as well as compulsory education in lower secondary education, to be put into English. Since French was the official language before English became compulsory, people's English proficiency was not very high compared to neighboring countries.

the survey, even more than five years after the end of the project. In addition, the implementation of SBI has resulted in the development of effects such as improvements in cooperation between teachers and school management in the short term, and improvements in the teaching abilities of teachers and in lessons in the long term. The introduction of the SBI approach overcame the problems of hosted training, and the intervention of SBCT enabled provision “at lower costs,” “with more teachers,” and with “opportunities for continuous capacity development.” However, as interventions other than SBCT have also affected the development of the effects above, it is not possible to identify which interventions affected SBI activities and led to the improvements in teaching abilities and in lessons.

Although the SBI was an approach adopted to address the problems of hosted training, it did not negate hosted training and could be said to have served to cover the problems of hosted training. The provision of high-quality content is also necessary for the implementation of SBI activities leading to improvements in the teaching abilities of teachers and in lessons, and hosted training provides technical input to SBI activities. Since SBI activities are basically implemented by the same members every time, there is the problem that resource persons are limited to school members. Providing technical input from outside through hosted training alone does not lead to changes in the behavior of teachers, nor does it provide opportunities for continuous learning. On the other hand, there is also a limit to improving the teaching abilities of teachers and lessons by SBI activities alone. Since SBI is a method, it can be said that the training effect is maximized by combining hosted training with SBI activities.

5. Suggestions for the Future based on the Analysis Results

5.1. Suggestions for future SBI implementation

The biggest obstacle to the implementation of SBI was the difficulty of securing time for SBI activities due to the large workload of teachers and the large number of classes. This factor has been mentioned not only by teachers themselves, but also by headteachers, DOS and education administrators. As a countermeasure to this issue, one effective solution considered is to set an official SBI time, as suggested by those concerned. However, this is not an easy measure because it is a change of policy and system that REB cannot decide it by itself, and it also means that it is necessary to consider revision of the existing curriculum and the allocation of an SBI implementation budget. However, since the presidential decree issued in March 2020 specified the implementation of CPD as a condition for the promotion of teachers, it is desirable for REB to improve the environment so that each school can secure time to implement SBI activities as part of the CPD promotion measures.

On the other hand, while establishing the institutional environment in which each school implements SBI activities, it is also necessary to carefully consider making SBI mandatory. Hosted training provided by public institutions and development partners is basically free of charge, and participants are usually paid transportation expenses, daily allowances, and accommodation fees for participation. There is also the possibility that participants participate in the training not because they want to receive it but because training providers want them to participate. If someone participates in training without the desire to participate or learn, it is difficult for him/her to learn, which also means that a change in his/her attitude and behavior is also more unlikely. Although headteachers and DOS encourage teachers to participate in SBI activities, SBI is not mandatory, and teachers themselves participate in SBI activities basically because they want to. This “participation of teachers who want to participate” is actually an important part of SBI, and participation with the intention to participate leads to learning, which in turn leads to independent learning and self-improvement. Therefore, it is better to maintain voluntary participation in SBI rather than making the implementation mandatory.

5.2. Suggestions for the future implementation of teachers’ capacity development projects

(1) Suggestions for implementing teachers’ capacity development projects in Rwanda

When implementing a project to strengthen the capacity of teachers in Rwanda in the future, a project to provide high-quality content to SBI activities is conceivable. In Rwanda, however, CBC training and teacher training by multiple development partners have already been conducted, so support for strengthening the capacity of teachers may not include the provision of new content, but rather may include support at policy level for the official setting of SBI time or securing time for activities. Alternatively, as mentioned in problems for teachers in lesson delivery, it is also necessary to take measures other than the strengthening of teachers’ abilities in order to improve lessons. It may therefore be possible to form projects other than those for teacher training.

