

Kingdom of Bhutan

Ex-Post Evaluation of Japanese Grant Aid Project
“Construction of Educational Facilities”

External Evaluator: Takeko Inuma, Senshu University

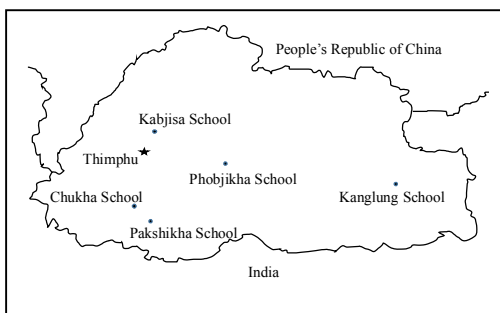
0. Summary

In Bhutan, basic education was extended to the middle secondary school (the tenth grade) in 2000. In addition to the pre-existing need to provide educational opportunities to children in remote areas, the expansion of access to secondary education was becoming an urgent need. This project aimed to improve the basic education facilities and to expand access to basic education through the construction of educational and hostel facilities and through the provision of furniture in five schools in four districts.

This project has been in accordance with the Bhutanese development plans / policies and development needs, and also with the Japanese aid policies, and, thus, the project is highly relevant. The project cost was less than the originally planned budget, and the project period was slightly longer than the plan because of the unsuccessful bidder, thereby causing the efficiency to be rated fair. Regarding its effectiveness, the targets of the operation indicators (the number of schools and classrooms) were achieved. The achievement of the effect indicator (the number of students) was lower than the target while the other effect indicator (the number of students per classroom) showed an improvement, which rates the project’s total effectiveness fair. With regard to sustainability, the maintenance budget has been perpetually insufficient, resulting in a lack of maintenance, which leads to the evaluation of the overall sustainability as fair.

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

1. Project Description



Project locations



Four-classroom building
Chukha School, Chukha District

1.1 Background

In Bhutan, although the gross enrolment ratio in primary education was improving in the 2000s, the demand for primary schooling remained high. In addition, since basic education was extended up to Middle Secondary School (MSS) (10th grade) from Lower Secondary School (LSS) (8th grade) in 2000, the demand for secondary education was rapidly increasing. In the “Ninth Five-Year Plan (2003-2008),” the improvement of primary and secondary educational facilities was considered as one of the important undertakings, indicating the need to establish 135 new Primary Schools (PS) and 173 new secondary schools. However, unlike primary educational facilities, many of which had been constructed through community-based efforts, it was difficult for the Government of Bhutan to secure all the necessary budgetary sources and technical expertise for constructing secondary educational facilities with a variety of facility components such as student hostels. Taking this situation into account, the Government of Bhutan requested that the Government of Japan assist the construction of secondary education facilities, which requires larger-scale operations.

In response to this request, the Government of Japan, through the Japan International Cooperation Agency (JICA), conducted multiple studies to examine the validity of the project as the Grant Aid cooperation within the area of primary and secondary education, following which this project was formulated.¹

1.2 Project Outline

The objective of the project is to improve basic education facilities and to expand access to education, by constructing the secondary schools’ educational and hostel facilities and by providing relevant furniture in 5 areas of 4 Districts, thereby contributing to the improvement of the basic education in Bhutan.

This project started as regular Grant Aid assistance. After the construction of Kanglung and Chukha Schools in the 1/4 period, however, the tender for the 2/4 period fell through as there was no participant.² Due to the tender cancellation, instead of the general Grant Aid, which anticipates the Japanese companies to be contractors, the project was shifted to be a Grant Aid for Community Empowerment³, which allows local contractors, under which Pakshikha, Phobjikha and Kabjisa⁴ Schools were constructed.

¹ Japan International Cooperation Agency (JICA), “Basic Design Study Report on the Project for Construction of Educational Facilities in the Kingdom of Bhutan,” March 2005. Hereafter, the “Basic Design” (2005).

² The potential contractors refrained from tender participation because of the fact that the site conditions were difficult and that the 1/4 period construction experienced a number of difficulties (based on inquiries with relevant parties).

³ Grant Aid provides funding for materials, equipment, services that would contribute to development of social and economic infrastructure of developing countries. Grant Aid for Community Empowerment is another type of grant cooperation, which aims to assist overall capacity building of communities.

⁴ The actual name of the school is Kabesa School, yet, this report employs Kabjisa School, which was used in the project documents.

Grant Limit (based on E/N) / Actual Grant Amount		Grant Aid: 1,810 Million Yen / 490 Million Yen ⁵ Grant Aid for Community Empowerment: 1,064 Million Yen / 1,064 Million Yen
Exchange of Notes Dates		Grant Aid: June 2005 Grant Aid for Community Empowerment: May 2008
Implementing Agency		Ministry of Education
Project Completion Date		June 2011
Project Implementation	Contractors	Grant Aid: Dai Nippon Construction, Co., Ltd. Grant Aid for Community Empowerment: Kencho Dorji Construction (Kabjisa School educational facilities, Pakshikha School hostel facilities), Nima Construction (Phobjikha School educational and hostel facilities), Kelcon Construction (Pakshikha School educational facilities)
	Consultants	Grant Aid: Mohri, Architect & Associates, Inc. Grant Aid for Community Empowerment: Tashi Dawa Associates Private Limited
Basic Design / Overall Design		Grant Aid: November 2004 / Grant Aid for Community Empowerment: March 2008
Detailed Design		Grant Aid: August 2005 Grant Aid for Community Empowerment: October 2008
Related Projects		N/A

2. Outline of the Evaluation Study

2.1 External Evaluator

Takeko IINUMA, Senshu University

2.2 Duration of Evaluation Study

Duration of the Study: October, 2014 – September, 2015

Duration of the Field Study: January 3-11, 2015, March 16-25, 2015, June 11-20, 2015

2.3 Constraints during the Evaluation Study

Although this project underwent a change in the form of the cooperation, namely from the Grant Aid to the Grant Aid for Community Empowerment, this evaluation employed single indicators for these two forms of project in order to ensure its coherence as a single project. The indicators set for the evaluation purpose at the time of project planning were listed in the Grant

⁵ Indicates the overall project budget, both planned and disbursed according to “Basic Design” (2005). Regarding the E/N, only two terms out of the four terms reached the E/N, and the first term was agreed on 474 million Yen, the second term 307 million Yen, totaling 781 million Yen.

Aid project document⁶ and were used as the basic indicators for this evaluation.

3. Results of the Evaluation (Overall Rating: C⁷)

3.1 Relevance (Rating: ③⁸)

3.1.1 Relevance to the Development Plan of Bhutan

Bhutan's long-term national plan, "Bhutan 2020: A Vision for Peace, Prosperity and Happiness" (Government of Bhutan, 1999) addresses its objectives to maximize Gross National Happiness (hereafter GNH), to stress the importance of education in enhancing people's capability, and to expand access to education as well as to improve the quality of education. In response to this plan, the "Ninth Five-Year Plan (2003-2008)" indicated concrete programs and objectives for the education sector and aimed at the expansion of access to basic education and the improvement of educational quality. The major objectives of primary and secondary education were: 1) to raise gross enrollment ratio of primary education (ages of 6-12) from 90% to 95% by 2007, 2) to improve the quality of education, 3) to expand the basic education from Lower Secondary School (hereafter LSS) (7-8th grades) to Middle Secondary School (hereafter MSS) (9-10th grades), 4) to raise Higher Secondary School (hereafter HSS) (11-12th grades) entrance rate from 38% to 56% by 2007⁹. This project was in accordance with the Bhutanese development policy in the sense that it responded directly to the requirements of the most important tasks to expand basic education opportunities and to improve educational quality in the long-term development policy and of the Five-Year Plan during the planning stages of the project.

The "Eleventh Five-Year Plan (2013-2018)" at the time of the ex-post evaluation restated the necessity to expand the opportunity for secondary education for the purpose of poverty alleviation and for graduation from the least developed country (LDC) status, and thus the project remains relevant to these new development policies.

Furthermore, as seen in the *Bhutan Education Blueprint, 2014-2024*¹⁰, the most recent policy direction has shifted towards the amelioration of educational quality, enrolling more students in well-equipped larger-scale schools, from the expansion of educational opportunities by increasing the number of schools, including small-scale schools.

Along this line, attempts through Central School (hereafter CS) started in 2015 in 24

⁶ The project design document was the "Basic Design" (2005).

⁷ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁸ ③: High, ②: Fair, ①: Low

⁹ "Basic Design" (2005).

