

**Ex-Post Evaluation 2010: Package I-3
Mali, Burkina Faso, Cameroon**

October 2011

JAPAN INTERNATIONAL COOPERATION AGENCY
Earth and Human Corporation

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Preface

Ex-post evaluation of ODA projects has been in place since 1975 and since then the coverage of evaluation has expanded. Japan's ODA charter revised in 2003 shows Japan's commitment to ODA evaluation, clearly stating under the section "Enhancement of Evaluation" that in order to measure, analyze and objectively evaluate the outcome of ODA, third-party evaluations conducted by experts will be enhanced.

This volume shows the results of the ex-post evaluation of ODA Loan projects that were mainly completed in fiscal year 2008, and Technical Cooperation projects and Grant Aid projects, most of which project cost exceeds 1 billion JPY, that were mainly completed in fiscal year 2007. The ex-post evaluation was entrusted to external evaluators to ensure objective analysis of the projects' effects and to draw lessons and recommendations to be utilized in similar projects.

The lessons and recommendations drawn from these evaluations will be shared with JICA's stakeholders in order to improve the quality of ODA projects.

Lastly, deep appreciation is given to those who have cooperated and supported the creation of this volume of evaluations.

October 2011
Masato Watanabe
Vice President
Japan International Cooperation Agency (JICA)

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Ex-Post Evaluation of Japanese Grant Aid Project
“The Water Supply Project in Region of Kayes, Segou and Mopti”

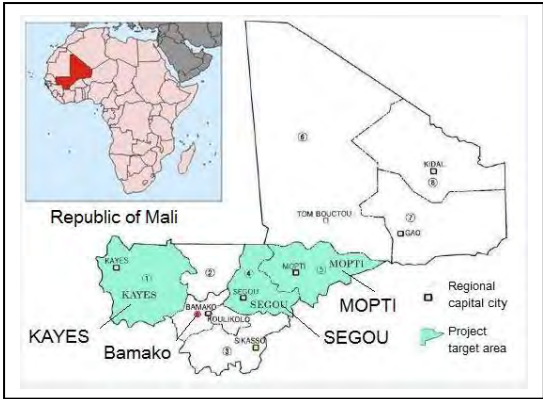
External Evaluator: Machi KANEKO, Earth and Human Corporation

0. Summary

This grant aid project has found that its relevance is high both at the time of the appraisal and the ex-post evaluation, as it is consistent with the National Development Strategy of the Republic of Mali and its development needs as well as Japan’s ODA Policy. Although the operating rates of the constructed facilities are lower than expected, unable to achieve a target population of water supply, improved access to safe water by this project has some positive impacts on enhancing sanitation for people in the target village, including reducing infantile diarrhea. As for project efficiency, it is high since both the cost and implementation period of the project were as planned. Furthermore, the ex-post evaluation study has found that the project sustainability is fair. Although there have been observed some problems in the operation and maintenance of the project facilities in terms of its management, technical skills and financial resources, it is expected that the Government of Mali would make further efforts to cope with those challenges.

In light of the above, although having certain problems in effectiveness and sustainability, this project is evaluated to be satisfactory.

1. Project Description



Project locations



The project borehole with a hand pump

1.1 Background

As of 2003, when the Basic Design Study of this grant aid project was undertaken, the proportion of the population having access to safe water was 65%. Of this population, the rate of water supply in rural areas was as low as 57%, while that of urban areas was 87%. Thus those residents with no source of safe water in rural areas depend on draw wells, rivers and ponds, and this has often caused

waterborne infectious disease particularly for infants. Furthermore, water-drawing labor has deprived women and school age children of their opportunities for schooling or pursuing productive activities to gain income.

Given these problems associated with water scarcity, the Government of Mali has developed a policy of improving water supply with provision of at least one safe water source for each village.

As a part of such effort, this grant aid project was requested by the Government of Mali in order to increase a reliable supply of safe drinking water, targeting rural communities in the respective Region of Kayes, Segou and Mopti where water service coverage remains particularly limited.

1.2 Project Outline

The objective of this project is to ensure a reliable supply of safe water in Region of Kayes, Segou and Mopti by providing water supply facilities.

| | |
|-----------------------------------|--|
| Grant Limit / Actual Grant Amount | 1,493 million yen / 1,473 million yen (1 st phase: 227 million yen/ 220 million yen) (2 nd phase: 1,266 million yen/ 1,253 million yen) |
| Exchange of Notes Date | 1 st phase: December, 2003 2 nd phase: May, 2004 |
| Implementing Agency | National Water Department (DNH) at the Ministry of Mines, Energy and Water |
| Project Completion Date | 1 st phase: March, 2005 2 nd phase: March, 2005 (Term 1) : March, 2006 (Term 2) : March, 2007 (Term 3) |
| Main Contractor(s) | Urban Tone Corporation |
| Main Consultant(s) | Sumiko Consultants, Co.Ltd., Sanyu Consultants, Inc. (JV) |
| Basic Design | August, 2003 |
| Related Projects (if any) | Grant aid of JICA: “Water Supply Project in Kati, Koulikoro and Kangaba Cercles” (1999-2000) “Drinking Water Supply Project in the Southern Mali” (2008-2010) Project by other international organizations and aid agencies: “Technical advisor for the advisory team of DNH on installing drinking water supply facilities” (1994-2010, KfW, AFD and UNICEF) “Water Supply Project in Rural Communities in the Region of Kayes” (1998-2008, UNICEF) “Water Supply Project in Rural Communities in the Region of Mopti and Tombouctou” (1998-2004, Islamic Development Bank) |

| | |
|--|--|
| | <p>“Water Supply Project in Rural Communities in the Region of Kayes and Koulikoro” (1998-2004, Islamic Development Bank)</p> <p>“Water Supply Project in Rural Communities in the Region of Kayes, Koulikoro, Sikkaso and Segou” (2001-2004, World Bank)</p> <p>“Water Supply Project in Rural Communities in the Region of Sikkaso, Segou and Tombouctou” (2000-2005, AFD)</p> <p>“Water Supply Project in the Region of Kayes” (2003-2005, KfW)</p> |
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2. Outline of the Evaluation Study

2.1 External Evaluator

Machi KANEKO, Earth and Human Corporation, Ltd.

2.2 Duration of Evaluation Study

This ex-post evaluation study was undertaken on the following schedule.

Duration of the Study: October, 2010 –October, 2011

Duration of the Field Study: February 26, 2011 – March 18, 2011 and May 2, 2011–May 15, 2011
July 21, 2011–August 6, 2011

2.3 Constraints during the Evaluation Study

Not found.

3. Results of the Evaluation (Overall Rating: B¹)

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Policy of the Republic of Mali

In a planning phase of this project, the governmental policy in water supply sector was developed upon the “Water Resources Development Plan (1999-2001)”³ and the “Infrastructure Development Plan in Rural Areas (1998-2002).”⁴ These plans revealed objectives to improve access to safe water in rural areas by providing at least one safe water source facility in every village. Also, the “Five-Year Plan (2000-2005)” that comprises those two development plans had set goals of achieving a safe water supply rate of 80% and eradicating waterborne infectious diseases which account for 60% of the total diseases in the country. Furthermore, the “National Programme for Access to Drinking Water (2004)” targets providing at least 75% of the necessary and safe water supply by 2015, which is

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, and D: Unsatisfactory

² ③: High, ②: Fair, ①: Low

³ The “Water Resources Development Plan (1992-2001)” was developed in cooperation of UNDP.

⁴ The “Infrastructure Development Plan in Rural Areas (1998-2002)” was developed in 1997 in cooperation with the World Bank and other agencies.

also promised in the Millennium Development Goals (MDGs).

The project was designed to ensure sustainable and safe drinking water sources in Region of Kayes, Segou and Mopti where water service coverage remains particularly limited. It can be said that its objective is to respond to such needs, thereby consistent with the above-mentioned water sector policy and the national development plan of Mali.

The ex-post evaluation study further examined the relevance of the project after the project completion. The “Development and Poverty Reduction Strategy” revised in 2006 addresses to achieve the target 7 of the MDGs to “reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation.” The above-mentioned “National Programme for Access to Drinking Water,” moreover, was revised in 2009 as the “Action Programme for Access to Drinking Water.” This targets at least 75% of the population having improved access to safe water by 2012, bringing the target year forward three years.

Given these policy backgrounds, the project objectives to provide improved safe water sources have been consistent with the development policy of Mali at the time of the project appraisal, thereby the relevance of the project is high. Also after the project completion, its ex-post evaluation has found that the project objectives and directions remain consistent with the “Development and Poverty Reduction Strategy” currently under implementation. In addition, the project continues to be relevant since urgent needs for improving access to safe water are addressed such policy as the “Action Programme for Access to Drinking Water.”

3.1.2 Relevance with the Development Needs of Mali

Since the late 1970s, the Government of Mali, with a help of aid agencies, has committed to construct safe water facilities in order to improve severe water scarcity in rural communities. Accordingly, at the time of the Basic Design Study of this project, the availability of water sources seemed to be gradually increasing. At the same time, however, the water supply rate in rural areas in Mali was as low as 57%, and poor sanitation had been prevalent in many of the villages.

According to DNH, as of the ex-post evaluation study in 2011, the proportion of the population having access to safe water in Mali was increased to 75.5%, compared to 65% at the time of the project appraisal. However, the proportion of the rural population having such access remains 73.9%, while that of urban cities was 79.3%. Availability of water sources also varies depending on regions and districts (cercles), and people in rural communities, in particular, continue to face water scarcity.

For this reason, improving water supply in those rural areas is an urgent need which Mali is expected to make consistent efforts to meet.

3.1.3 Relevance with Japan’s ODA Policy

In Mali, the Government has made efforts for poverty reduction, undertaking decentralization and privatization of state-owned enterprises. In planning this project, it was considered to be highly

significant for Japan’s Official Development Assistance (ODA) to support such efforts of Mali in achieving sustainable development and poverty reduction that were underpinned in the ODA Charter (1992-2002). More concretely, the project was consistent with Japan’s aid priorities in meeting basic human needs including infrastructure as well as in promoting primary education, water supply and agriculture, by employing grant aid projects.

In the light of all these policy directions, this project has been highly relevant with Mali’s development plan, development needs as well as Japan’s ODA policy, and therefore its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

The project outputs are indicated in the Table 1, showing no major differences in the planned and actual outputs. In the respective regions of Kayes, Segou and Mopti, a total of 233 boreholes with hand pumps and 3 small water facilities have been provided as planned. On the other hand, there have been minor changes in specifications of the facilities.

Table 1 The planned and actual project outputs

| Facility | Planned | Actual |
|-------------------------------|---|---|
| (1) Boreholes with hand pumps | Kayes: 89 hand pumps (India-Mali Mark II) | Kayes: The number of hand pumps and the specification as planned |
| | Segou: 81 hand pumps (India-Mali Mark II) | Segou: The number of hand pumps and the specification as planned |
| | Mopti: 38 hand pumps (India-Mali Mark II) 25 stepping pumps (Vergnet Hydropump 100) | Mopti: 63 hand pumps (India-Mali Mark II: 61) (Hydro-India 60: 2) The number of pumps as planned The specifications made the following changes; 1) 25 hand pumps were installed instead of 25 stepping pumps. 2) Two of the above hand pumps installed iron-removal equipment with higher spout type pump. |
| (2) Small water facilities | Kayes: 1 village (6 common faucets) Segou: 1 village (13 common faucets) Mopti: 1 village (7 common faucets) | Kayes: mostly as planned Allocation of piping lines was change in order to bypass main roads under pavement work. Segou: as planned Mopti: as planned |

The changes in outputs are primarily due to the following reasons.

1) Change in specification from “stepping pump” to “hand pump”

The initial project plan in Mopti suggested that a borehole with drilling depth of more than 60 meters employ stepping pump instead of hand pump. In the following Detailed Design Study, however, the National Water Department (DNH) requested that it should be avoided women draw drinking water with foot as it is of sacred nature.

Accordingly, all the 63 project sites in Mopti have installed boreholes with hand pumps, regardless of the drilling depth. Taking such a local practice into consideration, the Government of Japan agreed with that of Mali upon this change in specification, which is considered to be a reasonable adjustment.

On the other hand, the field study during the ex-post evaluation has found many of hand pumps out of order. The malfunction of the facilities seems more likely to occur in the project sites where stepping pumps were substituted with hand pumps for the above-mentioned reason (About 12 out of the 18 sites have facility failure). This indicates that the installed facilities need more appropriate maintenance, and the details are further discussed in the following section of “3.5 Sustainability.”

2) Installation of iron-removal equipment with hand pumps

The initial plan suggested that if a selected project site had any problem in water quality, then an alternative village should be reselected. In Mopti, it was found groundwater in some villages tend to include iron. Accordingly, two target villages in the region were subject to this problem, but it was turned out to be difficult to select alternative villages in the surrounding areas having water sources without iron. Moreover, these two villages faced



Iron-removal equipment installed along with a borehole with a hand pump (Woroyesso village in Mopti)

particularly severe water scarcity due to an increasing population. Despite the high level of iron contained in water, the result of drilling showed abundant water sources there. The residents, facing a growing need of a new water facility, strongly desired an installation of iron-removal equipment in boreholes. Accordingly, based on an official request of design changes submitted by DNH, the Government of Japan approved providing iron-removal equipment and an alternative hand pump with a higher spout. Changing specifications was considered relevant as it was carefully decided upon a cost comparison between installing iron-removal equipment and undertaking new drilling in other villages.

After all, however, the field study during the ex-post evaluation has found in two project sites hand pumps with iron-removal equipment were not properly working. Again, this indicates that the installed facilities need more appropriate maintenance, and the details are further discussed in the following section of “3.5 Sustainability.”

(3) Change in water piping of the small water facility in Kayes

Piping to install a small water facility was initially designed to cross under main roads between

Bamako and Kayes. However, its pavement work previously planned was completed before this piping installation was started, and as a result, the allocation of water pipe was reassigned to run through culvert laying 173 meters in west of the water source. This change was considered necessary to complete the piping work, and therefore it was a reasonable decision.

3.2.2 Input

3.2.2.1 Project Cost

While the Government of Japan had estimated the grant limit of 1,493 million yen (227 million yen for 1st phase and 1,266 million yen for 2nd phase), the actual grant amount disbursed was 1,473 million yen (220 million yen for 1st phase and 1,253 million yen for 2nd phase). Therefore, the project cost was lower than planned (99%).

As for the Government of Mali, the actual cost disbursed was 90,000,000 FCFA, compared to the planned cost of 95,064,000 FCFA, therefore it was mostly as planned.

3.2.2.2 Project Period

The actual project period was mostly as planned, taking 38 months (100%) from the Detailed Design Study in February 2004 to completion in March 2007.

In the light of these, both the project cost and the project period were mostly as planned, therefore efficiency of the project is high.

3.3 Effectiveness (Rating: ②)

3.3.1 Quantitative Effects

(1) Increase in population of water supply realized by the project

Population and operating rate by region and those by water facility are indicated in the Table 2 below.

As of 2009, the actual total population of water supply covered by this project was 100,791, and it is 35,000 less than the target value of 2007 estimated to be 135,047 at the time of the Basic Design Study of this project (achieving only 75% of the planned value).⁵ This is primarily because some of the water facilities are not fully operating.

In accordance with results of defect inspection conducted one year after a transfer of the completed facilities,⁶ any malfunctioning facilities have been repaired. As indicated in the Table 2, however, a facility survey⁷ pursued during the ex-post evaluation found facilities in project sites were still not in

⁵ The output values of 2009 is estimated by DNH according to data of the National Census 2009, and any data prior to 2008 is a provisional estimation based on the previous data set of population. Therefore, a comparison between the end target and output in the same particular year is not applicable here.