(2) Suggestions for implementing teachers' capacity development projects in other countries

With regard to the implementation of teachers' capacity development projects in other countries, some have had problems such as: a limited effectiveness of hosted training to date, improvements only for teachers who have participated in training, difficulty in continuing the training due to costs, and insufficient utilization of training content in lessons. These countries are expected to be able to overcome their problems and increase the effectiveness of training by adopting the SBI approach and combining hosted training with SBI activities. Therefore, it is considered effective to adopt the SBI approach in order to provide continuous learning opportunities to more teachers at low cost as a project to strengthen the capacity of teachers.

However, even if the aim is to target more teachers, the following points need to be taken into consideration when deciding to implement a nationwide teacher training program using the SBI approach.

SBCT found that it was difficult to monitor and provide feedback on SBI activities to schools nationwide because it had a short period and a small amount of input as a nationwide project, while REB insisted on covering the whole country. REB allows training funded by development partners to be limited to specific regions and schools for the training target, but training funded by REB basically covers the whole country. It was agreed that the Rwandan side would bear all costs for the implementation of the workshops in SBCT, so it was made mandatory to cover the whole country. It is considered that the REB's policy of targeting schools nationwide is not to train elite schools or elite teachers, but to provide all teachers with opportunities for improving their abilities and to avoid creating gaps between schools and teachers. The idea of egalitarianism is thought to have the experience of genocide caused by ethnic conflict in the 1990s behind it. In Rwanda, the idea of egalitarianism is so strong that it is considered basic that all schools and teachers should be treated equally, rather than specific schools or teachers. Therefore, it is recommended that the SBI approach be applied to all schools in a country where the government has a strong intention to train all teachers as a policy to strengthen the capacity of teachers.

However, strengthening the capacity of all teachers in schools across a country requires a period of 10 to 20 years. In the case of nationwide dissemination of a single project such as SBCT, the project would have problems in the monitoring and feedback of SBI activities and may have a limited effect on improving the quality of those activities, that is, improving teachers' lessons and students' academic performance by the implementation of SBI. As the number of targets for enhancement increases, the quality of enhancement inevitably decreases. For example, SIIQS provided intensive guidance to the 5 pilot schools focusing on a specific SBI activity (lesson study) at the expense of the Japanese side, and the objective effects of lesson improvement were confirmed at these pilot schools as a result of high-quality SBI activities. Although there were some complaints from REB that SIIQS targeted only a limited number of schools, one effective means of intervention is to narrow down the target of intervention to a certain extent, for example, by setting up pilot areas and targeting specific schools and teachers.

Appendix List of Survey Respondents

<JICA Experts>

Ryuichi Sugiyama Department of Education Development, PADECO, Co., Ltd.
Chief Advisor, SBCT

<JICA>

Norihiro Nishikata Senior Advisor

<Former staff of REB-TDM>

Antoine Mutsinzi Acting Director of Teacher Training Unit and Mathematics Teacher Training Officer (At the time of SBCT)

Nadine Nshimirimana Managing Director, Keza Education Future Lab (Current)
Languages Teacher Training Officer, Teacher Training Unit (At the time of SBCT)
English and French Teacher Training Officer, Teacher Training Unit (Current)

<Current staff of REB-TDM>

Gerard Murasira Director of Teacher Training Unit

<DEOs> (Respondents of questionnaire)

Bugesera, Burera, Gakenke, Gasabo, Gatsibo, Kamonyi, Karongi, Kayonza, Kicukiro, Kirehe, Musanze, Ngoma, Ngororero, Nyagatare, Nyamasheke, Nyanza, Nyarugenge, Nyaruguru, Rubavu, Rulindo, Rusizi, Rutsiro, Rwamagana (23 districts in total)

<SEOs>

Nyiramana Jeanette Sector Education Inspector, Bushoki Sector, Rulindo District
Niyonagira Claudine Sector Education Inspector, Musha Sector, Rwamagana District