¹⁰ This is a long-term education policy, whose central theme lies in assurance of quality education that can meet the current needs, and it is also a plan of education reform for 10 years. It indicates comprehensive educational reforms and strategies in the areas such as educational system, curriculum and school management (Ministry of Education. *Bhutan Education Blueprint, 2014-2024*. 2014).

designated schools in the country in the first phase.¹¹ In this new measure, all of the five schools under this project were considered to be CSs.¹²

This project was planned and implemented under Bhutan's educational policy, which focused on the expansion of access to education, namely more of the quantitative side of education. Although the more recent policy focus shifted towards the quality side of education, this project gained renewed importance and is expected for further use, which indicates continuously high relevance regardless of the shift in Bhutan's education policy.

In conclusion, the expansion of basic education opportunities has been of great importance before and after the project implementation in all the development policies, such as GNH as the national premise, Five-Year Plans, and poverty alleviation, and this project is of relevance to Bhutan's development policies.

3.1.2 Relevance to the Development Needs of Bhutan

In the 2000s, there were changes in the needs of primary and secondary education in Bhutan. In contrast to the rapid amelioration of primary education enrolment rate, secondary education enrolment rate did not see sufficient improvements. As the main needs were shifting to secondary education, the project has responded well to the development needs by focusing on schools with secondary education levels. Due to the budget constraint, the project assistance was limited to five schools, but its focus on the facilities of the schools with secondary education levels was an appropriate choice.

The selection of five schools in four districts as the project sites was appropriate with regard to needs of middle secondary school facilities and priorities, as well as geographical considerations, demographic status, and local requests. All five schools under the project are located in rural areas, and, although they have many feeder schools¹³, or lower level schools, in their respective areas, there was a lack of middle secondary schools. Moreover, in the selection process of the project sites, screening was done systematically and comprehensively in terms of conditions such as the highest priority¹⁴ under the standards of

¹¹ CS serves as the base for secondary education in relatively poor rural areas with many hamlets and villages in the proximity, and the government provides free education as in the system before and, in addition, all the fees that were paid by the students, such as school uniforms and hostel fees. CS has greater budgetary discretion. Among the similar schemes, there is a designation of Autonomous School, which also has greater budgetary discretion in the same way as CS.

¹² Pakshikha School was designated as the first-phase CS in 2015, and its name was changed from Pakshika MSS to Pakshikha CS. Kanglung School was designated as CS for the second-phase in 2016. Phobjikha School, which has good study environment and geographical location, is considered for the third-phase CS. Other two schools of the project shall be designated as CSs if they meet all the conditions. But only Kabjisa School has no prospect of such designation due to the constraint of the limited school land (Ministry of Education).

¹³ Feeder schools are the schools that catch the students from the neighboring areas, for instance, primary schools (PS), extended classrooms, lower secondary schools (LSSs).

¹⁴ Priority standard of education in Bhutan had been judged comprehensively depending on the urgency of enrolment demand and the lack of middle secondary school facilities, and it is divided into three levels of priority. Furthermore, all the project schools were rated to be of the first priority.

the Ministry of Education, the access possibility of construction vehicles, the prospect in foreseeable and sufficient demand based on the lower school enrolment, and fully functional school management and maintenance securing a sufficient number of teachers, budget, related party's collaboration¹⁵, thereby the selection of the target areas and the target schools was done appropriately.

The Government of Bhutan has been attempting to enhance its self-reliance regarding efforts for the expansion of access to education, and many donors in the education sector have been fading out by the end of the "Tenth Five-Year Plan (2008-2013)." At the time of this ex-post evaluation, although it is not funding for construction, the World Food Programme (WFP), who had been assisting the school meals in school hostels, has a definite plan to phase out, which means that the Government of Bhutan has increasingly greater financial responsibilities. The "Eleventh Five-Year Plan" also claims to enhance its self-reliance. Upon such a move towards self-reliance in the education sector, which can be called a transition period, there is a need to minimize the shock of the withdrawal of the external resources, and this project played a role in relieving this shock as well (Ministry of Education).

Thus, this project has relevance to the development needs of Bhutan both before and after the project implementation.

3.1.3 Relevance to Japan's ODA Policy

The "Outline of Japan's ODA to Bhutan" had been emphasizing assistance in the areas such as agriculture, rural development and economic infrastructure projects. In addition, it launched basic principles to assist Bhutan's GNH in 2002, made social development the third pillar of the Japanese assistance to Bhutan after agriculture and economic infrastructure, and raised the expansion of educational opportunities as one of the main tasks.¹⁶ This project reflects these new dimensions of the aid policies. Furthermore, this project is in accordance with Japanese ODA as it contributes to poverty alleviation, which has gained greater importance throughout Japanese ODA policies, from the perspective of education. Assistance to education also matches Japan's policy from the perspective of "Human Security." Thus, this project is consistent with the Japanese aid policies at the time of the project appraisal and formulation.

¹⁵ "Basic Design" (2005).

¹⁶ Ministry of Foreign Affairs, Economic Cooperation Bureau. *ODA Country Data Book*. 2001, 2002, 2003, and 2004.

3.1.4 Appropriateness of the project planning and approach

As stated above, this project started as a Grant Aid project, but the tendering fell through after the construction of the two schools in the first period. The project planning and approach was highly appropriate, in the sense that the project was changed its form of financial cooperation to a project under the Grant Aid for Community Empowerment, that it avoided the risk of project cancellation, and that it managed to catch up with the time delayed due to the construction of the three schools over almost the same period. The measures taken in face of the unsuccessful tender were suitable as the originally targeted number of schools were built in the end. Thus, the change that was made in the form of the financial cooperation after the project started was appropriate and justifiable.

Hence, the expansion of access to basic education has been one of the most important objectives in the national plans and development plans of Bhutan, and this project matches with its development policies. The project focused on secondary education, whose needs were increasing in basic education, and thus has been in accordance with priority and needs in Bhutan's education policy. Moreover, the project has been in accordance with the Japanese aid policy, in particular poverty alleviation. This project has been highly relevant to the country's development plan, development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

The project achieved as its output the construction of 76 classrooms in five schools in four districts, in accordance with the plan in the "Basic Design" (2005) of 76 classrooms in five schools in four districts. The details of the output were: 2 schools (2 schools achieved as opposed to 5 schools in the plan) or 20 classrooms in total for Kanglung School (Trashigang District) and Chukha School (Chukha District) under the Grant Aid; 3 schools (its plan was to build 4 schools, but these 3 schools built were the same as the three that had been cancelled under Grant Aid) or 56 classrooms in total for Pakshikha School (Chukha District), Phobjikha School (Wangdue Phodrang District), and Kabjisa School (Punakha District) under the Grant Aid for Community Empowerment.¹⁷ They are either two-story or one-story buildings, built with reinforced concrete, equipped with water supply and sanitary facilities, electric facilities, and furniture. The details of the facilities in each school are the following.

¹⁷ The construction of Darla School, which was included in the "Outline Design Study Report on the Project for Construction of Educational Facilities in the Kingdom of Bhutan" (hereafter "Outline Design") (2008), the project plan document for the Grant Aid for Community Empowerment, was cancelled in July 2009 due to the lack of budget.

Table 1: Facilities in the Five Project Schools (Output)

Form of financial cooperation	District	School	Facility (number of blocks) *
Grant Aid	Trashigang	Kanglung	4CR BLK (1), 8 CR BLK (1), Male Toilet BLK (1), Female Toilet BLK (1), Principal's Quarters (1)
	Chukha	Chukha	4 CR BLK (2), Administration & Library BLK (2), Male Toilet BLK (1), Female Toilet BLK (1), Girls' Hostel (64 beds) (4), Kitchen & Store (1), Principal's Quarters (1), Matron's Quarters (1)
Grant Aid for Community Empowerment	Chukha	Pakshikha	4CR BLK (2), 8CR BLK (1), Administration & Library BLK (1), Laboratory BLK (1), Male Toilet BLK (1), Female Toilet BLK (1), Boys' Hostel (96 beds) (2), Girls' Hostel (96 beds) (2), Kitchen & Store (1), Principal's Quarters (1), Staff Quarters (1), Warden's & Matron's Quarters (2), Multipurpose Hall (1)
	Wangdue Phodrang	Phobjikha	4 CR BLK (1), 8 CR BLK (2), Administration & Library BLK (1), Laboratory BLK (1), Male Toilet BLK (1), Female Toilet BLK (1), Boys' Hostel (64 beds), Girls' Hostel (64 beds) (4), Kitchen & Store (1), Principal's Quarters (1), Warden's & Matron's Quarters (2), Multipurpose Hall (1)
	Punakha	Kabjisa	4 CR BLK (1), 8 CR BLK(2), Administration & Library BLK (1), Laboratory BLK (1), Male Toilet BLK (1), Female Toilet BLK (1), Principal's Quarters (1), Staff Quarters (1)

Source: JICA.