⁶ The constructed water facilities were officially transferred to the Government of Mali respectively from January to March 2005 in Segou, March 2006 in Mopti, and March 2006 and March 2007 in Kayes.

⁷ This facility survey, conducted from March through May in 2011, examined operating status of the project boreholes with hand pumps on 34 out of 81 sites in Kayes, 56 out of 63 sites in Mopti, and 34 out of 81 sites in Segou. Those project sites in which pump renewals were completed by other donors were excluded from the survey targets. (There are one site in Segou

full operation. The number of the facilities under operation⁸ by region was respectively 27 out of 38 in Kayes (71.1%), 22 out of 34 in Segou (64.7%), and 33 out of 56 in Mopti (58.9%). The result shows some residents remain unable to use the project facilities.

According to the results of defect inspection, moreover, the operating rates one year after the transfer of the facilities are respectively 97.8% in Kayes, 82.7% in Segou, and 87.3% in Mopti, as indicated in the Table 2. It suggests that the maintenance of the facilities varies depending on the regions as of a year from the transfer.

It should be noted that the project initially expected to achieve its target population (135,047 as of 2007), assuming that provided facilities would maintain the full operation rate. On the other hand, Mali's national development strategy on potable water aims about 70 to 80% of the operating rate of boreholes with hand pumps.⁹ From this, it is recommended that a similar project in the future needs to carefully estimate an end target including population, by considering a realistic operating rate a few years after the project completion.

As for small water facilities, although there have been observed some parts failures in Mopti, water pumps are functioning. The population of water supply has reached 13,030 totaled in three regions, achieving more than the end target.

Table 2 Comparison of population of water supply before and after the project implementation and the operating rates of the facilities

| Indicator (person) | | End target (2007) | Output (2009) | Operating rate of facilities | |
|---|------------------------------------|-------------------|---------------|--|--|
| | | | | As of a facility survey between Mar.-May, 2011 | After defect inspection (prior to repairs) (A year after the transfer of the project facilities) |
| Increase in population of water supply by this project (person) | | | | | |
| Kayes | | 46,032 | 37,200 | | |
| Segou | | 56,975 | 39,247 | | |
| Mopti | | 32,040 | 24,343 | | |
| Total | | 135,047 | 100,791 | | |
| Type of water facility | 【Boreholes with hand pumps】 | | | | |
| | Kayes: 89 villages | 43,791 | 34,750 | 71.1% | 97.8% |
| | Segou: 81 villages | 51,764 | 32,062 | 64.7% | 82.7% |
| | Mopti: 63 villages | 29,239 | 20,948 | 58.9% | 87.3% |
| | Total | 124,764 | 87,761 | | |
| | 【Small water facilities】 | | | | |
| | Kayes: 1 village | 2,241 | 2,450 | 100.0% | 100.0% |
| | Segou: 1 village | 5,211 | 7,185 | 100.0% | 100.0% |
| | Mopti: 1 village | 2,801 | 3,395 | 100.0% | 100.0% |
| | Total | 10,253 | 13,030 | | |

Source: The Basic Design Study Report, data provided by DNH and Regional Water Departments, the results of the facility survey, and the Defect Inspection Report

and 7 sites in Mopti.)

⁸ Being "under operation" refers to a project facility in a good condition of pumping, observed by a surveyor on the site, and the operating rates are provided based on the number of such facilities. In other cases, an operating rate may be calculated by way of monitoring a facility for a certain period of time, for instance, from downtime to recovery of a hand pump.

⁹ It is not indicated such operating rate should be sustained over how many years after the facility completion.

The facility survey conducted along with the ex-post evaluation included a water quality survey.¹⁰ It examined safety of water sources by drawing water from either small water facilities or boreholes with hand pumps, both that were provided by the project. The test results found neither general bacteria nor coliform, and therefore the water sources in the project sites were concluded to be very clean compared with draw wells and large-diameter wells (The detailed outcomes of the water quality survey will be discussed in the section of “Impact.”) Accordingly, it suggests that using water facilities provided by the project ensures access to safer water which is not contaminated with general bacteria or coliform.

(2) Population and rate of water supply by region

The population and the rate of water supply in respective regions are indicated in the Table 3 as below.

As of 2009, the population of water supply in the three regions was 3,849,325, significantly above the end target of 2,132,780 in 2007. This increase is presumably due to the effects of projects implemented by donors other than Japan such as Germany, France and UNICEF supporting the water supply sector in Mali. Aside from this, it should be noted that the end target in 2007 and the actual output in 2009 were estimated based on the national census¹¹ with different survey methods, and therefore these two values are not in fact applicable to a practical comparison.

As for the rate of water supply by region, the output value was 70.9% in Kayes, and 58.1% in Mopti, achieving the end target of 59% and 48% respectively. In Segou, on the other hand, the output value was 53.5% or approximately 10% lower than the end target estimated to be 64%. This is primarily due to its largest population among the three target regions. Also, people in Segou generally have more access to draw wells in their villages, and the Government of Mali and other donors had tended to prioritize other regions in assisting borehole construction.

¹⁰ The water quality survey used a simple test kit to examine coliform, general bacteria, pH, nitrous nitrogen (NO₂), nitrate nitrogen (NO₃), and iron (Fe). Although detecting coliform or general bacteria in water does not necessarily pose a danger, there is a possibility of contamination, for instance, by animal excreta.

¹¹ The national census in 2009, applying a new survey method, is the latest official data on the population in Mali. Unlike the previous census in 1998, the new method employed a large number of survey workers, directly hearing household. The population data prior to 2008, which has been widely used, is estimated based on the census in 1998, and therefore the National Bureau of Statistics points out it cannot be compared with data after 2009.

Table 3 Population and rate of water supply by region, and national rate of water supply

| Indicator (unit of measure) | Baseline (2002) | End target* (2007) | Output** (2009) | Reference data |
|--|-------------------------------|-------------------------------|-------------------------------------|--|
| Population of water supply by region (person) | 1,997,733 | 2,132,780 | 3,849,325 | |
| Kayes Segou Mopti | 622,908 790,310 584,515 | 668,940 847,285 616,555 | 1,415,740 1,249,896 1,183,689 | (Population by region based on National Census 2009)** Kayes: 1,996,812 Segou: 2,336,255 Mopti: 2,037,330 |
| Rate of water supply by region (%) | 55% | 59% | 70.9% | (Rate of water supply by region estimated for 2010)*** |
| Kayes Segou Mopti | 60% 45% | 64% 48% | 53.5% 58.1% | 73.3% 58.7% 65.2% |
| National rate of water supply (%) | 65% | | 73.1% | 75.5% |
| Urban areas | 87% | | 77.4% | 79.3% |
| Rural areas | 57% | | 71.4% | 73.9% |

* End target in 2007 adds a baseline value in 2002 on increased population of water supply realized by this project.

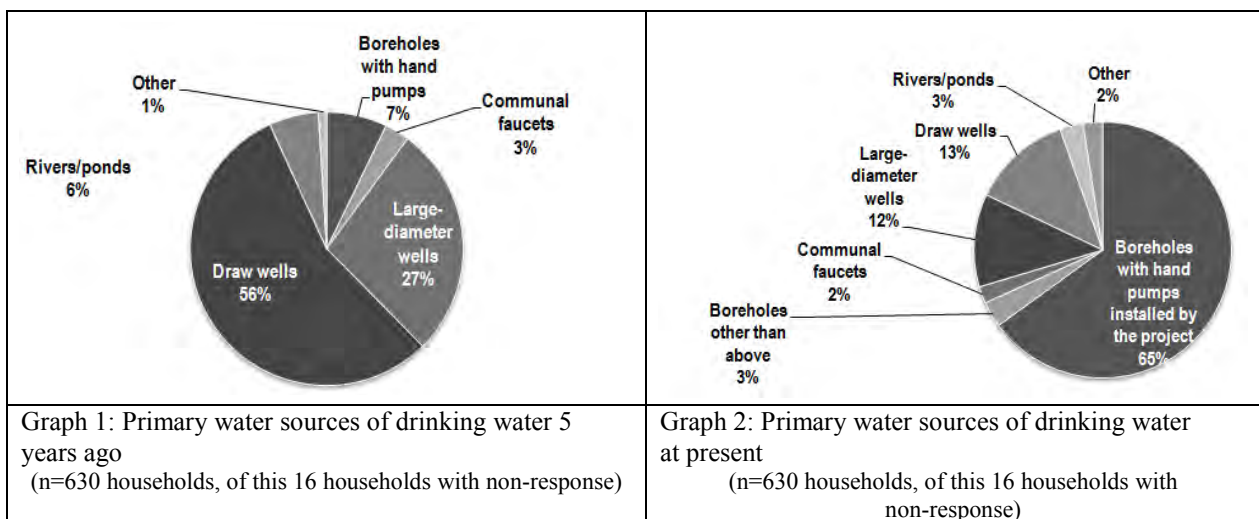
** Population and rate of water supply in 2009 are officially estimated output provided by DNH using data of the National Census 2009.

*** Rate of water supply in 2010 is provisional estimation by DNH based on the National Census 2009, Mid-term budget framework, construction and rehabilitation plans of water supply facilities.

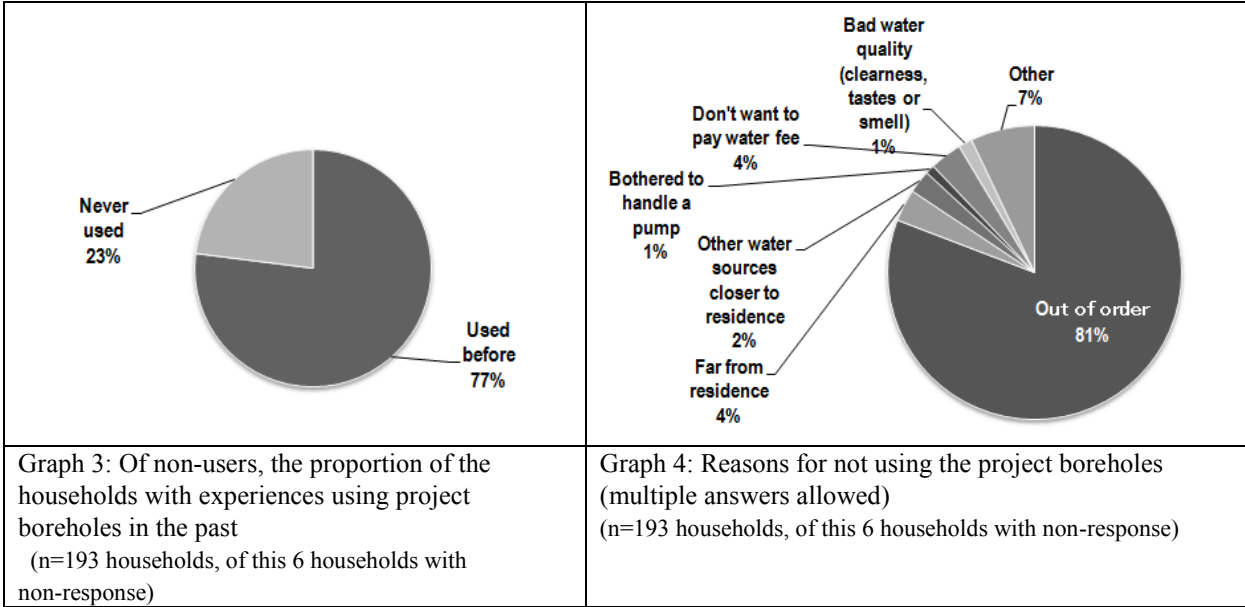
3.3.2 Qualitative Effects

(1) Status of utilization

During the ex-post evaluation study, a social survey was conducted over 630 households in 26 villages who have access to boreholes provided by this project. Selection of the target villages has taken into account of their population size. The Graph 1 and 2 below indicates primary sources of drinking water before and after the project implementation. Five years ago when the project was not yet under implementation, the proportion of the households having access to boreholes was 7%, and now 65% of the households use water for drinking and cooking from boreholes installed by the project.

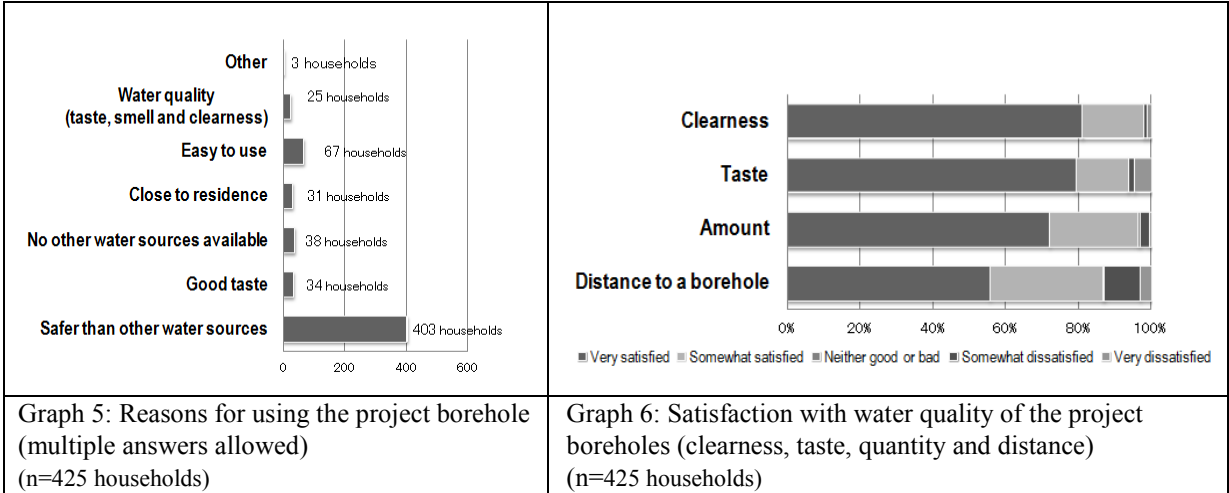


About 193 households said that they were not currently using the project boreholes to drinking or cooking water, although about 80% of them answered that they used to do in the past (Graph 3). Of these households, 81% pointed out facility malfunction for its reason (Graph 4). It suggests that the poor operating condition has partly a negative effect on the project objective to “ensure the reliable supply of safe water.”



(2) Water quality and facility site

As indicated in the Graph 5, among 425 households using the project boreholes for drinking water, about 90% said its water quality is safer than that of other water sources such as draw wells. Furthermore, 97% of the borehole users were satisfied with water they use in term of its quantity. Also, 94% of them are satisfied with its taste, while 98% are satisfied with its clearness (Graph 6). Therefore, the residents in the project sites are highly satisfactory in overall water quality.



Recognizing a safety of water of the project boreholes, almost all of the households said that a

quality of drinking water is a key determinant of health. From the hearing of the field study, it was found some cases children drinking water of the project boreholes were less likely to have diarrheal diseases. It suggests that residents have somehow experienced improvement of water quality and basic sanitation compared to before the project implementation.