<Schools>

	District	Sector	School Name	School Type	Name (Headteacher/DOS, Subjects in charge)
1	Gasabo	Jabana	GS Kabuye Catholic	9BES	- Tuyisabe Colette (HT) - Kubwimana Marcellin (English) - Rwambibi Augustin (Kinyarwanda and Swahili)
2	Kamonyi	Gacurabwenge	GS Rosa Mystica	9BES	- Kamayire Christine (DOS) - Muhire Jean Baptiste (English, Kinyarwanda, Biology and ICT) - Ntibatekereza Fulgence (English and Kinyarwanda)
3	Kayonza	Mukarange	GS Mukarange Catholic	12BES	- Habanabakize Theophile (DOS) - Mukotanyi Jean Bosco (English and Swahili) - Rugerinyange Louis (Math and Physics)

	District	Sector	School Name	School Type	Name (Headteacher/DOS, Subjects in charge)
4	Kayanza	Rwinkwavu	EP Nkondo II	9BES	<ul style="list-style-type: none"> - Manzendore Vincent (DOS) - Dukuzumuremyi Jean Berchimas (Biology and Chemistry) - Sindikubwabo Jean Damascene (Math and SET)
5	Musanze	Remera	GS NDA Rwaza	12BES SS	<ul style="list-style-type: none"> - Ntuyumve Martha (HT) - Kwizera Felicien (Math) - Nsanzimana Emmanuel (Chemistry)
6	Ngororero	Matyazo	CIC Muramba	SS	<ul style="list-style-type: none"> - Barasebwa Onesphore (DOS) - Niyonshuti Samuel (Math) - Niyibizi Aloys (Chemistry)
7	Nyabihu	Bigogwe	GS Rega Catholic	12ES	<ul style="list-style-type: none"> - Uwimana Jean Marie Vianney (HT) - Maniriho Jean de Dieu (English) - Ndayisenga Fabien (Math)
8	Nyarugenge	Mageragere	College de Butamwa	SS	<ul style="list-style-type: none"> - Rwagatera Ntagishyika Mike (HT) - Niyonzima Tharcisse (Literature in English) - Mugabo Theogene (Physics)
9	Nyarugenge	Mageragere	GS Burema	12BES	<ul style="list-style-type: none"> - Nirenganya Longin (DOS)
10	Nyarugenge	Nyakabanda	College St. Andre	SS	<ul style="list-style-type: none"> - Nsabimana Gaston (DOS) - Musabyimana Benjamin (Chemistry) - Umutoni Laetitia (Math)
11	Ruhango	Byimana	ES Byimana	SS	<ul style="list-style-type: none"> - Singirankabo Jean Nepomuscene (DOS) - Mushimiyimana Alexis (Physics and Math) - Shyaka Emmanuel (ICT and Computer)
12	Rulindo	Bushoki	EP Buhande	PS	<ul style="list-style-type: none"> - Tuyisenge Grace (HT) - Hakizimana Eraste (English and SET) - Ujeneza Seraphine (English and Math)
13	Rulindo	Bushoki	GS Tare	9BES	<ul style="list-style-type: none"> - Mutuyimana Donatien (HT) - Basebyabandi Jean Baptiste (Kinyarwanda and Math) - Mukankundiye Donatha (English and French)

	District	Sector	School Name	School Type	Name (Headteacher/DOS, Subjects in charge)
14	Rulindo	Bushoki	EP Rulindo	9BES	- Twagirayezu Jean Marie Vianney (HT)
15	Rwamagana	Kigabiro	GS St Aloys Rwamagana	SS	- Mukeshimana Egide (DOS) - Ngirumuhoza Louis (Physics and ICT) - Habumuremyi Jackson (Economic and Entrepreneurship)
16	Rwamagana	Munyaga	EP Munyaga	PS	- Ingabire Elise (HT) - Nyiranshimimana Jacqueline (Kinyarwada, Math, Social Sciences and SET) - Nyirasafari Theopiste (English)
17	Rwamagana	Musha	GS APAGIE Musha	SS	- Hitiyise Jean Damascene (DOS) - Uwayezu Herman Koen (Physics and ICT) - Hagenimana Elias (Economics and Entrepreneurship)

Note: PS: Primary School, 9BES: 9-year Basic Education School, 12BES: 12-year Basic Education School, SS: Secondary School, HT: Headteacher