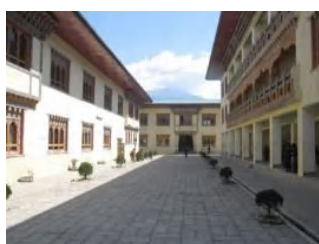
* CR stands for classroom. BLK stands for block.



Picture 1: Kanglung School



Picture 2: Chukha School



Picture 3: Pakshikha School



Picture 4: Phobjikha School



Picture 5: Kabjisa School

The changes from the original plan were the omission of the teachers' hostel in Kanglung School and the multi-purpose hall in Chukha School. They were cancelled because it became obvious that the budget would fall short as a result of the skyrocketing prices of construction materials.¹⁸ Against the "Basic Design" (2005), the teachers' hostel was cancelled in Phobjikha School under the Grant Aid for Community Empowerment.¹⁹ The reason is that Kabjisa School and Pakshikha School were given priority and went ahead with the tender, and as a result, the budget fell short.²⁰

These changes were made by eliminating the lower priority components according to the component priority of the Ministry of Education, and the Ministry also tried to seek financial resources for the eliminated components from other sources, thereby keeping the effect on the project minimal.

The construction standard of all the target schools meets the school construction standard of the Ministry of Education. Moreover, the Ministry also recognizes that the project demonstrated the desirable standard as Japan's Grant Aid effected quality construction. At the same time, the Ministry also recognizes the positive point of having been able to minimize the cost of the project by utilizing the local contractors for construction, procurement and the management under the Grant Aid for Community Empowerment.

An issue during the warranty period was the odor arising from the girls' hostel in the Grant Aid's Chukha School, and it was found that the soil around the permeating pipes was not pervious and did not allow water to permeate sufficiently. By changing the pipe layout and conducting improvement work, the problem was solved.

Chukha and Kanglung Schools had damages such as outer wall mortar cracks, peeling paint, cracks / bending of the wooden furniture due to its drying and shrinking, rusted iron parts, damaged faucets and water pipes. Pakshikha and Kabjisa Schools under the Community Empowerment had peeling paint; Pakshikha School had damaged toilets; Phobjikha School had a burst water pipe and damaged concrete, all of which were repaired during the warranty period.

Therefore, although the three components were eliminated from the original plan, all other components were installed, and thus there is no problem in the program's output.

3.2.2 Project Inputs

3.2.2.1 Project Cost

This project was divided into two forms of cooperation, namely the Grant Aid and the

¹⁸ In the end, the Government of Bhutan appropriated financial resources provided by the Government of India to build these facilities.

¹⁹ This is also a change against the "Outline Design" (2008) of the Grant Aid for Community Empowerment.

²⁰ The changes in the "Outline Design" (2008) in comparison to the "Basic Design" (2005) were: the number of 64-bed hostel buildings for boys and girls was reduced from 2 to 1, and the plan of two 10-classroom buildings was changed to one 4-classroom building and two 8-classroom buildings in Phobjikha School.

Grant Aid for Community Empowerment. The following is the total inputs.

The Grant Aid was composed of 4 terms, and the project cost of the first term was 469 Million Yen, which was 90.5% of the planned 518 Million Yen.

The 2/4 term of the Grant Aid was cancelled due to no tenderer participation, and there was a cost of 21 Million Yen as the design cost at the time of the bill settlement.

The project costs under the Grant Aid for Community Empowerment (1,064 Million Yen) was 100% of the plan.

The total project costs for the both forms of financial cooperation show that the actual costs (469+21+1,064=1,554 Million Yen) were 85.9% of the plan (1,810 Million Yen). If we compare this with the plan in the “Basic Design” (2005), the actual costs were 1,554 Million Yen (85.9%) of the plan, 1,810 Million Yen, and the project costs remained within the budget.

3.2.2.2 Project Period

The Grant Aid’s “Basic Design” (2005) indicated that the project period would be from May 2005 to March 2010, totaling 59 months. But the term 2/4 fell through, and changing to the Grant Aid for Community Empowerment²¹ took time. Therefore, the actual project period was from June 2005 to May 2011, totaling 72 months. This was 122.0% of the planned period (May 2005 – March 2010, 59 months), which was longer than planned.

Therefore, the project cost was lower than planned, but the project period was longer than planned, and its efficiency is fair.

3.3 Effectiveness²² (Rating: ②)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

This project encompassed two forms of financial cooperation, the Grant Aid and the Grant Aid for Community Empowerment, but in order to examine the integral effectiveness of these two, this evaluation employed the outcome indicators of the “Basic Design” (2005) (its actual figures are from 2004) as the baseline and examined the actual outcome (construction of 5 schools) under the Grant Aid and the Grant Aid for Community Empowerment. The outcome indicators are: (1) the number of middle and higher secondary education facilities in 4 districts, (2) the number of usable classrooms in the 5 MSSs, (3) the total enrolment in the 5 MSSs, (4) the number of students per classroom. This evaluation considers (1) and (2) as the operation indicators and (3) and (4) as the effect indicators, and its comparison is shown on Table 2.

²¹ The project period of the Community Development Support Grant was March 2008 (E/N) - December 2010 (2 years and 10 months, 34 months) on the plan, and the actual period was May 2008 (E/N) – May 2011 (completion and hand-over) (3 years and one month, or 37 months). Therefore, the actual period (37 months) was 108.8% of the plan (34 months), and the period of the Community Development Support Grant alone was over its original plan.

²² The "Impact" evaluation in the next section is an integral part of the "Effectiveness" evaluation.

Table 2: Outcome Indicators

Outcome Indicators		Baseline	Target	Actual	
		2004	2009	2011	2015
		Assessment year	Project completion year (Construction completion)	Project completion year	4 years after Project completion year
Operation indicators	Number of middle and higher secondary education facilities in 4 districts	13	18*	18*	18*
	Number of usable classrooms in the 5 MSSs	18	94	92	92
Effect indicators	Total enrolment in the 5 MSSs	N/A	8,790 persons	2,621 persons	3,330 persons
	Number of students per classroom	101 persons**	93.5 persons / room	28.5 persons	36.2 persons

Sources: “Basic Design” (2005) and interviews with schools, March 2015.

N.B.: Enrolment in 2011 is based on *Annual Education Statistics*.

Figures for 2015 are based on the interviews.

* Excludes other schools than the project schools in the 4 districts.

** This figure is based on the enrolment of 5 schools as 1,819 persons and the number of usable classrooms as 18. In reality, schools were obliged to use other classrooms in dilapidated states.

(1) The number of middle and higher secondary education facilities in 4 districts

The baseline in 2004 was 13 schools, and the target in 2008 was 18²³. Five schools were constructed against the 5 schools as the target, and the operation indicator of the facilities construction was as planned.²⁴

(2) The number of usable classrooms in the 5 MSSs

The baseline in 2004 was 18 classrooms, and the target in 2008 was 94 classrooms. In 2015, 92 classrooms were usable in the 5 schools. The reason why there were 2 less classrooms than planned was because, although the number of usable classrooms in Kanglung LSS in 2004 was 8²⁵, the government of Bhutan constructed new Kanglung MSS with 6 classrooms in a new site. This project assisted the construction of the new Kanglung MSS, and the actual overall usable classrooms of the project schools have been 92. In terms of the project target, as the target of 76 classrooms were achieved, there are no issues regarding the operation indicators.

²³ According to “Basic Design” (2005), Chukha School already had MSS and HSS at the time of the project planning, hence, there were 4 newly established school compounds and one rebuilt / expansion.

²⁴ Besides the 5 school buildings built by this project, 11 schools were newly built by the Government of Bhutan with the funding of the Government of India by 2014. Therefore, the total number of MSSs and LSSs in the 4 districts was 29 (only public schools). (Ministry of Education, Royal Government of Bhutan, *Annual Education Statistics 2014*, 2014.)

²⁵ “Basic Design” (2005) and interviews with the Ministry of Education.

(3) The total enrolment in the 5 MSSs

As shown in Table 3, the baseline in 2004 was 1,819 persons, and the target in 2009 was 8,790 persons. The actual number of students in March 2015 was 3,330, which accounts for merely 37.9%²⁶ of the total. This shows that the effectiveness indicator rates low.