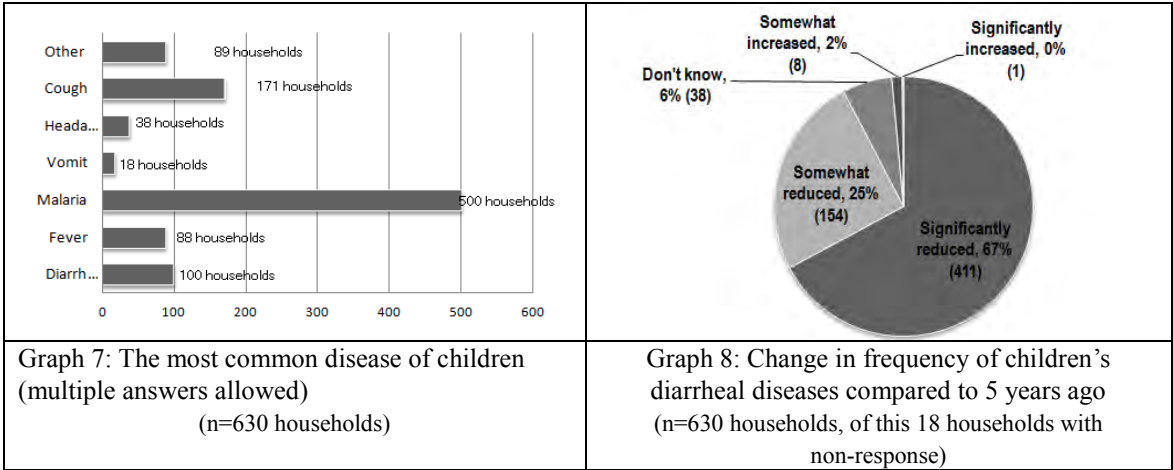
In the light of these outcomes, although observing some qualitative effects, the project has not achieved the target population of water supply, and therefore the overall effectiveness is evaluated to be fair.

3.4 Impact

3.4.1 Intended Impacts

(1) Occurrence of diarrheal diseases

According to the results of the social survey, while 500 out of 630 households pointed to malaria as the most common disease of children, 100 households said diarrhea is the second frequent disease (see Graph 7). As the Graph 8 shows, the project has contributed to a reduction of children’s diarrheal diseases, with 92% of the households responding a frequency of their children’s diarrheal diseases have been “significantly reduced” or “somewhat reduced” compared to five years ago (2005).



Furthermore, as in the Table 4¹² and 5, the water quality survey over the project boreholes provides evidence that residents now have access to safe water. The water found neither general bacteria nor coliform that cause diarrhea, while other large-diameter wells and draw wells detected contaminations of those bacteria. In addition, the project has significant outcomes in increasing access to safe water for residents in rural areas, remote from the regional capital cities or central villages.



¹² The water quality survey used a simple test kit to examine coliform, general bacteria, pH, nitrous nitrogen (NO₂), nitrate nitrogen (NO₃), and iron (Fe).

Table 4 Results of the water quality survey conducted in the ex-post evaluation study (the number of the sites with bacteria detection)

| Testing site | Kayes (of 27 sites) | Segou (of 22 sites) | Mopti (of 33 sites) | River | Draw wells | Large-diameter wells |
|------------------|---------------------|---------------------|---------------------|----------|------------|----------------------|
| General bacteria | 0 | 0 | 0 | detected | detected | detected |
| Coliform | 0 | 0 | 0 | detected | detected | detected |
| pH | 0 | 0 | 0 | 0 | 0 | 0 |
| NO ₂ | 0 | 0 | 0 | 0 | 0 | 0 |
| NO ₃ | 0 | 0 | 0 | 0 | 0 | 0 |
| Fe (iron) | 0 | 0 | 0 | 0 | 0 | 0 |

Note: Details on test items including their criteria and descriptions are provided in the Table 6 below.

Table 5 Test results of coliform and general bacteria* (culture time of 24 hours+)

| | |
|---|--|
|  |  |
| <p>Borehole with hand pump in the project site (Niangari Village in Mopti)</p> | <p>Draw well (Aboudouma Village in Mopti)</p> |
|  |  |
| <p>Niger River (Segou)</p> | <p>Large-diameter well (manual drawing with a bucket) (Bankass in Mopti)</p> |

* The test used examination papers for bacteria detection. Generally, after soaking papers in test liquid for 24 hours, it counts the number of colonies appeared on the papers. The water quality survey in this ex-post evaluation study recorded any visible colonies as “detected” without using detection equipment, therefore the accurate number of colonies are not provided in the Table 5. Accordingly, as in the above photographs, changes in colors from light yellow to red purple on the tested papers show colonies of coliform and general bacteria found in Niger River, draw well and large-diameter well.

Table 6 General criteria of water safety by test items and the descriptions

| Test item | WHO Standard (allowable range) | Description |
|------------------------------------|---|--|
| General bacteria | Less than 100 colonies in 1 ml of water | Although many of general bacteria detected are not pathogenic germ, they are more likely to be found in contaminated water. Thus the number of general bacteria indicates degree of contamination and safety of drinking water. |
| Coliform | Not detection | Although coliform is not generally pathogenic, some of them cause diarrhea and bowel inflammation, called “Escherichia coliform.” |
| pH | Between 6.5 and 8.5 (Between 6.5 and 9.2) | Although a neutral pH is desirable in terms of preventing corrosion of water pipes, there is no evidence-based specific range of pH in drinking water that possibly affects health. |
| NO ₂ (nitrite nitrogen) | Less than 0.5mg/L (Less than 3mg/L) | A health effect is that nitrate nitrogen rapidly reduced to nitrite nitrogen in the body reacts with haemoglobin in the blood, causing methemoglobinemia. In particular, babies under 6 months are subject to this symptom. Nitrate nitrogen widely exists in soil, water and plants including vegetables, while nitrite nitrogen is also included in very low concentration. Those found in water come from wastewater, factory disposal, human waste, fertilizer, carcass and garbage. These two elements are used as an indicator of contamination. |
| NO ₃ (nitrate nitrogen) | Less than 50mg/L (Less than 50mg/L) | |
| Fe (iron) | Less than 0.3mg/L (Less than 1.0mg/L) | Iron generally detected in drinking water has no harm on health, but it causes color (red) or unusual taste and smell (metallic odor and bitterness). |

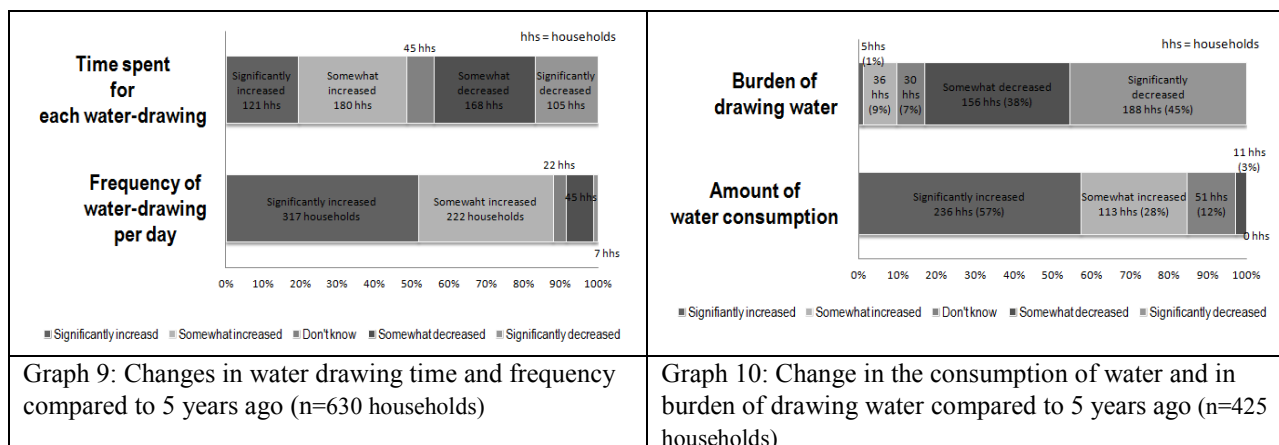
(2) Reducing burden of drawing water

The result of the social survey indicates that in more than 60% of the households women are responsible for drawing water. It also reveals that more girls than boys engage in such work. This tendency has hardly changed compared to five years ago in the target villages and elsewhere.

For some household, as observed in the field study, using the project boreholes instead of the nearest water sources such as draw wells has increased a walking distance from their residence areas. Compared to five years ago, about a half of the households said it takes more time per water drawing, while the rest answering spending less time (see Graph 9). Furthermore, more than 90% of the households said that a frequency of drawing water per day has increased compared to five years ago, with 36% of twice a day, 17% either once a day or three times a day.

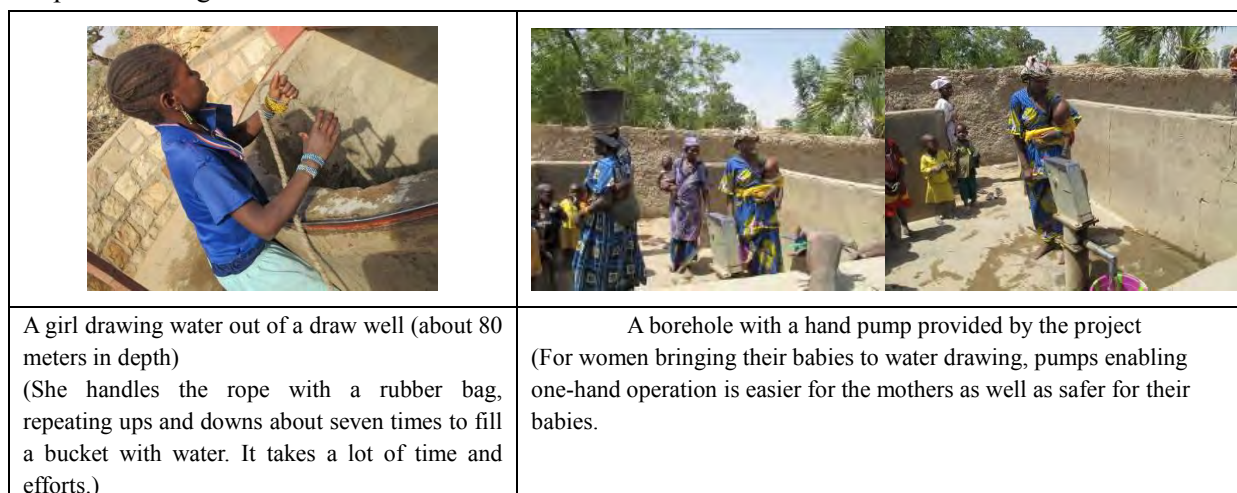
In addition to the above, 85% of the households using the project boreholes said they use more amount of water on a daily basis compared to five years ago (see Graph 10).

Given these survey results, while burdens of drawing water have seemingly increased, 83% of the households responded that it has actually decreased, as shown in the Graph 10.



The results indicate that, along with an increasing frequency of water drawing and more water consumption, time spending in water-drawing work has actually increased. Nonetheless, many households feel water-drawing work less burdened than before. The major reason of this outcome is an installation of hand pumps with the boreholes.

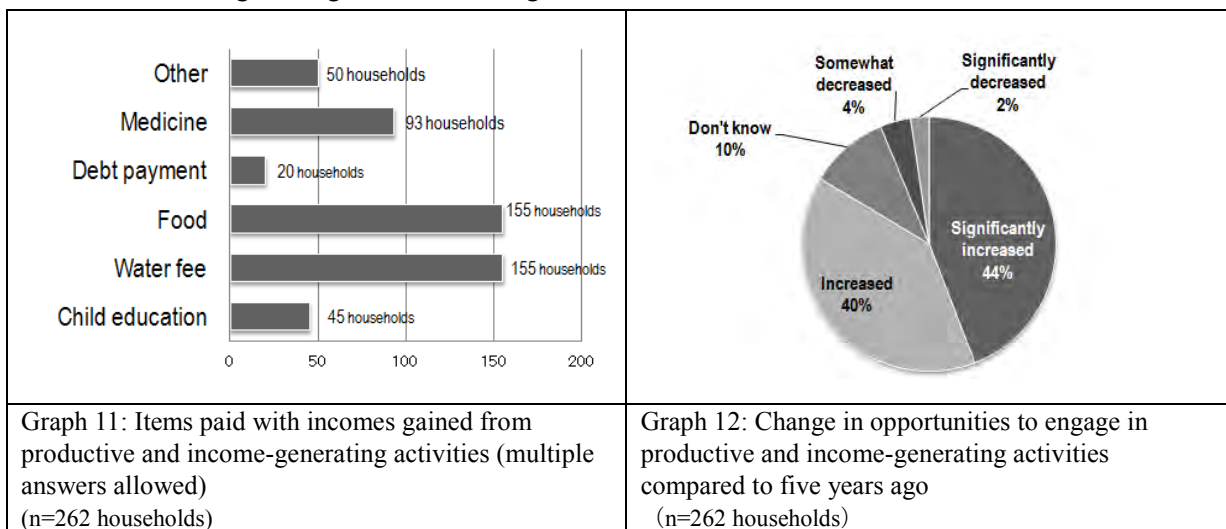
For women and children in villages, large-diameter wells and draw wells impose them hard work, repeatedly drawing up and down a hanging rope with a rubber bag. Five years ago, about 60% of the households relied on those types of wells, but hand pumps installed by the project have enabled women and children to easily draw water with less time as shown in the photo below in the right. This has led those users to feel less burdened in water-drawing work. Besides, an availability of new water source has an effect on the increase of water consumption per household, contributing to improved living environment with more access to water.



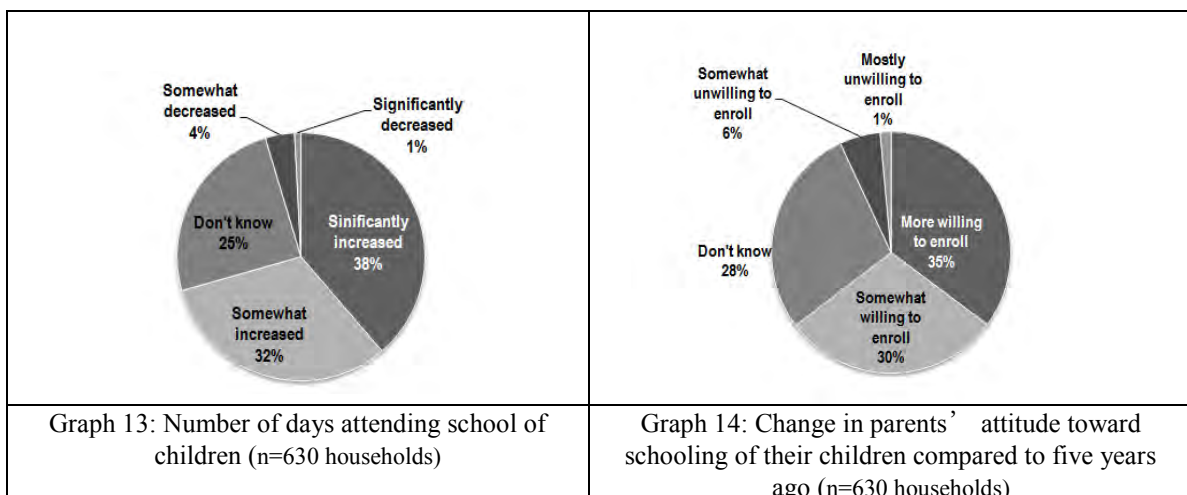
On the other hand, 86% of the households said that it takes up to 30 minutes of walk to a project borehole from their residence. A location of a borehole should be carefully determined so that its accessibility increases facility users, allowing them less time and effort required in water-drawing work.

(3) Women engaging in income-generating activities and productive activities

According to results of the social survey, the proportion of the women engaging in productive or income-generating activities in the target villages is about 40% (262 out of 630 households). With this income earned, they pay for water, food, medicine and other provisions (Graph 11). About 84% of the household said, compared to five years ago, they are more likely to be involved in productive or income-generating activities (Graph 12). Furthermore, 91% of the households said their family incomes have been increased by such activities. Behind this, they have presumably become able to spend more time in productive activities partly as a result of reduced labor in drawing water. According to a local NGO helping rural development, furthermore, women increasingly need to make up for family incomes by productive activities including agriculture, as more men leave their villages for Bamako or neighboring countries as migrant workers.



As shown in the Graph 13, 70% of the households said that their children go to school more regularly than five years ago, indicating more parents encourage them to obtain education. In addition to an increasing number of schools constructed in rural areas, children of school age who used to engage in domestic work such as water drawing are allowed to have more time for attending school. Also, Graph 14 indicates 65% of the household answering they have become more willing to enroll their children in school.



While women's involvement in income-generating activities and children's schooling opportunity have increased compared to five years ago, such impact is also largely attributed to other factors including increasing migrant male workers and school construction. Actually, the social survey has found non-target villages are also experiencing the similar improvement of livelihood for women and children.¹³ Nonetheless, given the slightly higher impact over the target villages, it can be said that the project has contributed to inducing positive outcomes mentioned above.

¹³ The social survey conducted inquiries in non-target eight villages in Mopti in order to compare counterfactual outcomes of no project intervention. These villages initially selected for project sites during the Basic Design Study found no viable water sources in the process of drilling, and thereby the project has not been implemented.

BOX 1 Results of Project Impact Analysis with Statistical Social Survey

The ex-post evaluation study attempted to apply quantitative effect measurement method in order to assess the project achievement and impact in more detail. The summary of the analysis is as follows.

Objective

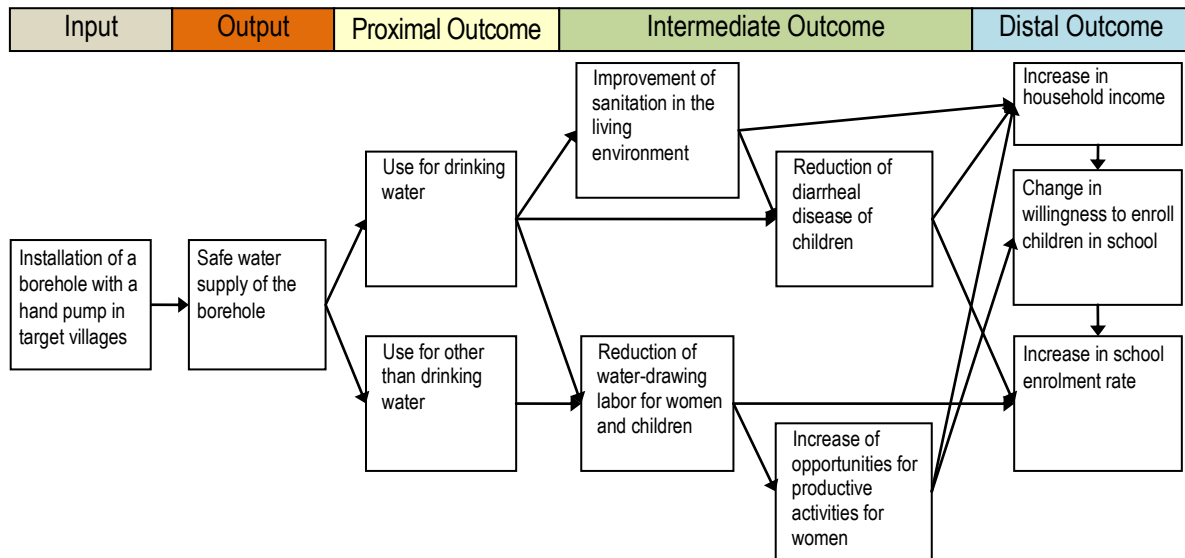


Diagram 1 A theoretical model (an assumed causal chain from “input” to “distal outcome” of this project)

Diagram 1 shows a theoretical model drawing on the ex-ante evaluation sheet of this grant aid project and previous experiences of similar projects. It represents a causal relation in three sequential stages responding to proximal, intermediate and distal outcomes. For instance, the model above suggests that installing a borehole with a hand pump leads to an increase in consumption of safe water, which in turn results in reducing diarrheal diseases of children. In addition, it indicates another causal link that drawing-water labor is reduced as a result of installing a borehole with a hand pump, and this increases opportunities for women’s productive activities and children’s schooling.

The objective of this measurement method is to define causal relations among variables selected from data obtained from the social survey.

Method

After selecting 26 out of 63 villages in Mopti taking account of the population size, a social survey was conducted with a questionnaire over 630 households selected from those 26 villages in accordance with their population size. In addition, another set of 100 households in non-target villages was also surveyed. The survey questionnaire applies ordinal scale whenever possible to enable statistical analysis, asking about water supply of the project borehole, use for drinking water, drawing-work labor, sanitation, health, education, household income, facility maintenance and so on.

Statistical analysis is undertaken by performing Structural Equation Modeling (SEM) with SPSS19.0 and Amos19.0.

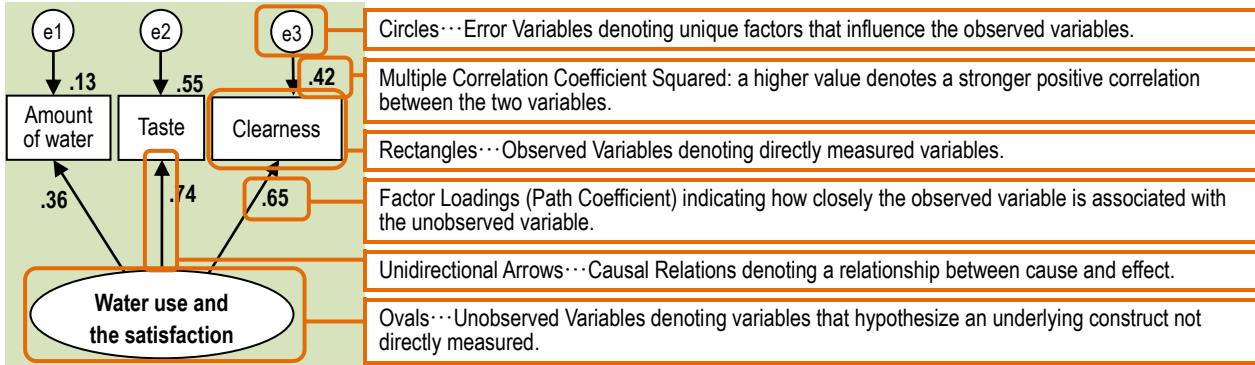
The procedure of the analysis is as follows.

- (1) With SPSS, database was created using data obtained from the social survey.
- (2) Based on a cross tabulation of the hypothesized model, a revised model was defined, selecting 29

variables.

- (3) As a result of performing a factor analysis of these 29 variables, a set of 19 variables and five factors was selected. These five factors include “water use and the satisfaction,” “improvement of women’s domestic work conditions,” “improvement of health,” “economic situation,” and “increase in schooling opportunity.”
- (4) Using the above five factors, a model of their observed response was illustrated in a pass diagram, and then a pass analysis was performed.

«Basic Path Diagram»



Results

Diagram 2 shows results of pass analysis. The chi square value (χ^2) is 248.29, with degree of freedom of 98, and $p < 0.001$. Goodness of fit index of the models is CFI=0.924, IFI=0.925, and RMSEA=0.060.

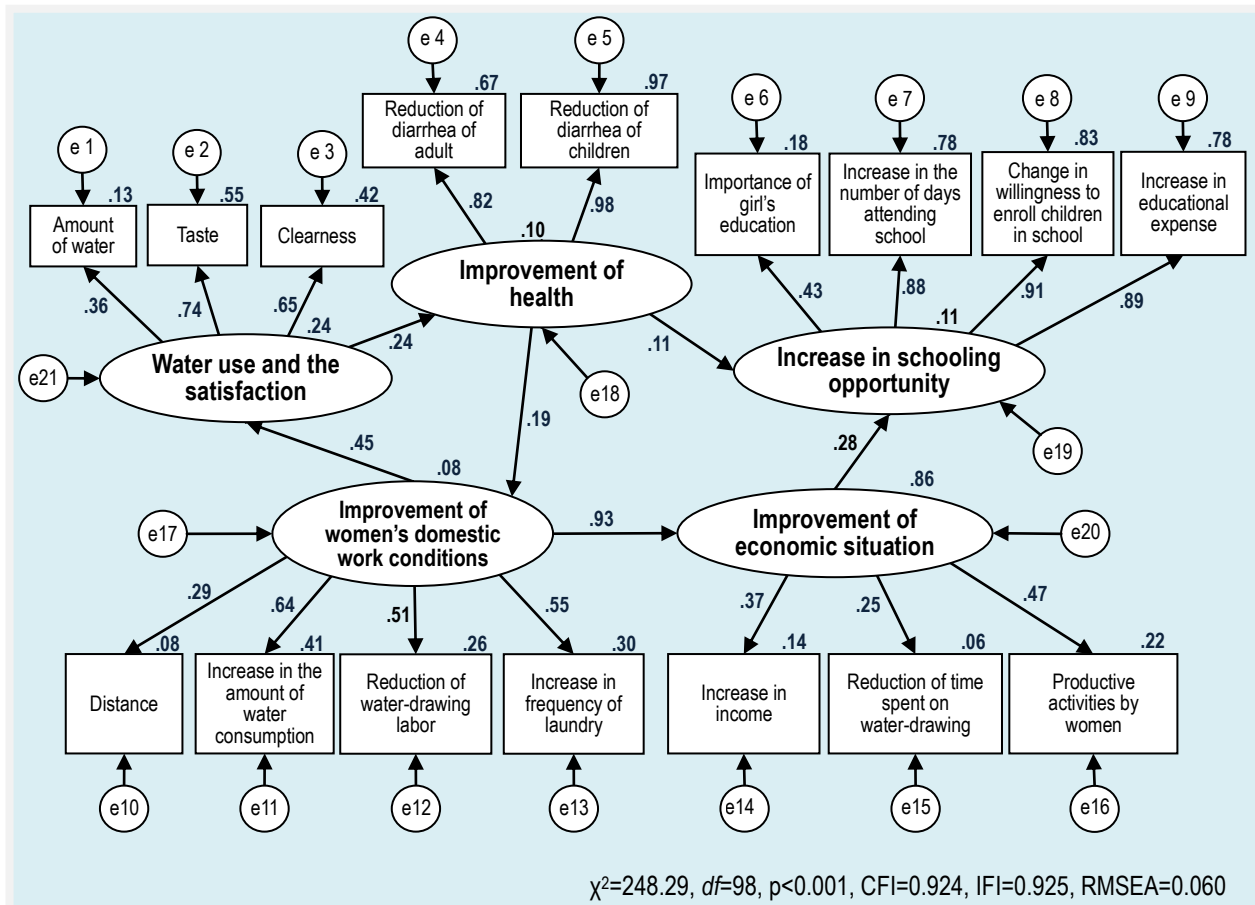


Diagram 2 Results of the pass analysis of households using the project boreholes

Conclusion

According to the results of the pass analysis above, causal interpretations are primarily as follows;

Users of the project boreholes are satisfied particularly with taste and clearness of water, leading to an increase in users. This increase has in turn improved domestic work conditions for women as well as overall sanitation in households, and moreover, access to safe water has brought about improved health.

Regarding improved domestic work conditions for women, in particular, they have felt water-drawing work less burdened than before as a result of enhanced usability of a hand pump, and an increased availability of water has obviously led to more frequent laundry. Furthermore, using safe water for drinking, cooking and washing of cooking utensil has contributed to improved sanitation in the living environment.

As for improvement of health, the respondents particularly feel that diarrheal diseases of children and family members have been significantly reduced by their using water of the project boreholes, which actually indicates strong correlation.

The improvement of economic situation is strongly related to that of women's domestic work conditions. Easier water-drawing work associated with the hand pump has led to reduced domestic work load. This has enabled women to engage in more productive activities, contributing to improved economic situation of their households.

On the other hand, an increase in schooling opportunity in the model has observed less correlation with using the project boreholes. This suggests that some critical factors other than an availability of the project boreholes have led to promotion of school enrollment. It should be mentioned that a growing number of school construction projects in the country have resulted in an increase in the gross enrollment rate from 66 percent in 2005 to 82 percent in 2009, although having not yet achieved a target value of 95 percent in 2010. In addition to school construction, furthermore, an increase in the enrollment rate generally requires associated efforts in enhancing parents' understanding of formal education for their children and in improving overall school management. These various factors are more likely to affect an increase in schooling opportunity, and as a result, the use of the project boreholes by itself has found to be less strongly correlated with promotion of school enrollment.

This SEM, indicating the CFI over 0.9, appears to be valid. On the other hand, its RMSEA is slightly over, and it is necessary to reproduce another model of good fit. Although data obtained from the questionnaires is unable to develop the above model to test further relationships, the outcomes of this pass analysis provide useful lessons for similar projects in the future. In particular, improving how to ask questions in a questionnaire will help conduct more efficient social survey.

3.4.2 Other Impacts

(Any project benefits on the target villages and the residents, impact on the environment, land acquisition and resettlement)

1. Impacts on the natural environment

According to a hearing of DNH, no impact on the natural environment has been particularly found.

2. Land Acquisition and Resettlement

No land acquisition or resettlement has been undertaken.

3. Unintended Positive/Negative Impact

No particular impact has been found.

To conclude, the project has given a positive impact over the target villages, contributed to improved access to safe water and basic sanitation including reduction of diarrheal diseases of children. Moreover, by improving water supply facilities (installing hand pumps and communal faucets), it has helped to reduce burden of water-drawing work for women and children. DNH and respective Regional Water Department stated that the project has given significant impacts in rural and remote areas facing with severe water scarcity. On the other hand, no negative impact has been found.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

(1) Boreholes with hand pumps

Prior to decentralization started in 2006, the National Water Department (DNH), with financial support of UNICEF, had undertaken repairs of damaged pumps, replacement of parts and training of local repair workers. Since then, respective communes, as owners of water supply facilities, have assumed a responsibility of operation and maintenance. However, because it is practically difficult for them to pursue all the necessary tasks the government had used to assume, a Water Management Committee (CGE) constituted of community members takes charge of overall maintenance. Apart from this, the facility operation and maintenance largely depend on geographical conditions of villages and their organizational capacities including financial resources. In many cases, these factors cause to prolong downtime.

The project had constructed water supply facilities in the process of which the Government of Mali had promoted decentralization mentioned above.

Moreover, the Basic Design Study of this project states that “DNH will be in charge of establishing CGEs, directing the target villages over operation and maintenance of the constructed facilities. Thus it is not necessary for the project to include component of strengthening local facility management.” Accordingly, the Government of Mali set up a CGE in each target village after the transfer of the project facilities.

Table 7 shows an organizational structure of a CGE and its primary roles as well as related parties in

maintenance work.

According to the results of the survey, the proportion of the existing CGEs is respectively 83% in Kayes, 97% in Segou and 82% in Mopti, and therefore the structure for operation and maintenance is generally sustained as expected. In the villages where CGEs are no longer functioning, their village chiefs or elders assume instead the responsibility in facility maintenance. This suggests maintenance work has been somehow carried on regardless of existence of CGEs.

Nonetheless, as discussed in the following sections of 3.5.3 and 3.5.4, there have been observed some problems in water fee collection and operating rates of the project facilities. Supposedly they resulted in part from failing to foster residents' participation in facility management in the process from CGE set up through a facility transfer.