Table 3: Enrolment in the Five Project Schools

School	Baseline	Target	Reference figures	Actual
	2004	2009*	2009	2015
	Project Assessment Year	Project Completion Year (Construction Completion)	Bhutan Government's Estimation	4 years after the Project Completion
Kanglung	146	728	720	552
Chukha	555	2,113	720	749
Pakshikha	N/A	2,859	576	903
Phobjikha	550	2,253	720	573
Kabjisa	568	837	828	553
Total	1,819	8,790	3,564	3,330

Sources: "Basic Design" (2005) and interviews with schools, March 2015.

* In "Basic Design" (2005), the estimated number of enrolled students in 2009 was calculated as (the estimated number of enrolled students in the pre-existing schools + the estimated number of out-of-school children in each district) × the average increase rate of enrollment.

The reasons for the discrepancy between the target and the achievement in the enrolment can be ascribed to the fact that the estimation included all the out-of-school children in the districts, and that the estimation presupposed that the enrolment rate in PS, LSS and MSS in 2009 would have reached 100%, thereby the presupposing figures for the estimation were too high²⁷. On the other hand, the estimation done by the Government of Bhutan at that time roughly coincides with the actual achievement figure, although no grounds are shown. Taking this into consideration, the target enrolment at the time of the "Basic Design" (2005) seems to have been too high, and as a result the project outcome in this regard did not reach its target.

This project aimed at improving the access for the out-of-school children and at raising the enrolment rate by increasing the number of classrooms. Regarding contributions to the numbers of out-of-school children, sufficient demographic data is not available for calculating

²⁶ As mentioned above, 11 schools were newly constructed other than these project schools, and in these 4 districts the rest of all other 24 schools except the project schools had 14,975 students, and there is a possibility that students were partly taken by these other schools.

²⁷ "Basic Design" (2005) indicates 8,790 persons as "estimated number of students in the project schools (2009) and that figure is used as the "outcome indicator of the overall project purpose achievement" in the proposal for the overall project plan in relation to ex-post evaluation. It considered the estimation and the objective as the same, and the actual facilities' capacity was 2,736 persons, as opposed to the target of 8,790 persons. Seemingly, this led to the discrepancy between the target and the real achievement in enrolment. Considering that the actual enrolment exceeds the actual capacity of the facilities, it can be said that the facilities are in use to the maximum extent.

the exact gross or net enrolment rates at the time of ex-post evaluation²⁸, and it was not possible to verify the actual contribution of the project to out-of-school children. Thus, one of the objectives of this project, the expansion of access to education, had limited effectiveness.

(4) The number of students per classroom

The baseline in 2004 was 101 persons, and the target in 2009 was 93.5 persons. As the number of classrooms at the time of ex-post evaluation was 92 in total, including the pre-existing 18, the number of students per classroom was actually 36.2 persons as opposed to 93.5 as the target (Table 4).²⁹ From the viewpoint of the improvement of study environment, this achievement can be considered sufficient. Considering the fact that the Ministry of Education sets the limit of the number of students per classroom as 40 persons, the average for the 5 schools as 36.2 persons³⁰ is within this range, and it has seen a great improvement from the dilapidated state, wherein the number of students per classroom used to be 101 persons before this Project was implemented.

Table 4 : Effect Indicators of the Five Project Schools: Educational Facilities
Year* (plan / completion time / ex-post evaluation time); Usable classrooms; number of students; number of students per classroom (at the time of ex-post evaluation)

School	Years available at the time of project planning (2004)	Years available at the time of the project completion (2010)**	Years available at the time of evaluation (2015)	Number of usable classrooms (Number of the Project-funded classrooms) (rooms) (2015)	Number of students (persons) (2015)	Number of students per classroom (persons) (2015)
Kanglung	pp-8	7-10	7-12	18 (12)	552	30.7
Chukha	9-12	9-12	9-12	18 (8)	749	41.6
Pakshikha	N/A	pp-10	pp-10	16 (16)	903	56.4
Phobjikha	pp-6	pp-10	pp-10	20 (20)	573	28.7
Kabjisa	pp-8	pp-10	pp-10	20 (20)	553	27.7
Total	---	---	---	92 (76)	3,330	36.2

Sources: Interviews with schools, March 2015.

* pp stands for pre-primary and is part of basic education. After pp, students continue to the 1st year.

** The figures on Kanglung and Chukha Schools are from 2007, and those on other 3 schools are from 2011.

²⁸ Although each district's number of students are disclosed, a national census has not been conducted since 2005, and it is difficult to precisely estimate the district population by age in 2015.

²⁹ Depending on schools, one or more classrooms are used as computer room or a counseling room, which are included in this average, and hence the regular classrooms would have more number of students than this average.

³⁰ Meanwhile, the number of students per classroom varies greatly among these schools, as seen in the maximum, 56.4 persons in Pakshikha School, more than twice the minimum, 27.7 persons in Kabjisa School. The rapid increase of the number of students in Pakshikha School between 2014 and 2015 is due to the expansion of school years, and there is already a plan to construct additional facilities.

Although it was not included in the “Basic Design” (2005), it is important to take into account the situations of the hostels as a sign of effectiveness, the table below shows the hostel capacity, the number of the boarders, and occupancy rate.³¹

Under this project, hostels in three schools of Chukha, Pakshikha and Phobjikha were constructed. The occupancy was very high in all except Chukha, and were overcrowded. According to the Ministry of Education standards, commuting time shall not exceed 5km or one hour of walking, and admittance to schools and hostels are coordinated according to this standard (Ministry of Education). The hostel congestion reflects the school situation of Bhutan, where students come to school from a geographically wide areas, but in order to prevent negative influence on students’ health and educational environment, it is necessary to improve the congested hostels.

Table 5 : Effect Indicators of the Five Project Schools: Hostel Facilities

School	Hostel capacity (persons)	Number of boarders (persons)	Occupancy rate (%)
Kanglung	128*	209	163.2
Chukha	606**	457	75.4
Pakshikha	384	791	158.2
Phobjikha	128	253	194.6
Kabjisa	N/A	N/A	N/A
Total	1,358	1,710	---

Sources: School data. Interviews with schools, March 2015.

* Kanglung School hostels were built by the Government of Bhutan.

** Among all the hostel facilities at Chukha School, the capacity of the facilities built by this Project is 256 persons.

3.3.2 Qualitative Effects

According to the beneficiary survey, the following situations of the user satisfaction have been observed.³² As the Figure 1 shows, the satisfaction rate among students at the education facilities accounted for more than 70% responding “good” or “very good.” However, the satisfaction level is relatively low regarding the toilet facility (toilets, hand-washing stands), and 34.3% of valid answers chose “bad” or “very bad.” Similarly, regarding the hostel facilities, the

³¹ As mentioned above, Kanglung School was started in 2005 as a new MSS (built by the Government of Bhutan with the funding from the Government of India), and after this Project’s construction was completed in 2007, it became equipped with hostel facilities built by the Government of Bhutan in 2008. As for Kabjisa School, due to limited land, there is no hostel facility.

³² With the aim of understanding this project’s satisfaction and usefulness levels, a beneficiary survey was conducted in February-March, 2015, targeting students and teachers. The survey employed exhaustive sampling for students in the Year 10, which is the final year of basic education (and of middle secondary education), totaling a 303-person sample. Their response sheets were filled out by the survey team. In the survey for teachers, all teachers in the 5 schools were asked to fill out the questionnaire, and 70 of them have returned them (response rate of 43.5%). The details of the respondents are: 149 males and 154 females for students (total 303 respondents), and 44 males and 26 females for teachers (total 70 respondents).

satisfaction level is low regarding the toilet facility (toilets, hand-washing stands), and other components have higher satisfaction.³³ In interviews with each school and each District Education Office, they pointed that the students had become motivated owing to the new school buildings by this project.