Table 7 Organizational structure of the CGE, its primary roles and related parties in maintenance work

| Structure of CGE | Major roles of CGE defined in the Committee Rules | Parties related to maintenance of CGE |
|---|--|---|
| -President -Vice president -Secretary -Accountant -Auditor -Organization coordinator -Facilitator -Guardian on pumps -Sanitation and drainage | * Responsible for regular maintenance * Call for a repairer when overhaul is needed * Collect water fees from users * Make a reserve for renewing pumps * Report on a regular basis to a commune and a village committee as to technical problems and financial conditions | Commune: As an owner of water supply facilities, a commune is responsible for its overall management including repair, inspection and renewal of the facility. Pump repairer: A repairer is a qualified technician having completed a training provided by donors and import agents of parts supply. In some cases he is a retail store owner of spare parts. Private company supporting maintenance work: Supported by NGOs, a private company contracts with villages to pursue operation and maintenance. Regional Water Department in respective regions: Monitoring |

(2) Small water facilities

In Mali, maintenance of small water facilities are guided under the framework called “STEFI” (Technical and Financial Follow-up in Drinking Water Conveyance System)¹⁴ constituted of a

¹⁴ “STEFI or Technical and Financial Follow-up in Drinking Water Conveyance System” (Suivi Technique et Financier des Systemes d’Adduction d’Eau Potable) contracts out maintenance work to two private maintenance companies called “2AEP” and “GCSAEP.” Outsourcing of the maintenance work is allowed only for public water supply facilities provided the government and aid agencies, and several maintenance companies operate other water supply business run by the private sector. 2AEP undertakes maintenance in Zone 1 (Kayes), while GCSAEP is in charge of Zone 2 (Koulikoro, Sikkaso and Segou) and Zone 3 (Mopti, Tombouctou, Gao and Kida).

commune, a private maintenance company and an association of water users (AUE). STEFI was developed in support of Germany (KfW and GTZ) and France (AFD) in 2004. Until 2010, in accordance with that framework, DNH had been primarily in charge of managing small water facilities in respective villages through a consigning contract with private maintenance companies. In the process of decentralization, however, DNH withdrew from this framework in November 2011, and those three parties of a commune, a private maintenance company and an AUE are expected to share a responsibility for facility maintenance. It is currently at the stage of undertaking a procedure in making necessary changes in contract.

Among the three target regions, Mopti and Segou have established maintenance system in accordance with the government policy guidance, contracting with a private maintenance company called GCSAEP. In Kayes, on the other hand, making a contract with “2AEP” or a private company in charge of region-wide facility maintenance has been unsuccessful. This was due to a difficulty to obtain an agreement from residents of Same Plantation village over the STEFI framework. Thus, the commune, AUE and the village committee are working together for facility maintenance, and no particular problem has been so far reported in that cooperation. In accordance with the provisions of the STEFI framework, however, it is desirable to establish a reliable maintenance system, making a contract with a private maintenance company such as 2AEP.

As described above, operation and maintenance structure on small water facilities are mostly functioning as expected in the project appraisal.

3.5.2 Technical Aspects of Operation and Maintenance

(1) Boreholes with hand pumps

While CGEs are in charge of regular maintenance of boreholes with hand pumps, a repairer is ultimately responsible for fixing any damages.

Pump repairers working in the target villages have so far enough technical skills, experiences and tools, having completed or repeated a training provided by UNICEF and parts supply shops. On the other hand, sending such a skilled repairer to remote areas is often difficult. According to a Regional Water Department, an inexperienced pump repairer is more likely to complicate troubleshooting as a result of taking on a challenging task.

Given that the number of pump repairers and the level of their skills are almost identical, the reason for prolonged downtime, respective Regional Water Department said, was actually due to CGEs’ organizational capacities and financial resources. As described above, operating rates of the project boreholes with hand pumps vary depending on the regions. To foster CGEs’ functions, the Regional Water Departments need to implement measures such as a provision of retraining of its members.



(2) Small water facility

Over small water facilities in Mopti and Segou, as noted above, contracted private maintenance companies provide regular monitoring once a half year as well as technical guidance for electricians

and plumbers. Any problems in parts and equipment inspected during the monitoring are reported to the village meeting in attendance of the Regional Water Department. However, in some cases villages do not always respond to those suggestions of a maintenance company, since there is no regulatory mechanism to assure compliance.¹⁵ This needs to be improved by taking appropriate measures.

In general, electricians in charge of maintaining major components (a power generator and pumps) are supposed to be those who are selected within a village in accordance with a direction of a private maintenance company. Then they are required to go through a technical training before a transfer of project facilities is completed. On the other hand, AUEs in this project were organized after the project completion, and they assigned electricians with no consultation of private companies. As a result, in Madiama village in Mopti, for instance, it was reported low technical abilities of an electrician has worsened problems in pumping function.

In Kayes, although a private maintenance company is not involved in operation of the project facilities, electricians and plumbers with general technical skills have been selected from AUEs, finding so far no particular problems in their abilities.

| | |
|---|---|
|  |  |
| <p>Same Plantation village in Kayes Small water facility constructed by this project (a water tower and an electric room)</p> | <p>Madiama village in Mopti Small water facility constructed by this project (communal faucets)</p> |

3.5.3 Financial Aspects of Operation and Maintenance

(1) Boreholes with hand pumps

Any cost of maintaining a constructed borehole is shared by their users in a village. To cover an unexpected expense for a repair or replacement of parts such as rubber seals, they are asked for making a reserve deposit by paying water fees for the amount they use.

According to findings of the facility survey, the collection rates of the water fees are respectively 49% in Kayes, 57% in Segou and 67% in Mopti. Of the villages which never collected fees, about 60% said it is difficult to obtain an agreement on payment from the residents. In Mopti, about a half of the target villages preferred paying cost of repair on an as-needed basis. Given this, it is practically difficult to implement such a planned maintenance cycle in every target village that a CGE collects and reserves water fees to cover expense for a repair or replacement of parts, and renewal of

¹⁵ For instance, after a regular monitoring in Mopti, AUE’s disregarding an engineer’s direction to repair abnormal sound resulted in serious breakdown later on.

pumps.

Both DNH and Regional Water Departments point out a major reason for failing water fee collection is that it was not accompanied with a sufficient explanation for residents on the purpose of payment. For them, water is generally considered free of charge, and the project should have fostered in its initial stage the residents' understanding of cost of facility maintenance. In particular, AUEs were established after the project completion. Ideally they should have started working for developing a maintenance framework in respective villages prior to a transfer of the completed water facilities. Those residents made no advance reserve deposit before start using water facilities, and this has in part undermined an idea of sharing cost of operating a facility among users.

Currently, necessary expense for repair is collected from users on a case-by-case basis, which is more acceptable for them in responding to repair needs. On the other hand, relying on such countermeasure instead of a reserve deposit may possibly cause prolonged downtime.

The results of the facility survey indicate while the operating rate of the water facilities is higher in Kayes despite its lowest water fee collection rate, that rate in Mopti is low regardless of its highest fee collection rate. Based on a discussion with DNH, the major reasons for this contradiction are suggested as below;

- In Kayes having a traditionally high proportion of emigrants to France, a part of their remittance is reserved for necessary expenses including a repair of water facilities.
- Using the above remittance, residents in Kayes have experiences in constructing water facilities across the region. This has developed a local ownership, preventing prolonged downtime.
- Kayes is a mountainous area with severe water scarcity, making its access by car most difficult among three target regions. Such condition has led its residents to call immediately for a repairer on any malfunction of water facilities, preventing a complete breakdown.
- While respective three target regions have parts suppliers, only a shop in Kayes can provide spare parts of an India-Mali hand pump installed in the project boreholes. It as well as almost the other necessary parts.

These factors imply that collecting water fees does not necessarily ensure a higher operating rate or reduced downtime. Rather, further efforts are needed to develop a regional maintenance framework, including improvements of AUE's functions, repairers' skills, and sales network of spare parts supply. To realize these, DNH and respective Regional Water Departments confirmed to strengthen AUEs in the target villages.

(2) Small water facilities

As in the case of boreholes, any cost of maintaining constructed small water facilities is shared by their users. Water fee collectors allocated each communal faucet ask for its users to pay at a metered rate. In case the meters indicate significant difference with water charge, some CGEs suspend the faucets temporarily to penalize possible fraud.

According to an account book of each target village, Madiama village in Mopti are running surplus, sufficiently covering necessary cost of operation and maintenance including a contract payment and fuels. In Samine village in Segou, although the balance of revenue fell below expense, it recovered in 2010. Same Plantation village in Kayes had maintained a quite steady surplus until 2008, and yet a soaring fuel price since 2009 has led to a decreasing profit, unable to reflect it over water fees. Table 8 shows an annual balance of payment in 2010.

It should be noted that in Samine in Segou and Madaima in Mopti a private maintenance company called GCSAEP undertakes a regular monitoring over technical and financial conditions related to water facilities. The monitoring outcomes are reported by a monthly accounting statement, employing its own accounting system. This system enables to consolidate information on accounts of all the clients, and therefore GCSAEP can make a quick comparison of financial situations or good practice among the target sites.

Table 8 Current water fees and annual balance of payment in 2010

| Name of region | Kayes | Segou | Mopti |
|--------------------------------|-----------------|--------------|----------------|
| Name of village | Same Plantation | Samine | Madiama |
| | | | |
| The number of communal faucets | 6 | 13 | 8 |
| | | | |
| Water fee | | | |
| 20 liters | 10 FCFA | 15 FCFA | 15 FCFA |
| 75 liters | 100 FCFA | | |
| 200 liters | | | 125 FCFA |
| 1000 liters | 375 FCFA | | |
| | | | |
| Balance of payment in 2010 | | | |
| Total expense for operation | 2,043,560 FCFA | 155,735 FCFA | 4,574,365 FCFA |
| Total revenue | 2,686,835 FCFA | 184,145 FCFA | 5,557,319 FCFA |
| Total balance | 643,275 FCFA | 28,410 FCFA | 982,954 FCFA |

To conclude, although operation and maintenance of boreholes with hand pumps has some financial problems of failing water fee collection and a reserve deposit, it is expected that the Government of Mali will direct an improvement by strengthening functions of CGEs. As for small water facilities, currently favorable balance of payment needs to be sustained by managing cost against an increasing fuel price, while expecting future replacement of parts and facilities.

3.5.4 Current Status of Operation and Maintenance

(1) Boreholes with hand pumps

The facility survey on the project boreholes with hand pumps revealed varying working conditions and maintenance, as observed in operating rates of 71.1% in Kayes, 64.7% in Segou and 58.9% in Mopti

respectively. Moreover, a supply and quality of spare parts also differ depending on regions. A parts supplier in Kayes, contracting with SETRA, has more sufficient availability of parts including India-Mali hand pumps than in Segou and Mopti. Parts suppliers in these two regions, albeit contracting with SETRA, mostly rely for specialized parts on SETRA in Bamako, making orders on an as-needed basis.

In the target sites where the project appraisal initially planned stepping pump installation, 12 out of 18 boreholes with India-Mali hand pumps are not properly working. The Regional Water Department in Mopti points out that the problem is supposedly related to a drilling depth. As discussed above, stepping pumps were substituted with hand pumps, as a result of taking account of local practice of Mali. However, the low operation rate above suggests that facility specifications essentially need to meet environmental conditions, which in turn is more likely to increase the operating rate. On the other hand, it should be noted that although durable in quality, a Vergnet Hydropump (a stepping pump) selected in the Basic Design Study and its associated spare parts are not available in parts suppliers in Mopti. There are also no repairers who are able to fix problems. Installing Vergnet Hydropump therefore needs a careful consideration in terms of sustainable operation and maintenance (which was discussed at the time of the Basic Design Study).

In Mopti, other donors such as Belgium have installed boreholes with stepping pumps, but currently they account for a small portion of the total pumps in water facilities. This is partly because an India-Mali Mark II hand pump is unified specification in Mali in order to ensure parts supply and repairs. Thus the availability of their spare parts is higher than that of stepping pumps.

(2) Small water facilities

The small water facility in Kayes is calling for a repair in troubled cables in chlorination apparatus. In Mopti, a diesel generator in an electric room is under repair (which is taking time to obtain spare parts), and alternatively a power pump is used in drawing water. The small water facility in Segou is operating in a fairly good condition.

Maintenance conditions including cleaning frequency in pump rooms vary in the three target villages. While respective pump facilities installed identical equipment, electricians' skills and technical assistance by external agencies seem to cause a difference in maintenance.

In conclusion, the sustainability of the project is fair due to some problems observed in terms of maintenance, technical abilities and financial resources. In particular, it was found problematic in inadequate functions of CGEs in maintaining the boreholes with hand pumps as well as in lacking technical support in small water facilities.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This grant aid project has found that its relevance is high both at the time of the appraisal and ex-post evaluation, as it is consistent with the National Development Strategy of the Republic of Mali and its

development needs as well as Japan's ODA Policy. While the operating rates of the constructed facilities are lower than expected, unable to achieve a target population of water supply, improved access to safe water by this project has some positive impacts on enhancing basic sanitation for people in the project sites, including reducing infantile diarrhea. As for project efficiency, it is high since both the cost and implementation period of the project were as planned. Furthermore, the ex-post evaluation study has found that the project sustainability is fair. Although there have been observed some problems in the operation and maintenance of the project facilities in terms of its management, technical skills and financial resources, it is expected that the Government of Mali would make efforts to cope with those challenges.

In light of the above, although having certain problems in effectiveness and sustainability, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations on the Implementing Agency

- 1) While respective pump facilities have been installed with identical equipment, maintenance conditions including cleaning frequency in pump rooms slightly vary in the three target villages. This is primarily due to technical disparities among electricians. It is thus suggested that the Regional Water Departments and AUEs in the target sites organize a seminar, for instance, to learn technical aspects in facility maintenance of each site.
- 2) On small water facilities, a regular monitoring is conducted by private maintenance companies, and necessary measures are suggested to communes and AUEs. However, a private maintenance company points out that some of the AUEs often worsen facility problems, not immediately responding to those recommendations to prevent a potential large-scale damage. It is suggested that respective Regional Water Departments supervise AUEs in the target villages to assure carrying out suggested repairs on their water facilities.
- 3) A range of information over the past project experiences should be provided to donor agencies. In selecting water facility types best suitable in locality, it is essential to examine beforehand an availability of parts suppliers and a record of repairer trainings. This will help decide appropriate specifications that endure environmental and geographical conditions (such as areas requiring deep drilling), which in turn will enable better control of maintenance of constructed facilities.
- 4) In order to increase operating rates of installed boreholes with hand pumps, it is recommended to implement some kind of activities to foster users' ownership as well as to strengthen functions of CGEs.
- 5) Regarding boreholes with hand pumps, technical capacities of repairers should be further enhanced. Also, by cooperating with parts suppliers, it is desirable to review and expand a reliable supply network.

4.2.2 Recommendation on JICA

While the water quality survey has assured safety of water sources provided by this project, it found water in rivers and traditional draw wells cause waterborne infectious diseases. As of the third field study in August 2011, a cholera epidemic was observed in delta area in Mopti, leading to an increasing concern of its outbreak to other regions. According to DNH, this area has a high risk of a cholera outbreak due to a particularly severe scarcity of safe water. This is partly because donors tend to avoid a borehole construction there. For transporting a drilling rig by track is possible only in a limited period of the dry season, which makes borehole drilling an extreme difficult task to complete.

Generally, in order to complete a project within a planned period, it is quite challenging to target such area. And yet, it is desirable to inclusively address people's needs of sustainable access to safe water.

4.3 Lessons Learned

To assess quantitative effects, the project set indicators focusing on an increase in the water supply population and the rate of water supply. To achieve end target values estimated based on those indicators, it requires a full operating rate to be sustained during five years after the project completion. On the other hand, the national development strategy of Mali on potable water assumes the operating rates of boreholes with hand pumps between 70 to 80%. Based on more realistic prospect on the operating rates, end targets such as the increased water supply population or water supply rate need to be estimated carefully. Moreover, project indicators did not include target operating rates or potential downtime, both of which are supposedly important indicators to assess project effects. It is expected that a project design in the future will fully examine essential and relevant indicators.

Developed in 2004, the STEFI framework on small water facility maintenance marks five years since its implementation in 2005. Currently, in the process of decentralization, the maintenance framework is undergoing a structural change, demanding more community-based management involving communes, private maintenance companies and AUEs. Similar projects in other countries are considering applying this particular mode of maintenance involving private companies. However, its sustainable expansion after the project completion is challenging, given a limited participation of private sector as of today. Nonetheless, despite its problem in technical aspects, the STEFI framework has been partly successful in enhancing financial sustainability in facility maintenance. Given that the accounting systems developed by 2AEP and GCSAEP are well functioning, it provides a helpful example for a similar project in the future.