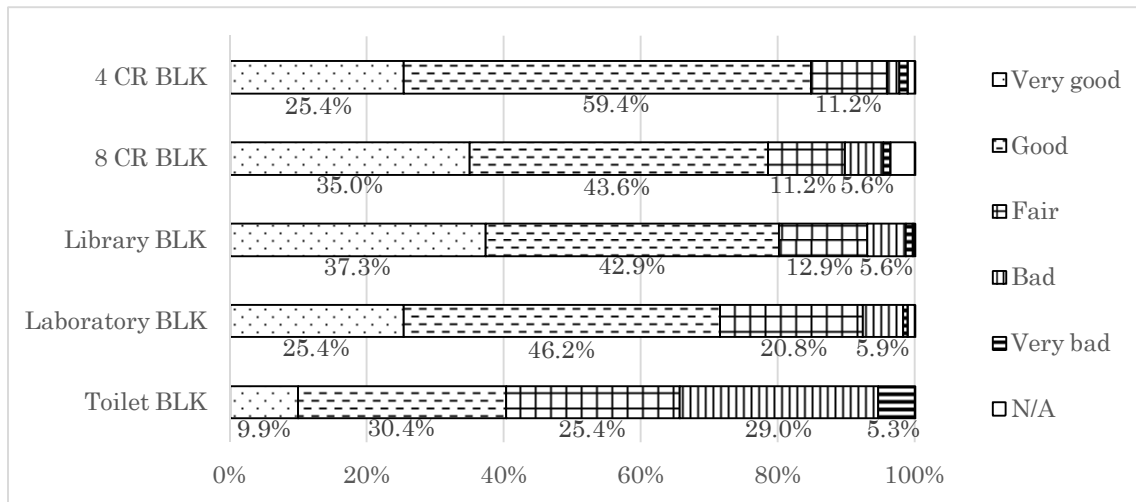


Figure 1: Evaluation of Educational Facilities by Students (Valid responses: 303)

Source: Beneficiary Survey, February-March 2015.

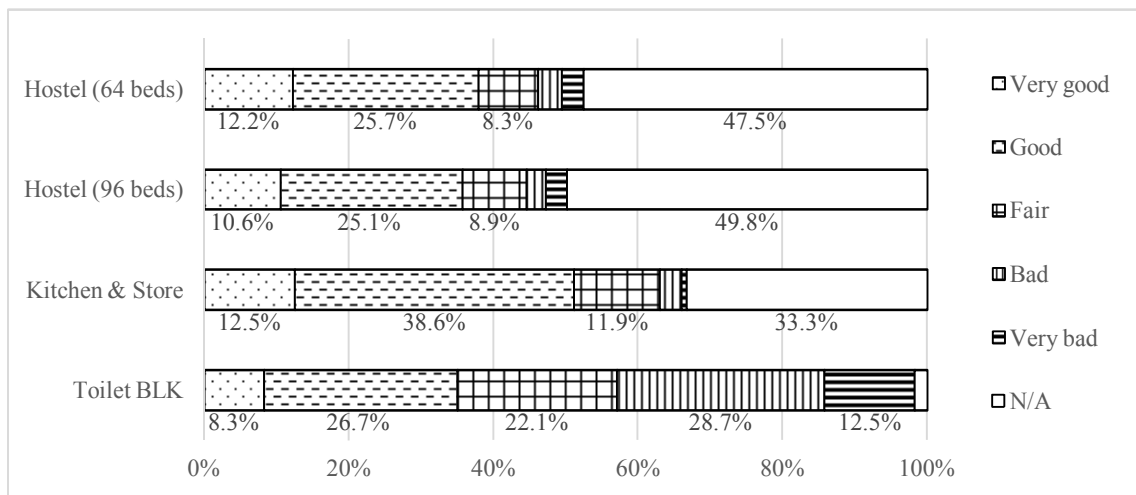


Figure 2: Evaluation of Hostel Facilities by Students (Valid responses: 303)

Source: Beneficiary Survey, February-March 2015.

³³ N/A (not applicable) means that the respondents are not using that facility. N/A Figure 2 indicates that they are not boarders. But they have answered the question about hostel toilets, which shows that the non-boarders are also using the hostel toilets, reflecting the shortage of the toilet facilities.

According to the beneficiary survey, regarding changes following enrollment in school (multiple-choice answers), 286 persons (94.4%) responded that they “have more time to study,” and 256 persons (84.5%) responded that they “have time to read books,” thus the most of them pointed the benefits in their studies. Also, 72 persons (23.8%) responded that “I have been liberated from work at home.”

Consequently, regarding the effectiveness of the project, one of the project purposes “the expansion of access to education” (or an increase of enrolment) was partially effective, yet, the “improvement of secondary education facilities” has been achieved as the number of students per classroom meets the standard set by the Government of Bhutan, and the users’ satisfaction was high in general. Therefore, it can be concluded that the project objective regarding the improvement of study environment was achieved.

3.4 Impact

3.4.1 Intended Impacts

1. Impact on Commuting Distance and Time

School access was improved by the construction of the 5 schools under the Project. Before the implementation of this Project, many students had to walk long distances across mountainous terrain to reach an MSS in another valley, and some, as in the case of the former Phobjikha School, had access difficulties during the rainy season. By constructing the 5 schools, the students’ access in terms of both distance and time has been greatly shortened.

Out of 303 valid student responses in the beneficiary survey of this project evaluation, 108 persons responded that their commuting time was within 1 hour, for whom effectiveness of building schools in a commutable distance was high. Among 195 students who spend more than 1 hour commuting, 74 students spend less than 2 hours, and 121 students more than 2 hours, which means that most of these students could not have attended school unless there had been any hostel facilities, and that the effectiveness of schools with hostel facilities is of further significance. As the number of the hostel users considerably surpasses the capacity of the facilities, the need for hostel facilities remains high.

Kabjisa School, the only school without hostel facility among the project schools, was able to introduce school bus services in 2013 through the request by the District Education Office, and serves the students whose home is more than 5 km away from this school.

2. Impact on Teachers

From the viewpoint of education quality, the student-to-teacher ratio is also important. The nationwide average student-to-teacher ratio at the time of this evaluation is 20 persons (*Annual Education Statistics 2014*). As shown in Table 6, the average student-to-teacher ratio in

the 5 project schools is similarly 20.7 persons, which is appropriate. Pakshikha has a rather higher ratio, with 25.1 students per teacher.

Table 6: Number of Students (persons) / Number of Teachers (persons) / Ratio of Students (persons) per Teacher in the Project's 5 Schools

School	Number of students (persons)	Number of teachers (persons)	Number of students (persons) per teacher
Kanglung	552	31	17.8
Chukha	749	33	22.7
Pakshikha	903	36	25.1
Phobjikha	573	30	19.1
Kabjisa	553	31	17.8
Total	3,330	161	20.7

Sources: Interviews with schools, March 2015.

According to the beneficiary survey, almost 80 percent of teachers responded “very good” or “good” with regard to the impact on their classes of the educational facilities of this Project. This implies that these educational facilities had a positive influence on teachers’ class management in general.³⁴

3. Impact on Gender Issues

The gender parity index for gross enrollment ratio in secondary education in Bhutan shows a higher ratio of girls: 1.02 (2010), 1.04 (2011), 1.06 (2012) (World Development Indicators). Although it is not possible to calculate the gender parity index at the school level, as Table 7 shows, the 4 project schools, excluding Chukha School, have a high female ratio, with Kabjisa and Phobjikha Schools being the highest. There is a possibility that the shortening of the commuting distance and the provision of hostel facilities both gave a positive impact on girls’ enrollment.³⁵ The number of girls in hostel facilities exceeds that of the boys in all but Chukha School, and the female boarders account for 117.7 at Kanglung School and 127.9 at Phobjikha School to male 100, which attests the great needs in girls’ hostels (Table 7).

³⁴ Those who obtain high marks on the examination for the Bhutan Certificate for Secondary Education (BCSE) at the end of the 10th grade can receive scholarships and proceed to the 11th grade, which is in higher secondary education (others may proceed to private schools on their own funds if desired). Kabjisa School’s score was at the very bottom nationwide in 2010, but 27 (77.1%) out of 35 students passed this examination in 2014, and it became one of the top schools in the nation.

³⁵ It is considered that the reason for the low ratio of female students at Chukha School derives from the fact that it has a greater ratio of the 11th and 12th years as the only school specializing in middle and higher secondary education among the project schools (interviews at Chukha School). As a general trend, the higher in the year, the smaller the ratio of female students.

Table 7: Male-female Ratio of Students and Boarders in the 5 Project Schools
(Number of females to male 100)

	Number of female students to male 100	Number of female boarders to male 100
Kanglung	109.1	117.7
Chukha	92.1	82.1
Pakshikha	106.2	104.4
Phobjikha	114.6	127.9
Kabjisa	123.9	N/A
Total	107.3	102.4

Sources: Interviews with schools, March 2015.

According to the Beneficiary Survey (303 valid responses), in response to a question about “the preference of school with hostels or school without hostels,” 68% of girls answered that they preferred “school with hostels” while 58% of the boys answered in this manner. More girls than boys tend to prefer being lodging in a hostel for school attendance to commuting to a distant school. The major reasons are because “one can avoid dangers of a long commute” and “one has to do cooking and cleaning and to take care of the siblings and animals at home, but one can concentrate on studying at a hostel” (Beneficiary Survey). It is highly important for girl students to be able to avoid risks along the commuting route and to be able to focus on studies freed from the domestic burden based on the sexual division of labor, and including girls’ hostels in the construction of schools is greatly beneficial.

3.4.2 Other Impacts

(i) Impacts on the Natural Environment

The former Phobjikha School was located in a wetland in the middle of Phobjikha Valley, where black-necked cranes, one of the engendered species, seasonally migrate to, and it was a problem with respect to nature conservation. Under this project, the school was relocated to the hill top as the newly built Phobjikha School, which enabled the wetland to be maintained as a nature conservation area, and thus the project was able to avoid causing negative impact on the natural environment.

For other schools, also, sites that would not have any negative impact on the nature were selected for school construction.

(ii) Land Acquisition and Resettlement

In acquiring land for schools, the construction was done in state-owned land for 4 out of the 5 school sites, and hence there was no problem in land acquisition. In the case of construction of Kanglung, Chukha, and Kabjisa Schools, former school sites were allocated, and

Phobjikha School was constructed on the land of the Ministry of Agriculture, which was secured for this Project without any problem. Only for Pakshikha School, the project acquired the land that was used as a pastor land, but the acquisition process was conducted according to the domestic law and induced no resettlement (Interviews).

With regard to quantitative effects, the achievement of the operation indicators (number of schools and classrooms) met the planned target, yet the achievement of the effect indicator (number of enrolled students) fell short, accounting for 37.9% of the target, and hence its achievement was limited. On the other hand, there was a great improvement in terms of the number of students per classroom, and the qualitative effects (satisfaction rate with facilities) was at a desirable level. With regard to impact, the expected level of indirect outcomes was achieved in general, namely, effectiveness in access to education improvements as seen in shortened commuting time, and effectiveness in improving educational quality as seen in smoother class management. There has not been any negative impact such as worsened natural environment or resettlement.

Therefore, this project has somewhat achieved its objectives, and its effectiveness and impact are fair.

Column: Education Opportunities and Education Quality based on the Beneficiary Survey

(1) Expansion of education opportunities: characteristics of the project school students

With regard to the education level of the students' parents, 65.6% of the fathers and 79.3% of the mothers are illiterate; 18.1% of the fathers and 13.7% of mothers have finished primary education; and a very small number of them, less than 6% of the parents, received secondary education, which illustrates that an outstanding expansion of education opportunities has occurred for the generation of the project school students.

The ethnic group composition of the surveyed students reflects the three main ethnicities of Bhutan. In Kanglung School, 85.9% of the surveyed students were the Tshangla (or Sharchokpa); Chukha and Pakshikha Schools have both of the Ngalop and the Lhotsampa: most surveyed students at Phobjikha and Kabjisa Schools (74.6%, 72.1%). There are also minority groups such as the Kurtoepa and the Khengpha, and education opportunities are provided with a good balance without any distortion towards particular groups.

On the other hand, the 10th grade is, in principle, of 16 years of age. Yet, the ages of the surveyed students range from 14 to 21 years old, and the 16-year old students account for merely 25.7%. The highest percentage of students are of 17 years of age (32.7%), and 18-years old students account for 20.8%. This implies that there is still much to be done for the

improvements of the net enrollment ratio.

(2) Influence on education quality: effect of educational facilities on students’ studies

Regarding the influence of each component on studies according to the students’ evaluation, as seen in Figure 3, the most appreciated component was the library, indicated by 35% of the respondents, and it was followed by classroom blocks. “Very good” and “good” together, 64% of the respondents answered that most facility components had positive effects. The exception was the toilet blocks, as 33.7% of the respondents claimed that they influenced the studies in a negative manner. With regard to teachers’ evaluation about the educational facilities’ influence on students’ studies, more than 80% of the respondents chose “very good” or “good” for all components (Figure 4).

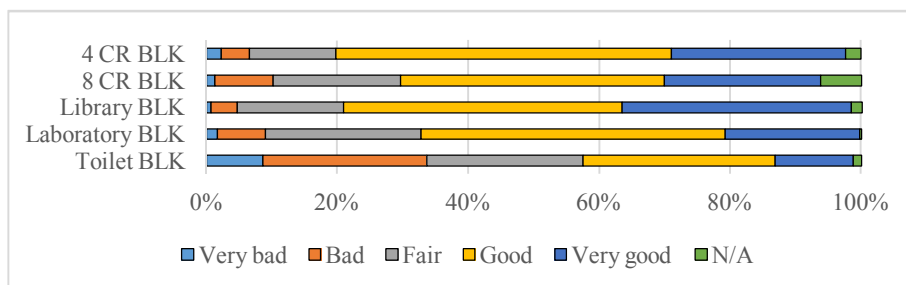


Figure 3: Facilities’ Influence on Students’ Studies (Evaluated by students; Valid responses: 303)

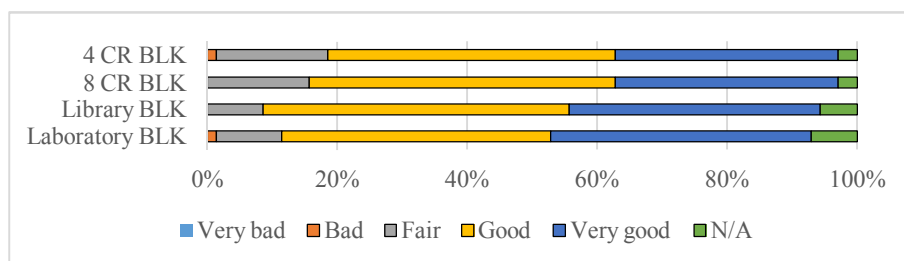


Figure 4: Facilities’ Influence on Students’ Studies (Evaluated by teachers; Valid responses: 70)

Consequently, the expansion of education opportunities reflects the particular characteristics of Bhutan, and, with regard to the improvements of education quality, both students and teachers in the survey pointed out positive influence on the students’ studies.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

Institutions for operation and maintenance are Policy and Planning Division, as well as School Planning and Building Division, Ministry of Education, and also the District Education

Office are in charge, as in the same manner as the time of the project planning. As of the beginning of 2015, the Policy and Planning Division has 34 personnel, 9 assistants, 25 architects / engineers, and additionally 6 temporary engineers during the period of the fund provision from the Government of India. In recent years, the number of staff is decreasing. The Ministry of Education and the District Education Offices in the 4 districts have been attempting to strengthen operation and maintenance of the project schools. First, each school has a school management committee, composed of school-related personnel and the parents, headed by the District President. Depending on the school the frequency of the meetings differs, but the members meet 2-6 times annually and discuss school operation and maintenance issues. Boarder students' parents live in distant areas, which make organizing difficult, but there is sufficient collaboration among the parents who live in the school areas.

Regarding the situations of school management by the school management committee, teachers and staff, if teachers belong to the school management committee, they attend the committee directly, but if not, they participate in management through the staff meeting. Also, there is a constant network wherein staff inform the principal and the committee about operation and maintenance issues.

Each District Education Office has been promoting the participation of parents, students and teachers in the process of school operation and maintenance. Kabjisa School records especially strong involvement of parents, residents, students, teachers, and the request for establishing an MSS was strong at the local level (Interview with Punakha District Education Office).

Thus, institutional sustainability is well organized and relatively fair.

3.5.2 Technical Aspects of Operation and Maintenance

Teachers and staff understand basic operation and maintenance, but actual activities are different in different schools. Some schools' maintenance staff are graduates of vocational training schools, and others are not, therefore the technical level and certificates of the maintenance personnel vary. In any case, the person in charge can take technical training courses at the Ministry of Education.

Among maintenance works, cleaning and small repairs are done at the school level. Usually, such maintenance is carried out by a multi-skilled personnel, and there are 1 to 2 such persons per school.³⁶

For damages that would require large repairs, the schools request the District Education Office, and if the budgetary measure is taken, a contractor would be commissioned to do the

³⁶ In Pakshikha School, there was one such personnel, who moved in December 2014. Although the school requested a replacement, there has not been one yet.

repair.

Cleaning practices by students are integrated as part of the daily and weekly activities at both the primary and secondary levels. Moreover, students in the secondary schools and older students in the hostels work on the terrain of school sites for betterment, planting, and beautification. Certain schools have a school maintenance club, whose member teachers and students carry out maintenance activities such as small repairs and betterment of the school environment (Interview with Kabjisa School). The technical level of teachers and students is sufficient in conducting daily maintenance.