Just as the design of this project had foreseen as its indirect effects, reduction of waterborne infectious disease, enhancement of women's participation in social and economic activities, and increase in children's schooling opportunity are frequently used indicators to assess impact of a rural water supply project. The outcomes of the statistical analysis that draws on the detailed social survey indicate that users of the project

boreholes have strongly felt the diarrheal diseases have been reduced to a significant degree compared to before. It suggests that they understand that the safety of drinking water is an important factor in such reduction of infectious diarrhea.

In addition, a strong correlation has been observed between “improvement of women’s domestic work conditions” and “improvement of economic situation” at the household level, which is particularly affected by increasing women’s engagement in income-generating activities. In other words, water-drawing labor has been one of the factors preventing women in rural Mali from engaging in productive activities to earn their incomes. On the other hand, it has been found that “use of water in the project borehole” and “increase in schooling opportunity” are less correlated than expected, as the latter is more likely to be affected by various other factors.

This provides a lesson that more careful consideration will need to be made in prospecting indirect impact of similar projects in the future.

Fin.

Ex-Post Evaluation of Japanese Grant Aid Project
The Third Project for Construction of Primary Schools

External Evaluator: Jun TOTSUKAWA, Sano Planning Co., Ltd.

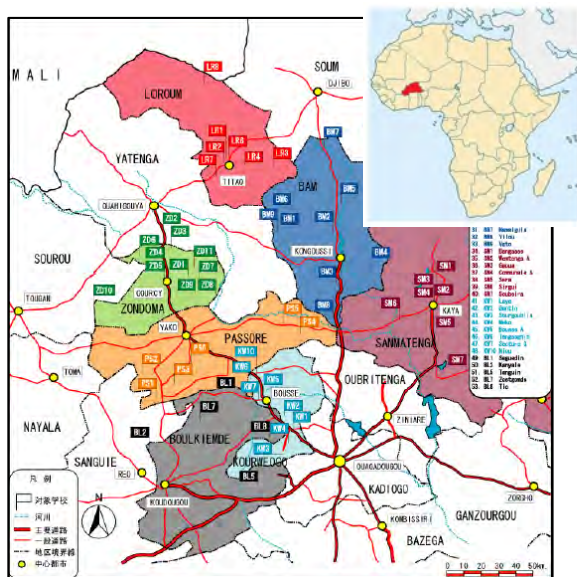
0. Summary

Burkina Faso including the target area of the project suffered from the significant lack of classrooms and extreme concentration of students per class. Thus, building new classrooms in the project was highly consistent with the needs of Burkina Faso. The implementation of the project reduced the average number of students per classroom from 102 to 59.8, thereby improving the educational environment by far. The accommodations for teachers also provided under the project contributed to a higher retention rate of teachers and the school wells provided improved the water sanitation environment at school. Furthermore, the project brought about incentive effects of encouraging children to go to school and other positive impacts, such as stimulating motivation for learning and reducing the number of repeaters of the same grade.

On the other hand, in the aspect of sustainability, since the responsibility for school maintenance was recently transferred from the central government to the commune, the support mechanism of the administration has weakened. While routine maintenance is handled individually by the parents' association and other parties concerned, which shows good performance basically until now, large-scale repair needs in the future will be likely to ask structural as well as financial challenges.

Overall, the project is evaluated to be highly satisfactory.

1. Project Description



Tanguin Elementary School
(Province of Boulkiemde)

Project Locations

1.1 Background

Burkina Faso succeeded in raising the overall ratio of enrollment in primary schools from 30% in 1990 to 47.5% in 2002, as a result of its initiatives to drastically improve the educational environment, with national development priority given to the improvement and promotion of primary education. The enrollment ratio was, however, stagnated below the average among the Sub-Saharan African countries, which was 86%. Thus, the country was expected to make further improvements in the educational environment.

With this background, the government made a “Ten-Year Basic Education Development Plan (PDDEB) 2001-2010” as a high-level program, under which it strived for the betterment in the educational environment by constructing and repairing classrooms, training teachers, and so forth. In order to achieve the goals posted in the Ten-Year Plan, however, additional investment was required. According to the calculations made in the plan, which sets 2001 as the base year, 20,000 more classrooms, 4,000 more accommodation buildings for teachers, and 7,000 more school wells were needed, in order to achieve a primary school enrollment ratio of 70% in the target year, 2010, as opposed to 42.7% in the base year, and to improve the literacy rate from 26% to 40% during the same period.

In addition, the lack of classrooms directly means overcrowds of students per classroom; at the schools included in the project, the average number of students per classroom exceeded 100, creating an extremely harsh condition for schooling.

The project, therefore, aimed at providing new/rehabilitated classrooms, accommodations for teachers and water supply facilities (school wells) to those schools suffering from overcrowds of students under severe conditions in temporary classrooms.

1.2 Project Outline

The objective of the project is to provide school facilities and school equipment in seven provinces in the country, thereby improving the basic education environment there.

| | |
|-----------------------------------|--|
| Grant Limit / Actual Grant Amount | 1,732 million yen / 1,731 million yen |
| Exchange of Notes Date | July, 2005 (Phase 1), September, 2006 (Phase 2) |
| Implementing Agency | Ministry of Basic Education and Literacy (current Ministry of National Education and Literacy) |
| Project Completion Date | February, 2008 |
| Main Contractor(s) | Konoike Construction Co., Ltd. |
| Main Consultant(s) | Fukunaga Architects-Engineers and IC Net Ltd. (JV) |
| Basic Design | December, 2004 |
| Related Projects (if any) | The First Project for Construction of Primary Schools (Grant Aid : 1995) The Second Project for Construction of Primary Schools (Grant Aid : 1997-1998) |

2. Outline of the Evaluation Study

2.1 External Evaluator

Jun TOTSUKAWA, Sano Planning Co., Ltd.

2.2 Duration of Evaluation Study

The ex-post evaluation study was undertaken on the following schedule:

Duration of the Study: October 2010 – October 2011

Duration of the Field Study: January 31, 2011 – February 19, 2011

2.3 Constraints during the Evaluation Study

Due to the worsening of the security situation in the country, the second field study, originally scheduled for May 2011, was cancelled. As a result, the final confirmation on the results from the beneficiary survey and the collection of additional information were carried out via subcontracting to local consultancy.

3. Results of the Evaluation (Overall Rating: A¹)

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Policy of Burkina Faso

At the time of planning the project, the government of Burkina Faso had formulated the Ten-Year Basic Education Development Plan (PDDEB) as a pillar policy for the education sector. The Plan defines an action plan and associated specific numerical targets necessary for promoting primary education in the country, for the ten years from 2001 to 2010.

While the Plan identifies 1) qualitative improvement and quantitative expansion of basic education, 2) decentralization of education systems, and 3) upgrading the planning, implementing and supervising capabilities of the Ministry of Basic Education and Literacy as three priority agenda, special priority was given to 1) qualitative improvement and quantitative expansion of basic education.

The project under review, which provided new classrooms and incidental facilities, such as accommodations for teachers and toilets, contributes directly to the “qualitative expansion of basic education” advocated in the Ten-Year Plan. At the same time, a development of educational environment is expected to bring about an indirect impact of improving education quality. In this regard, the project is deemed as highly relevant with the foremost goal of the government stated in its policies in the educational sector.

Based on these points, the project is evaluated as highly relevant with the policies of the government of Burkina Faso.

For reference, as of the time of ex-post evaluation in 2011, a next long-term plan, following the

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

² ③ : High, ②: Fair, ①: Low

aforementioned Ten-Year Plan, is being discussed; no specific details are determined officially yet.

3.1.2 Relevance with the Development Needs of Burkina Faso

(1) The development needs at the time of project planning

Although the enrollment ratio in primary education in Burkina Faso increased from 30% in 1990 to 47.5% in 2002, it still remains at an extremely low level compared with the average in Sub-Saharan Africa, 86%.

The country was chosen as a recipient of grant under the World Bank’s Fast Track Initiative (FTI³), and with the previously-cited “Ten-Year Basic Education Development Plan” as the basis, it had been striving to improve the environment for basic education. Nevertheless, the educational environment remained severe in rural areas particularly: for example, the number of students per classroom exceeded 100 and all classrooms were temporary thatched buildings. The effort of the government could not succeed in showing the tangible improvement of the educational environment.

For these reasons, the project aimed to contribute to improving the educational environment by constructing and rehabilitating classrooms as well as providing incidental facilities, is deemed as highly relevant with the development needs of Burkina Faso.

(2) The development needs at the time of the ex-post evaluation

Since the initiation of the PDDEB, progress has been made in constructing and rehabilitating classrooms and improving the enrollment ratio nationwide. The numerical targets, with the target year being 2010, promoted in the Ten-Year Plan—the total enrollment ratio of 70% and 20,000 classrooms to be constructed—have been accomplished by the country and donors.

Still, there are quite a few primary schools, particularly in rural areas, that use thatched buildings as temporary classrooms. Thus, demand for new classrooms, whether constructed or rehabilitated, remains high. In the meantime, due to the increasing enrollment ratio, the number of classrooms needed is on the rise, too. At the present, the additional classrooms constructed are merely to absorb the increased number of students. This is why the following table indicates increased numbers of classrooms with relatively constant numbers of students per classroom. As the enrollment ratio is expected to increase further, constructing classrooms and other incidental facilities at primary schools remains as a substantial need of the country.

Table 1 Number of students and enrollment ratio over time

| | 2000/'01 | 2005/'06 | 2006/'07 | 2007/'08 | 2008/'09 | 2009/'10 |
|--------------------------|----------|-----------|-----------|-----------|-----------|-----------|
| No. of students | 901,291 | 1,390,571 | 1,561,258 | 1,742,439 | 1,906,279 | 2,047,630 |
| Public school | 792,880 | 1,200,681 | 1,349,228 | 1,514,217 | 1,635,036 | 1,757,568 |
| Growth rate (yoy) | - | - | 12.3% | 11.6% | 9.4% | 7.4% |
| Total enrollment ratio % | 42.7 | 60.7 | 66.6 | 72.5 | 72.4 | 74.8 |
| Net enrollment ratio % | 34.3 | 47.7 | 53.1 | 59.4 | 57.9 | 57.4 |

Source: Statistics on basic education and documents by the Ministry of Basic Education

³ Abbreviation for Fast Track Initiative, which is an international framework with an aim to obtain a 100% coverage of primary education by 2015. It provides assistance in four aspects: fund, capacity, data, and policy. Participants are 19 donor countries including Japan.

Table 2 Number of classrooms and number of students per classroom over time

| | 2000/'01 | 2005/'06 | 2006/'07 | 2007/'08 | 2008/'09 | 2009/'10 |
|---|----------|----------|----------|----------|----------|----------|
| No. of classrooms | 17,456 | 26,444 | 28,425 | 31,809 | 35,129 | 40,056 |
| Public | - | 22,088 | 24,203 | 26,694 | 28,946 | 31,492 |
| Private | - | 4,356 | 4,222 | 5,115 | 6,183 | 8,564 |
| Growth (Total No. of classrooms) | - | - | 1,981 | 3,384 | 3,320 | 4,927 |
| No. of students per classroom (national average) | 51.6 | 52.6 | 54.9 | 54.8 | 54.3 | 51.1 |

Source: Statistics on basic education and documents by the Ministry of Basic Education

3.1.3 Relevance with Japan's ODA Policy

The project provides support for education sector which "Japan Official Development Assistance (ODA) Charter" (August, 2003) defines as one of the high priorities to work for.

At the same time, Japan had defined its assistance to Burkina Faso as "put emphases on assistance mainly in the education, water and healthcare areas that directly contribute to a higher standard of living of the nation, in view of the severe poverty in the country."⁴

Accordingly, assistance in the educational sector complies with one of the key agenda in Japan's assistance to Burkina Faso, and hence the project is evaluated relevant with Japan's ODA policies.

In conclusion, this project is highly relevant with the country's development policies, development needs as well as Japan's ODA policy; therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

The project provided classrooms and other facilities at 52 primary schools in seven central, northern and western provinces of Burkina Faso, namely, Loroum, Zondoma, Passore, Bam, Sanmatenga, Kourweog and Boulkiemde.

Table 3 Project outputs

| | Plan | Actual |
|--|----------------------|----------------------|
| Schools included | 53 schools | 52 schools |
| Newly-constructed classroom | 168 | 156 |
| Headmaster's office (with storage) | 37 | 35 |
| Accommodation for teachers | 105 | 96 |
| Water supply facility | 41 | 41 |
| Toilet building | 40 | 39 |
| School equipment | All schools included | All schools included |
| Maintenance manuals for school water facilities | All schools included | All schools included |
| Setting up of well operation and maintenance committees or reinforcing existing committees | 41 schools | 41 schools |

⁴ Quoted from "Official Development Assistance Country Data Book 2004." By-country policy for assisting Burkina Faso is not defined.

【Difference between actual outputs and planned outputs】

Of the 53 schools included in the plan, one had already had projects ongoing based on the commune's budget. This one was excluded from the scope of the project, accounting for the decrease in the number of schools included.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The estimated cost and actual project spending are compared in the table below. The actual spending was lower than the estimated cost.

Table 4 The planned and the actual cost of the project

| | Plan | Actual |
|---------------------------------|-------------------|--|
| The First Construction Project | 866 million yen | 865 million yen |
| The Second Construction Project | 866 million yen | 866 million yen |
| Total cost | 1,732 million yen | 1,731 million yen (99.9% of the plan) |

【Difference between the planned and actual cost of the project】

The actual project cost incurred was 10 million yen less than the initial cost estimate. The expected surplus, in conjunction with the diminished scope of the project, was mostly absorbed by price hikes in roofing materials, cement, and other raw materials and fluctuations in exchange rates (approximately 8% yen depreciation against euro) since the planning; as a result, the actual spending turned out to be at about the same level as the plan.

【Reference : Comparison between the preceding projects and similar projects of other donors】

1) Comparison between this project and the preceding projects (The First Project and the Second Project)

A comparison between the actual (construction) costs of the project under review and those in the First Project (1995) and the Second Project (1997-98) reveals that the cost was reduced while keeping the required specifications.

The cost reduction was mainly realized by shifting the procurement of materials from imports (e.g., glass blocks) to full local procurement. Also, while the RC process (reinforced concrete architecture) was adopted in the first and second phases, the concrete block masonry method was applied in the third phase in accordance with the local standard, in view of the low risk of earthquakes in the country. The change also contributed to the reduced cost.

Table 5 Comparison of the project cost (among Japan's assistance projects—1st to 3rd Projects)

| | Cost per unit floor area |
|--------------------------------|--|
| | Total cost (1,000 yen/m ²) |
| The First Construction Project | 77.4 |

| | |
|--|------|
| The Second Construction Project | 91.4 |
| The Third Construction Project (the target of this ex-post evaluation) | 73.0 |

Note 1): The figures for the First and the Second were derived by dividing the EN-based amount proportional to the floor area of classrooms and other facilities on the basic design basis; thus, they may be slightly different from actual values.

Source: Basic Design Study Report

2) Comparison with other donors' assistance and projects by the government of Burkina Faso

At the time of the project, other donors were making contributions to a basket fund and the government of Burkina Faso was constructing schools using the fund. Thus, there are no similar primary school construction projects provided by other donors.