Thus, there is no serious problem in terms of the technical aspects of operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

3.5.3.1 Financial situation of operation and maintenance in the education sector

The “Ninth Five-Year Plan (2003-2008)” allocated to the Ministry of Education (the then Department of Education) 2,597 Million Ngultrum, which accounted for 3.7% of the total budget (Current Budget of 1,598 Million Ngultrum, Capital Budget of 998.476 Million Ngultrum) (“Tenth Five-Year Plan,” p. 53). The “Tenth Five-Year Plan” (2008-2013) saw an improved allocation rate, and allocated 10,364 Million Ngultrum, which accounted for 7.09% of the total budget (Current Budget of 875 Million Ngultrum, Capital Budget of 9,489 Million Ngultrum) (“Tenth Five-Year Plan,” Volume 1, p. 66). For school construction, 2,500 Million Ngultrum was allocated (Interview with the Ministry of Education).

The allocation rate of “Eleventh Five-Year Plan” (2013-2018) to the Ministry of Education was reduced to 3.9%, allocating 8,372 Million Ngultrum (Current Budget of 934 Million Ngultrum, Capital Budget of 7,439 Million Ngultrum) (“Eleventh Five-Year Plan,” Volume 1, p. 105). For school construction, 4,000 Million Ngultrum was allocated (Interview with the Ministry of Education).

3.5.3.2 Financial situation of operation and maintenance in school management

The Policy and Planning Division of the Ministry of Education secures the budget for school management, and the District Education Office guides its practice. Small-scale operation and maintenance comes from the current budget which is allocated to each school. Usually, 20,000 Ngultrum per year is allocated to each school in primary education, and 50,000 Ngultrum per year to each school in secondary education, therefore the budget standards depend on the educational level.

However, these amounts are far from sufficient for any school, and especially for schools with a large number of students, such as Chukha and Pakshikha Schools, which claim that they

need at least 150,000 Ngultrum (Interviews with schools). Also, depending on the years since the construction and the types of the facilities, some additional operation and maintenance budgets can be supplemented, but in the case of a newly built school, there is no budget at all for the first 2 years. In reality, however, an operation and maintenance budget is necessary even for newly built schools, which can be problematic (Interviews with the Ministry of Education).

The table below indicates the allocation of the current budget for operation and maintenance by schools.

Table 8: Operation and Maintenance Budget (building / equipment)
(Unit: Thousand Ngultrum)

School	2011-20 12	2012-20 13	2013-20 14	2014-20 15
Kanglung	100 / 20	-- / --	-- / --	30 / 30
Chukha	100 / 20	20 / 15	50 / 49	50 / 49
Pakshikha	-- / 20	20 / 60	50 / 40	50 / 50
Phobjikha	-- / --	50 / --	50 / 30	50 / 40
Kabjisa	-- / --	10 / 10	10 / 10	10 / 10

Sources: Interviews with schools, March 2015; school information (1 Ngultrum = 1.9 Yen)

For greater repairs, each school submits a request for the disbursement of the capital budget through the District Education Office. Nevertheless, there is a tendency that no budgetary measures are taken due to the budgetary constraints and that problems are left for a long time (Interviews with schools).

Meanwhile, under the new education policy of *Bhutan Education Blueprint* (2014), the project schools became the candidate schools for CS, and one of them has started to function as a CS in 2015. Becoming a CS would be entitled to receive more direct assistance to students and a larger school facility budget. This is one of the most important policies in education administration, and CS designation is expected to contribute to sustainability in both operation and maintenance.

In fact, for Pakshikha School, which became a CS in 2015, has a facility expansion plan with a budget of 59 Million Ngultrum at the point of June 2015, and measures are being taken with the aim to resolve problems of congestion in the educational and hostel facilities.

Thus, although the CS designation could ameliorate financial situations, at the time of ex-post evaluation, there are constant issues of insufficient operation and maintenance budget, and therefore sustainability is fair.

3.5.4 Current Status of Operation and Maintenance

There is an issue regarding school management as certain facilities are deficient in considering the imbalance with the number of enrolled students (Table 9). Specifically, the

shortage in facilities in Pakshikha School, the largest among the project schools, is grievous. Furthermore, the number of toilets is not sufficient in all project schools, and their intensive use can easily lead to maintenance problems.

Table 9: Lack of School Facilities

Facility	School	Details or Measures
Lack of Classrooms	Kanglung	Using the staff room as the computer room and the counseling room. There is no geography classroom or conference room.
	Chukha	Using the science laboratory as a regular classroom.
	Pakshikha	Lack of desks and chairs.
	Kabjisa	Obligated to make 2 classes share one classroom, depending on the Year.
Lack of hostels	Kanglung	There are 209 boarders in a 128 capacity hostel. Still, half of the day students commute for more than 1 hour on foot one way to school, and the construction of hostels is urgently needed. Have requested hostels for boys and girls with 100 person capacity each.
	Pakshikha	There is not enough space, tables, or chairs for boarders to take meals.
Lack of Staff Quarters	Pakshikha	There is hardly any rental housing in the nearby villages, and the school's staff quarters for 4 households are not sufficient.
	Phobjikha	Government-built staff quarters for 4 households are not sufficient.
	Kabjisa	As an emergency measure, modified the entrance hall on the first floor to set an additional and temporary quarters.
Lack of Toilets	Kanglung	There is only one toilet block (with 7 units) for boys and girls each whereas there are 552 persons.
	Chukha	There is only one toilet block (with 7 units) for boys and girls each and one block each for the hostels whereas there are 749 persons.
	Pakshikha	There is only one toilet block (with 7 units) for boys and girls each whereas there are 903 persons.
	Phobjikha	There is only one toilet block (with 7 units) for boys and girls each and one block each for the hostels whereas there are 573 persons. There is a lack of toilets in both educational blocks and hostels.
	Kabjisa	There is only one toilet block (with 7 units) for boys and girls each, whereas there are 553 persons.

Sources: Interviews with schools, March 2015.

Aside from the main school buildings, there are other important school components that are not yet constructed (Table 10). The completion of the access road is necessary for ensuring the safety of students on their commute even though it is not under the supervision of the Ministry of Education. Furthermore, schools do not have any fences, which allows outsiders and animals to trespass freely and enables students to escape easily. In this respect, fences are needed by schools in Bhutan.

Table 10: Lack of Other Components and Facilities

Component / Facility	School	Details or Measures
Incomplete access road	Kanglung	Access road of 800m to reach school has been requested for many years, but no action has been taken.
	Phobjikha	Large amount of gravel is exposed on the route, and it is difficult to walk on or drive on.
	Kabjisa	Road is narrow with many slopes, which makes difficult for a school bus to operate.
Lack of fence	Pakshikha	There are problems with outsiders entering the school.
	Kabjisa	Outsiders enter the school.
Lack of outdoor water faucets	Kabjisa	Essential for students' outdoor activities.
Lack of heating system	Phobjikha	There is no electricity in both hostels and classrooms. Especially, there will be great trouble unless heating is repaired for the period between September and March in hostels. Although electric heating has been requested, the electric cable outside was damaged by heavy rain and remain unrepaired.
Lack of sport facilities	Pakshikha	There is no outdoor sport facility, and the boarders' activities on weekends are confined.
	Phobjikha	There is no basketball court, and students are using the parking lot for the time being.

Sources: Interviews with schools, March 2015.

With regard to the status of operation and maintenance, each school faces multiple problems of operation and maintenance as shown in the table below. Most of them derive from insufficient budget and, as a result, of the lack of operation and maintenance. At the same time, some schools have the same type of problems. Pakshikha and Kabjisa Schools were constructed by the same local contractors under the Grant Aid for Community Empowerment and suffer from the same damages of eaves ceilings falling apart, which seemingly occurred due to inappropriate installation. Furthermore, all 3 schools built under the Grant Aid for Community Empowerment have many cracks on the concrete floors and walls and already require maintenance measures. As mentioned above, the project cost was minimized by implementing the project term after 2/4 under the Grant Aid for Community Empowerment. On the other hand, whereas the construction under the Grant Aid for Community Empowerment is more recent, its schools have more damages on the main part of the buildings than the schools built under the Grant Aid, and it requires careful operation and maintenance for the former.

Table 11: Main Issues of Operation and Maintenance

Component / Facility	School	Details or Measures
Damages to eave's ceiling	Pakshikha	Due to its geographical location, the area is often windy. One section of a hostel's roof and eave's ceiling fell in February 2015. Other parts are also loosened, and it needs to be urgently repaired to avoid accidents.
	Kabjisa	A part of eave's ceiling is loosened. Same as above.
Cracks of concrete floors and walls	Pakshikha	Floors and walls. Cracks all over in multi-purpose hall.
	Phobjikha	Floors and walls.
	Kabjisa	Floors and walls.
Building doors	Chukha	The sun and strong winds cause damages on the main wooden doors of the buildings.
Wall painting	Kanglung	Need to purchase white cement instead of the regular paint, but impossible due to the lack of budget.
Water supply	Pakshikha	Because the water source is not sufficient, and because the water pipe network was problematic, there is a serious shortage of water. Another source has plenty of water, but it is 16 km away.
	Phobjikha	Water supply becomes frozen at the end of the school year in October and November for 2 months.
	Kabjisa	Water source is far away and becomes affected by rain and landslides. Water supply often stops in summer. To minimize the use of water from the source, people have been using rain water for hand washing.
Toilets	Kanglung	Wooden doors are damaged due to water.
	Chukha	Due to the firm ground structure, the sewage tank becomes full very quickly, especially in the rainy season, because the ground does not absorb enough water. By using vacuum trucks, people have started trying to regularly empty it. ³⁷
	Pakshikha	There is no water to flush in the toilet because of the lack of water.
	Phobjikha	The toilet stops functioning because of excessive use beyond its capacity. Have to remove waste water from the sewage tank twice a month.

Sources: Interviews with schools, March 2015.

In all schools, the wooden doors are damaged or deteriorated by water, but Kabjisa School attached an aluminum panel inside the wooden door from early on and prevented them from becoming eroded from water. Inventive ideas at the school level made maintenance possible. In all schools, the lack of the operation and maintenance budget is the major concern, but by introducing resourceful ideas and preventive measures early on, facilities can be used in the long term.

³⁷ In Chukha School, toilet sewage odor became a problem in November 2007. A Japanese contractor changed the waste water path and enlarged the sewage tank. Students at that time kept water running, and as a result, the sewage tank was filled all the time. A note of caution was issued to the Ministry of Education. At the time of the ex-post evaluation, the same problem existed. While there was no vacuum truck at the time of the project's implementation, it was possible to use one by the time of the ex-post evaluation, and its use helped to improve the situation.

Apart from the above problems, multiple schools shared the same issues of the lack of equipment maintenance fees such as copying machines, printing machines, computers, and printers, and also a perpetual lack of teaching materials and office supplies (such as in Kabjisa School)³⁸. PCs in the IT room broke down in 2 years (such as in Kabjisa School). Electric spare parts that are used in the school buildings are not available on the regular market and are difficult to purchase (such as in Phobjikha School). One particular issue was that Phobjikha School tried to plant plants in the school compound in response to the Ministry's green promotion, however, with no success. Its land was originally covered by shrubs with a large amount of gravel, which made planting impossible, and also there might be a risk of soil erosion (Interview at Wangdue Phodrang District Education Office).

Thus, the status of operation and maintenance has challenges and has some problems.

From the above points of this project, the institutional aspect of operation and maintenance is well organized based on the networks of the Ministry of Education, District Education Office, and schools; technical aspects of operation and maintenance have no problems; regarding the financial aspect, there are constant issues of insufficient operation and maintenance budgets; the current status of operation and maintenance showed that all schools have issues such as repair needs.

Some problems have been observed in terms of finances as well as the operation and maintenance status, and, therefore, sustainability of the project effect is fair.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

In Bhutan, basic education was extended to the middle secondary school (the tenth grade) in 2000. In addition to the pre-existing need to provide educational opportunities to children in remote areas, the expansion of access to secondary education was becoming an urgent need. This project aimed to improve the basic education facilities and to expand access to basic education through the construction of educational and hostel facilities and through the provision of furniture in five schools in four districts.

This project has been in accordance with the Bhutanese development plans / policies and development needs, and also with the Japanese aid policies, and, thus, the project is highly relevant. The project cost was less than the originally planned budget, and the project period was slightly longer than the plan because no tenderer participated, thereby causing the efficiency to be rated fair. Regarding its effectiveness, the targets and the actual achievements of

³⁸ This project provided the facilities and furniture, and the Ministry of Education provided copying machines, Printing machines, PCs, and printers.

the operation indicators (the number of schools and classrooms), did coincide. The achievement of the effect indicator (the number of students) was lower than the target while the other effect indicator (the number of students per classroom) showed an improvement, which rates the project's total effectiveness fair. With regard to sustainability, the maintenance budget has been perpetually insufficient, resulting in a lack of maintenance, which leads to the evaluation of the overall sustainability as fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Measures for the repairs that schools are unable to conduct

Because of financial constraints in Bhutan, multiple schools often have common problems in school operation and maintenance. Certain large-scale repairs, which cannot be borne by the schools, need to be done urgently as explained as follows.

(i) In Pakshikha School, an expansion of the facilities is the most important imperative in order to meet the increase of the enrolled students, and the expansion plans that are already underway shall be assured for implementation.

(ii) The problem of the water supply in Pakshikha School is an essential matter for the use of school facilities, and needs to be improved urgently, and further cooperation should be sought in relation to the Chukha District in implementing the solution plan.

(iii) Repairing the damages of the roof and the eave's ceiling in Pakshikha School is difficult for the school to cope with, therefore, and a request shall be made to the district to conduct repairs. The same urgency would apply to the loosened eave's ceiling in Kabjisa School.

(iv) It is desirable to improve access roads to Kanglung, Phobjikha and Kabjisa Schools. Although the supervision of access road is not under the purview of the Ministry of Education, insufficient access roads prevent the utility of the schools. It is recommended that schools and the DEO continue requesting the District Office for their intervention.

(2) Promotion of the common lessons and experiences for school operation and maintenance.

Multiple schools often have common school maintenance problems. It would be beneficial to share information on prevention and measures regarding school operation and maintenance. Some schools have innovative approaches to these problems, and exchanges of lessons learned and of successful examples can be promoted between schools.

4.2.2 Recommendations to the Schools

(1) Efforts to obtain the CS status

The Ministry of Education launched systems of CSs and autonomous schools with the aim of expanding education opportunities and of upgrading education quality in rural areas. Obtaining this status is important in order to maintain or enhance the effectiveness and sustainability of the project-supported schools in the new education policies. It also enables greater flexibility in school budgeting, which would contribute to better operation and maintenance. The schools that are already designated as CSs need to prepare all the institutional and logistical aspects for the full implementation of such schools, and those that are not yet fully designated could attempt to obtain this status. (However, the case of Kabjisa School does not apply due to the limited school land.)

(2) Operation and maintenance efforts at an early stage

The operation and maintenance budget is perpetually insufficient, and in consideration for Bhutan's situations with difficulties to increase this budget, school-level measures and self-help would be highly important. Since most of the possible problems of operation and maintenance in the future can be extrapolated, it is necessary to aim for preventive measures against damages at an early stage.

4.2.3 Recommendations to JICA

(1) Advice to the District Offices for access road improvements

With regard to the problem of access roads for Kanglug, Phobjikha and Kabjisa Schools, it is desirable for JICA to advise the Ministry of Education in an appropriate manner in their request to the Districts for the improvements of these access roads.

4.3 Lessons Learned

(1) The need to set a realistic target as the output indicators of the project

As described in the effectiveness section, this project had set a target much higher than the actual capacity of the facilities. In the project cycle, this affects all of planning, implementation, and evaluation, and it is necessary to seek improvements at the time of planning by making a realistic estimation, clarifying the maximum and minimum figures, and strictly separating the estimated figure and the target figure.

(2) Examination of forming a package of all the necessary components to assure effective use.

Building the school fences was the responsibility of the Bhutan side, but this has not been done due to financial constraints and to the fact that it was given a lower priority among the school components. However, building of fences around the school is desirable in order to ensure student safety. Even if it is the responsibility of the other Government, it is advisable to

discuss the possibility of integrating into the aid package the components that are less likely to be secured by them but which are nevertheless indispensable in assuring the effective use of the facilities.

(3) Advantages and disadvantages of the Grant Aid and of the Grant Aid for Community Empowerment

This project was implemented through two forms of financial cooperation. Under the Grant Aid, the quality of the facilities is ensured by engaging Japanese contractors, which was appreciated highly by the Bhutan side. Under the Grant Aid for Community Empowerment, the cost was lowered by contracting local contractors, which was also very much welcomed by the Bhutan side as it allowed more number of buildings. Nevertheless, there are issues under the Grant Aid for Community Empowerment, such as all the early damages and deterioration of all three schools, which require more rigorous supervision and operation management especially for the Grant Aid for Community Empowerment, in order to ensure the highest possible quality.