Moreover, comparing school construction costs between the project and those by the government of Burkina Faso is not straightforward, since quality of materials, i.e., cost of materials, is not the same. For example, schools provided by the government have pent roofs, one-sided sloped roofs, unlike those provided by the project⁵. With this specification, the cost is lower as fewer materials are used. It has, however, demerits in resistance to wind and rain-tightness. Furthermore, the government-constructed schools tend to be damaged sooner because of the poor quality of aluminum and other materials employed. The evaluator actually saw during the field study quite a few primary schools whose roofs have been stripped by strong winds.

3) Others

In the project's design, ceiling boards of classrooms were replaced by insect screens in order to prevent bats from inhabiting under roof, which was identified as an issue in the preceding projects. In this regard, the cost remained neutral as the cost to be reduced by removing the ceiling boards was traded off by the cost for insect screens, but this countermeasure has proven effective. The specifications for classrooms are highly reputed, in general, by Burkinabe. ("In general" is added here since some point out that it is hot in the rooms and sound-insulation is not sufficient.)

3.2.2.2 Project Period

The planned implementation schedule and actual implementation period of the project under review are compared in the following table. The project period was shorter than planned.

Table 6 Planned and actual project periods

| Project | Plan | Actual |
|------------------------------|---|---|
| Phase 1 | July 2005- March 2007 (21 months) | July 2005-March 2007 (21 months) |
| Phase 2 | September 2006-March 2008 (19 months) | September 2006-February 2008 (18 months) |
| Entire implementation period | August 2004-February 2008 (Total: 33 months) (Total months for the two phases | August 2004-November 2007 (Total: 32 months) (Total months for the two phases combined: |

⁵ The school buildings provided in the project have gable roofs, as shown in the photo on the first page.

| | | |
|--|----------------------|---|
| | combined: 40 months) | 39 months) (vs. Plan: 96% and 98%, respectively) |
|--|----------------------|---|

【Difference between the schedule and the actual period】

The project was completed almost as scheduled. There is no disparity between the plan and the actual performance. Incidentally, most of the roads in the project sites are unpaved. These roads get sunken during the rainy season, thus making access extremely difficult. During the implementation of the project, torrential rain, heavier than expected, delayed the progress of the project, but due to the fervent efforts and coordination of the construction contractor and local vendors, the completion schedule was kept. It must be noted that even during the ex-post evaluation, the Burkinabe government and other official parties expressed appreciation for this.

In light of the above, both the project period and project cost were mostly as planned; therefore the efficiency of this project is high.

3.3 Effectiveness⁶ (Rating: ③)

3.3.1 Quantitative Effects

The actual values of indicators until now are as follows:

As for quantitative effects, the data taken in the initial target year 2008 and the latest data as of the ex-post evaluation (2010) were compared in order to verify the accomplishment.

As described later in the “Impact” section, the primary schools provided by the project are well-accepted by local communities and a greater number of students than expected are enrolled. For this reason, although the target number of students per classroom was achieved in 2008, the year of the completion of the construction (target year), it was again exceeded at the time of the ex-post evaluation. Concerning the demand fulfillment rate of accommodations for teachers, on the other hand, the data could not be compared on equal footing since the basis of calculating the target value and the value itself at the time of planning were unavailable⁷. Nevertheless, it is presumable that it has gone below the target level, as the number of teachers has increased in accordance with the increase in the number of students.

Table 7 Accomplishment of target operation effect indicators

| Indicator | Reference (2004) | Target (2008) | Actual performance (2008) | Actual performance (Latest:2010) |
|---|---------------------|------------------|---------------------------------|--|
| Total no. of students at all project schools | 12,223 | | 17,423 | 20,035 |
| Total no. of students/ classroom at all project schools | 102 | 61 | 59.8 | 66.3 |
| Rate of filled vacancy for | 18% | 88% | 82.2% | 75.1% |

⁶ Effectiveness is evaluated taking impacts into consideration.

⁷ The denominator of the reference and target values (150) set at the time of planning is the number of classrooms needed at the schools included in the project (The government’s basic policy for school construction stipulates that the number of classrooms equals to the number of accommodations for teachers.) The necessary number of classrooms was determined by the basic design study team visiting the classrooms at all the primary schools included in the project and assessing the usability of existing classrooms. On the other hand, the Ministry of Basic Education does not have similar data after the completion of the project, which makes it impossible to compare on equal footing.

| | | | | |
|--|----------|-----------|-------------|-----------|
| teachers accommodations at all project schools | (27/150) | (132/150) | (148**/180) | (151/201) |
|--|----------|-----------|-------------|-----------|

*: The denominator of the actual value of the demand fulfillment rate for accommodations for teachers indicates the total number of teachers (180 for 2008 and 201 for 2010.)

** : Of the 148 accommodation buildings, 96 were constructed under the project and the remaining 25 by the Burkinabe government or donors.

3.3.2 Qualitative Effects

The following five items are the qualitative effects expected to be brought about as a result of implementing the project, and all are confirmed to be done up to now. Item (5) will be detailed in the following section concerning impacts, as it seems more appropriate to be discussed as a part of impacts.

- (1) The classroom environment is improved in accordance with an improved number of students per classroom by adding and rehabilitating classrooms.
- (2) The teachers retention rate is improved by building accommodations for teachers.
- (3) The sanitation environment is improved by providing toilet facilities.
- (4) The water environment is improved by installing water supply facilities (school wells).
- (5) The school management is improved as a result of adequate management of teaching materials and others by constructing the headmaster’s office and classroom buildings with storerooms.

For effect (1) “Improvement of the classroom environment (improving the overcrowds situation), the effect has obviously presented itself as evidenced by the figures cited in the quantitative effect section are improved. Furthermore, in the beneficiary survey carried out during the ex-post evaluation, an overwhelming majority (approximately 90%) of the respondents expressed, “The overcrowds in classrooms has been mitigated compared with the past.”

Table 8 Acknowledging the improvement in overcrowds (response from teachers and PTA)

| | Improved significantly | Improved in general | No big change | Deteriorated | Uncertain | Total |
|--------------------|------------------------|---------------------|---------------|--------------|-----------|-------|
| No. of respondents | 64 | 34 | 5 | 1 | 4 | 108 |
| % | 59.3 | 31.5 | 4.6 | 0.9 | 3.7 | 100.0 |

Note: Response from 81 teachers and 27 PTA members.

Source: Results from the beneficiary survey

Effect (2) “Improvement of teachers retention rate by constructing accommodations for teachers” is one of the items that were expected to be realized at the time of planning the project. Schools in rural areas, just like the project sites, are often staffed with relatively young teachers. However, due to a gap between the living environment and their hopes, they request for job transfer or simply quit the job, in many cases. For this, providing new accommodations for teachers was expected to serve as a motivation that boosts the retention rate. As a matter of fact, the beneficiary survey has confirmed the effect (more than 70% of the respondents or more than 90%, if the responses “Uncertain” are removed, acknowledged improvements.)

Table 9 Improving the teachers retention rate by newly-constructed accommodations

(Response from teachers and PTA)

| | Improved significantly | Improved in general | No big change | Deteriorated | Uncertain | Total |
|--------------------|------------------------|---------------------|---------------|--------------|-----------|-------|
| No. of respondents | 56 | 25 | 4 | 4 | 19 | 108 |
| % | 51.9 | 23.1 | 3.7 | 3.7 | 17.6 | 100.0 |

Note: Response from 81 teachers and 27 PTA members.

Source: Results from the beneficiary survey

Concerning qualitative effect (3) “Improvement of the sanitation environment by providing toilet facilities”, the sanitation environment has obviously improved by larger and apparently more sanitary facilities than previous ones. Also, the provision of toilet facilities had a secondary effect of promoting education on sanitation.

The marked effect is supported partly by the improved specifications for toilets based on the lessons learned in the preceding projects. In the First and the Second Project, as there was no external door, residents in the vicinity also used the facilities quite often, making it difficult to manage the toilet building. Thus, in the project, an addition of external doors, application of open-roof structure in view of students who hesitate to go to toilets because it is dark inside, and other changes were implemented. These changes to the specifications have contributed to the realization of the qualitative effect.

Table 10 Acknowledging the improvement of the sanitation environment through provision of toilet facilities (Response from teachers and PTA)

| | Improved significantly | Improved in general | No big change | Deteriorated | Uncertain | Total |
|--------------------|------------------------|---------------------|---------------|--------------|-----------|-------|
| No. of respondents | 65 | 15 | 6 | 4 | 18 | 108 |
| % | 60.2 | 13.9 | 5.6 | 3.7 | 16.7 | 100.0 |

Note: Response from 78 teachers and 18 PTA members.

Source: Results from the beneficiary survey

As far as effect (4) “Improvement of the water environment by installing water supply facilities” is concerned, the water supply facilities (school wells) were, except at two sites, properly utilized, proving that the provision of water supply facilities contributed to the improved water environment at the project schools. (It should be noted, however, that the operational status of the wells at Kelembali Primary School and Sourgoubila Primary School in Loroum Province was not confirmed. According to sources at the sites, the wells are dried up and not usable.) The improvement of the water environment will be more elaborately discussed in the following section concerning impacts of the project, in association with changes in the waterborne disease situation. This section hereafter, therefore, focuses on the effects of soft components carried out in conjunction with the provision of water supply facilities⁸.

⁸ The soft components were provided twice, in Phase 1 and Phase 2, with an input of 1.0MM (Japanese consultant)*2 and 1.7MM (local consultant)*2. The activities mainly focused on the establishment of the Committee of Well Operation and Maintenance and also covered the formulation of operational rules, helping secure funds, and establishment of a system for communicating with pump vendors. Any technical assistance for the implementation agencies of the central and local governments is not included (except collaborative efforts of the implementing agencies to participate in workshops for residents.)

As a result of a verification on the outcomes of the soft components associated with water supply facilities in the ex-post evaluation, the implementation was evaluated to be effective in the following three standpoints: 1) The Committee of Well Operation and Maintenance was established without fail; 2) The project provided support in obtaining consensus of local residents with respect to the use of school wells; and 3) A fund for maintenance was secured.

Outcomes from 1) setting up of the Committee of Well Operation and Maintenance and 2) obtaining of consensus

The setting up of a standalone committee dedicated to the operation of wells clarified the responsibilities concerning the maintenance of the wells. (The committee typically consists of 6 to 10 members, including the chair, vice chair, accountant, engineers, sanitarians, and so forth.) School wells are by definition officially available to serve school staff and students with priority, but at many schools they were also used by the residents in the community. Under such circumstances, it should be highly evaluated as a major outcome that the residents' assembly held as part of the soft components provided an opportunity to establish the rules concerning the use of school wells and deepened the understanding of the residents. (For example, Gantin Primary School in Kourweogo Province locks the well during the school off hours, but there is no dispute with the residents.)

3) Securement of the maintenance fund

Securing a fund dedicated to the operation of wells is highly effective over a short term. Considering the local culture in which it is difficult to attain agreement with making a reserve fund for any application that seems unnecessary or non-urgent, establishment of fund for maintenance as a precondition, was so effective. As a matter of fact, many schools have used their fund to repair the wells since the installation.

Additionally, the "School Well Operation and Maintenance Manual," created as part of the soft components, is a ten-page document which defines the structure and functions of the committee, importance of the reserve fund, precautions in terms of sanitation, necessity for maintenance, and other essential elements. The manual does not have the nature of providing answers to technical questions, probably because due to the low literacy rates in rural areas in the country and there was little expectation for manuals to play a significant role. It is deemed appropriate that the soft component activities paid attention more on workshops for direct interaction with residents, and kept the contents of the manual to bare minimum⁹.

【For reference—verification of the effects of assistance)】

⁹ The awareness-raising workshop for residents was held in seven schools. One school was chosen in each of the seven provinces where the project schools are distributed. It was held with the attendance of provincial officials. Although the workshop was held at seven schools only, the other activities related to the assistance for wells, such as the setting up of the committee, were carried out at all the 41 schools.

The evaluator attempted to verify the effects of the soft components, regarding items 1) to 3) above, by addressing the board members of the well maintenance committee with a question of what they presume the operation of the school wells would have become of today without the assistance through the soft components, by carrying out the beneficiary survey.

In conclusion, they responded that if the soft components had not been provided, “There would have been no rule in relation to operation or even if a set of rules were in place, the operation would have been in a mess” (from approximately 60% of the respondents) and “There would have been no reserve fund or even if the fund was in place, the amount would not have reached 75,000 CFA, stipulated by the soft component, and the operation would have been in a mess” (from approximately 80% of the respondents.) On the other hand, the response to the question about the setting-up of the committee was numerically low, since the Burkinabe government now encourages setting up of a committee for a well in community, or virtually any type of wells. (Roughly 40% expressed “Even without the soft component, the committee would have been in place.”)

Generally speaking, however, it is safe to conclude that most people appraise the soft components as to back up the operation of school wells in the financial and structural aspects¹⁰.

Table 11 Supposition on the establishment and operation of the Committee of Well Operation and Maintenance (on an assumption that soft components were not provided)

| | The committee would not have been established. | The committee would have been established but its organizational capability would have been lower than it is now. | The committee would have been established and its capability would have been about the same. | The committee would have been established but its organizational capability would have been higher than it is now. | Total |
|--------------------|--|---|--|--|-------|
| No. of respondents | 13 | 2 | 1 | 11 | 27 |
| % | 48.1 | 7.4 | 3.7 | 40.7 | 100.0 |

Note: Response from board members of the Committee of Well Operation and Maintenance
 Source: Results from the beneficiary survey

Table 12 Supposition on the establishment and operation of the Well Management Rules

| | No rules would have been set up and the well management would have been in a mess. | No rules would have been set up but there would have been no problem in the well management. | There would have been rules but the management would have been in a mess. | There would have been rules and there would have been no problem in the well management. | Total |
|--------------------|--|--|---|--|-------|
| No. of respondents | 10 | 4 | 8 | 5 | 27 |
| % | 37.0 | 14.8 | 29.6 | 18.5 | 100.0 |

Note: Response from board members of the Committee of Well Operation and Maintenance
 Source: Results from the beneficiary survey

¹⁰ In Tables 12-14, some responded that the situation would have been the same with their own efforts and without the assistance provided by the soft components. The reason for such response is probably that the board members of the committee are “chosen” and “trained” in the course of the project and they have developed confidence in their own ability, which made them think “We could have done it by ourselves.” However, some parents’ associations regard that as “overconfidence”; it is more like confidence without grounds. In any case, the above response is presumably as a result of such a background.

Table 13 Supposition on the establishment of reserve fund and management of the wells

| | There would have been no reserve fund and the management would have been in a mess. | There would have been no reserve fund but there would have been no problem in the well management. | There would have been a fund yet the amount goes below 75,000CFA, and the management would have been in a mess. | There would have been a fund and there would have been no problem in the well management. | Total |
|--------------------|---|--|---|---|-------|
| No. of respondents | 8 | 4 | 13 | 2 | 27 |
| % | 29.6 | 14.8 | 48.1 | 7.4 | 100.0 |

Note: Response from board members of the Committee of Well Operation and Maintenance

Source: Results from the beneficiary survey

In light of the above, this project has largely achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

As the result of implementing the project, the following impacts have been brought about.

(1) Incentives to enrollment

Through the construction of schools under the project, many parents who had no interest in enrolling children in primary schools started doing so. During the field study, the evaluator was told by a large number of parents that they were highly motivated to enroll their children by looking at the newly-developed schools. This is also endorsed by the growth rates of students at the project schools higher than the national average, as shown in the table below¹¹.

Table 14 Comparison between the number of students at 27 schools included in the beneficiary survey and the national average over time

| | 2006/07 (before the project) | 2009/10 (Latest data) |
|--|---------------------------------|--------------------------|
| 27 schools surveyed | 5,178 | 8,402 |
| Growth rate (2002/03 - 2009/10) | — | 62.3% |
| All schools in 7 provinces included in the project | 282,281 | 377,104 |
| Growth rate (2002/03 - 2009/10) | — | 33.5% |
| Nationwide | 1,561,258 | 2,047,630 |
| Growth rate (2002/03 - 2009/10) | — | 31.2% |

Source: Beneficiary survey and materials provided by the Ministry of Basic Education

(2) Motivating students to learn

The improved learning environment has motivated students to learn; at least 90% of the students expressed that the upgraded schools facilities highly motivated them to study.

¹¹ One of the factors behind the increased enrollment ratio, the incentive effect of school lunch should be cited as an important background, apart from the awareness reform in parents. Incidentally, in the majority of the cases, school lunch is prepared by the parents' association (or mothers' association) based on subsidies of the government and grains and other foodstuff brought in by students.

Table 15 Recognition of students on their learning motivation

| | Highly motivated | Somewhat motivated | Not changed | Worsened | Total |
|---|------------------|--------------------|-------------|--------------|-------|
| Level of motivation for learning heightened by upgraded school facilities | 1,205 (88.1%) | 113 (8.3%) | 7 (0.5%) | 42 (3.1%) | 1,367 |

Note: All the respondents are the highest grade students, for ensuring a comparison between before and after the implementation.

Source: Results from the beneficiary survey

- (3) Improved rate of successful examinees of primary education completion test and ratio of repeaters of the same grade

The success rate of primary education completion test at the project schools is, though slightly, higher than the national average. The ratio of repeaters of the same grade as well shows favorable figures compared with the national average.

Table 16 Change in the pass rate of graduation examination in primary education
(Average among 9 project schools in Bam Province)

| | 2007 | 2008 | 2009 | 2010 |
|----------------------------------|-------|-------|-------|-------|
| 9 project schools (Bam Province) | 71.3% | 71.2% | 76.1% | 76.0% |
| National average | 66.8% | 58.5% | 72.7% | 65.9% |

Note: No data were available other than those of Bam Province.

Source: Documents provided by the Ministry of Basic Education

Table 17 Change in the rate of repeaters of the same year over time
(Average among the 27 schools included in the beneficiary survey)

| | 2008 | 2009 | 2010 |
|---------------------|-------|-------|------|
| 27 schools surveyed | 10.9% | 10.4% | 6.9% |
| National average | 11.6% | 10.9% | 8.7% |

Source: Results from the beneficiary survey, Documents provided by the Ministry of Basic Education

- (4) Impact on the management organization and capability concerning documents and teaching materials

With the storerooms to keep documents and teaching materials, the project schools appear to be now able to store and utilize teaching materials and documents in a proper manner. In the beneficiary survey targeting teachers, more than 90% of the responding teachers expressed that the organization and actual conditions concerning the administration of documents and teaching materials were improved. In addition, some teachers reported that it was not only the storerooms for documents and teaching materials but the lockers installed in classrooms that have contributed greatly to the management of documents.

3.4.2 Other Impacts

- (1) Impacts on the Natural Environment

There was no positive or negative impact on the natural environment observed.

- (2) Land Acquisition and Resettlement

Land acquisition and resettlement did not take place in this project.

(3) Other impact

1) Increase in the number of students in accordance with mounting popularity and name recognition

While the project brought about substantial positive impact in increasing the enrollment rate, as described above, in some schools, more children than initially envisioned have come, raising the number of students per classroom.

Incidentally, the government of Burkina Faso today limits the number of students per classroom to 80 at the maximum. When this upper limit is exceeded, a new school or new classroom must be constructed¹². Accordingly, in a medium and long term, the number of students will expectedly be alleviated again, but for the time being, the number of students per classroom at the project schools is foreseen to continue to rise because priority is given to the temporary thatched classrooms spread across the regions.

2) Impact on waterborne diseases

The water supply facilities (school wells) provided under the project is presumed as to contribute to a lower incidence of waterborne diseases among children. Children spent time not only at schools but also in the neighborhood of their home and on commuting routes; thus, it is not very rational to link water supply facilities at schools directly with waterborne diseases, but at least it is worth noting that quite a few teachers and parents expressed this recognition. Before the implementation of the project, children reportedly drank water from the shallow wells in the vicinity of the school, meaning that they took in unsanitary water on the way to and from school. Consequently, it is at least safe to say that the project contributed somehow to the decrease in waterborne diseases.

Table 18 Impression of teachers and parents with changes in the incidence of waterborne diseases

| | Decreased | Stayed the same (Not many from the past) | Stayed the same level (As many as before) | Increased | Uncertain | Total |
|--------------------|-----------|---|--|-----------|-----------|-------|
| No. of respondents | 58 | 6 | 14 | 4 | 13 | 95 |
| % | 61.1 | 6.3 | 14.7 | 4.2 | 13.7 | 100.0 |

Source: Results from the beneficiary survey

In this way, the project had substantial impacts, such as incentives to enrollment and positive effects of motivating children to learn.

3.5 Sustainability (Rating: ②)

As for sustainability, the school facilities such as classrooms and water supply facilities (school wells) are evaluated separately.

¹² The Burkinabe standards for constructing educational facilities stipulate the number of students as 80 at the maximum, 60 for the standard, and 30 at the minimum (that is, the project sought the standard number of students.)

3.5.1 Structural Aspects of Operation and Maintenance

1) School facilities

(Government's aspect)

The responsibility for maintenance of school facilities has changed since 2010 within the framework of governmental organizations. The responsibility for maintenance and repair of school facilities has been delegated to communes or local authorities, by the Ministry of Basic Education and Literacy. However, the human resources and ability of communes are extremely limited. Without personnel at the Ministry dispatched for a short period of time, not much progress can be made.

In the meantime, the ministerial officials dispatched to provide support is mainly dedicated to drafting of budgets and preparation of documents. Assisting in and instructing on routine school facility maintenance work and similar kinds of tasks are given lower priority. As a result, the organization for providing guidance on the maintenance of school facilities and conducting continuous monitoring is evaluated as not to have high sustainability.

(Aspect of school and parents' association)

Schools and parents' associations are in charge of routine maintenance of facilities. It was reported in the basic design study that the organizational power of the parents' association varies from school to school. However, in this field study, it was observed that almost all the parents' association spent their own membership fees on constructing walls for the accommodations for teachers by themselves, showing proactive involvement. Furthermore, there are some examples of classrooms constructed by parents' associations. Judging from these actual cases, many parents' associations are deemed as to have, though with some variations, certain levels of organizational power and ability to take action.

In addition to parents' associations, each school is required to set up a school steering committee (COGES) since 2008, according to the Law Concerning the Establishment of COGES (2008-236)¹³. It is expected that the synergy effect to be generated between COGES and the parents' association will lead to a more solid organization. At the time of ex-post evaluation, however, COGES was put in place only in certain regions (Kourweogo Province in this project), and hence the intended effect was not observed.

2) School wells

The Committee of Well Operation and Maintenance is responsible for maintaining school wells. The organizational structure (consisting of about 6 to 10 members, including the chair, vice chair, accountant, engineers, sanitarians, and so forth) is deemed appropriate. The roles assumed by the Committee of Well Operation and Maintenance, some of which will be described in the following section about the technical

¹³ COGES was founded with the aims to "promote participation of residents", "improve the relationship between residents and schools" and "revitalize communities." It is characteristic in that the election for COGES members should be transparent and extensive and also that the residents themselves prepare a school activity plan. In other words, the outstanding feature is that it has a strategy to involve the entire community, not just the parents' association as is the case today, in the school management. (based on the documents from JICA's technical cooperation "Projet d'Appui aux Comites de Gestion d'Ecole (COGES)")

aspect, center on prevention of destruction and robbery of wells, communicating with external repair contractors, and collection of necessary repair costs. The current organization is considered sufficient for fulfilling these main functions.

3.5.2 Technical Aspects of Operation and Maintenance

1) School facilities

Schools and parents' associations are capable enough to handle routine maintenance work. Regarding extensive damage, on the other hand, repair needs to be outsourced to local contractors. In that case as well, since there are many local contractors involved in construction business in the country and furthermore the specifications adopted in the project are consistent with the specifications in the country, the technical aspects can be handled without a problem.

2) School wells

While the Committee of Well Operation and Maintenance is capable of carrying out very simple repair work, their basic policy is to rely on outsourcees regarding damaged wells. There are a large number of well repair vendors, and thus it is easy to find a vendor to deal with most kinds of repair work in the local community or the central city nearby.

Incidentally, the above-mentioned basic policy indicates the government's policy for maintenance of water supply facilities. In simple terms, it can be outlined as "The responsibility for technical matters relating to maintenance of wells should not be excessively left to local residents." Based on the past experience, the government is aware that maintenance work done by residents, who have no technical background, has frequently resulted in worsening the condition. The policy, therefore, reflects a realistic thought of the government, and is put in effect as "Water Supply Facility Maintenance Reform Act (2000-5/4/PRES/PM/MEE Decree)."

Based on the above, in the technical aspect, the Committee of Well Operation and Maintenance is expected to perform extremely basic work and communicate with external vendors. Judging from the past performance, there seems to be no problem to this end (See Table 16 below).

3.5.3 Financial Aspects of Operation and Maintenance

1) School facilities

Small-scale, routine repair and maintenance work has been carried out with membership fees of parents' associations. This scheme is deemed feasible also in the future, with respect to small-scale projects¹⁴. On the other hand, large-scale repair work depends on commune's budgets. Such extensive damage that hampers lessons from taking place is supposedly dealt with by the commun's budget. However, many communes presently place priority to rehabilitation of thatched classrooms and others, and thus budget allocation to a project school depends on the urgency of the repair. It should be added that the ratio

¹⁴ It must be noted, however, that some do or can not pay the membership fees. Many associations recognizes the difficulty of equitable collection of fees as an issue to be addressed in the management of the association. (In the beneficiary survey, 8 out of 27 associations pointed at this as an issue.)

of independent financial sources to the total revenue of communes, in many cases, is fairly minimal, and in actuality the budget is comprised mainly of allotment of the national budget and funds provided under donors' programs¹⁵. Judging from the budget situation, when repair of large-scale damage is taken into consideration, the current financial situation is deemed as not sustainable at this point in time.

【For reference: commune-level initiatives】

In the midst of decentralization, the administrations of schools and communes are responsible for maintaining school facilities and wells. The size of a commune ranges from 100 to 300 km², 5 to 15 villages, and 10,000 to 30,000 people, though it varies between suburban and rural areas.

The following gives an example of Bingo Commune (Boulkiemde Province), where Tanguin Primary School, one of the project schools, is situated. The budgets for construction of classrooms and rehabilitation of wells referred in the following table are quoted from the National Program of Land Management budget provided by the World Bank, with the final year being 2011. This budget accounts for a large portion of the commune's budget, but will most likely vanish in 2012 onward. The budget allocated to classroom rehabilitation is sourced by the commune's own budget.

Table 19: Actual spending by Bingo Commune (in association with classrooms and wells) Unit: CFA

| | 2008 | 2009 | 2010 |
|---------------------------|-----------|------------|------------|
| Investment in all sectors | 7,696,377 | 29,741,196 | 36,485,547 |
| Classroom construction | 0 | 4,917,379 | 4,375,561 |
| Classroom rehabilitation | 0 | 992,970 | 992,970 |
| Setting-up of wells | 0 | 0 | 0 |
| Well rehabilitation | 0 | 1,958,000 | 1,882,100 |

Note: "Investment in all sectors" in the top row covers not only the educational sector but all the sectors managed by the commune.

Source: Documents of Bingo Commune

2) School wells

The school wells provided by the project are more than three years old now. Therefore, it is likely that they will face breakdown more frequently from now on. Though at a minor level, many wells have undergone repair already (most of the cases were repairing joints and screws of the pedal.) As a result, 75,000CFA (approximately 13,000 yen), reserved in the soft components of the project, is already consumed to certain extents in most of the Well Operation and Maintenance Committees.

In the soft components, it was recommended to continuously maintain the maintenance fund, but except a small number of cases, the recommendation was not observed. However, this cannot be helped in a way because it is more typical reaction in the local culture not to collect necessary expenses until repair is needed.

Table 20 No. of actual repair projects for school wells

| | 0 | 0 | 1 | 2 | 3 | More than 3 | Total |
|--|---|---|---|---|---|-------------|-------|
| | | | | | | | |

¹⁵ Communes' own revenues are composed mainly of taxes levied on selling in the market and toll charges at checkpoints in association with movement of livestock and vehicle passage.

| | | | | | | | |
|--------------------|-----------|---|------|------|------|-----|----|
| | (No need) | (Need existed but repair was not done.) | | | | | |
| No. of respondents | 4 | 0 | 6 | 6 | 6 | 2 | 24 |
| % | 16.7 | 0.0 | 25.0 | 25.0 | 25.0 | 8.3 | — |

Source: Results from the beneficiary survey

Table 21 Balance of the well operation and maintenance fund (Unit: CFA)

| | | | | | | |
|--------------------|----------|---------------|---------------|---------|------------|-------|
| | 0-10,000 | 10,000-30,000 | 30,000-75,000 | 75,000- | Don't know | Total |
| No. of respondents | 3 | 6 | 9 | 3 | 6 | 27 |
| % | 11.1 | 22.2 | 33.3 | 11.1 | 22.2 | 100.0 |

Note: The minimum balance of 4,500CFA, and the maximum was 105,000CFA.

Source: Results from the beneficiary survey

Whether it is feasible to collect necessary expenses for a well failure in the future depends largely on factors like the positional relationship between the school well and the community well, which can serve as an alternative, and organizational powers of the school and the parents' association. Therefore, there exists a certain risk because it is not clear whether a necessary amount of repair expenses can be secured in case of a severe failure to the well.

【For reference】

With respect to the above point, the evaluator tentatively collected information on the positional relationship between school wells and alternative wells as part of the beneficiary survey. As a result of interviews with officials at the Ministry of Education and Literacy and school staff, 500 m was seemingly the borderline for people to get water without bother. Thus, if an alternative well can only be found 500 m or more away from the school well, it is more likely that the parents' association and other contribute repair expenses, according to a surmise made by an interviewee.

Table 22 Distance to alternative wells to school ones (Unit: meter)

| | | | | | |
|--------------------|-------|---------|---------|----------|-------|
| | 0-300 | 300-500 | 500-700 | 700-1500 | Total |
| No. of respondents | 2 | 14 | 8 | 3 | 27 |
| % | 7.4 | 51.9 | 29.6 | 11.1 | 100.0 |

Source: Results from the beneficiary survey

3.5.4 Current Status of Operation and Maintenance

The structure of school facilities adopted is designed to withstand foreseeable natural disasters, whereas the adopted specifications allow maintenance based on the construction techniques used in Burkina Faso. Specifically, roof damage caused by strong wind is a typical case of damage to school facilities; the project employed a short rivet pitch for roof to realize higher durability than other schools in general. Additionally, even when a facility requires repair, all materials are procurable in the country. Thus, it is very unlikely that any problem should occur in procuring materials.

For school wells, likewise, the pedal pump type well was adopted because it is less prone to failure than other types and all the spare parts are available in the country.

In light of the above, both the school facilities and school wells are deemed as highly sustainable from the viewpoints of both durability and availability of spare parts.

Some problems have been observed in terms of structural and financial aspects of maintenance; therefore, sustainability of this project is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

Burkina Faso including the target area of the project suffered from the significant lack of classrooms and extreme concentration of students per class. Thus, building new classrooms in the project was highly consistent with the needs of Burkina Faso. The implementation of the project reduced the average number of students per classroom from 102 to 59.8, thereby improving the educational environment by far. The accommodations for teachers also provided under the project contributed to a higher retention rate of teachers and the school wells provided improved the water sanitation environment at school. Furthermore, the project brought about incentive effects of encouraging children to go to school and other positive impacts, such as stimulating motivation for learning and reducing the number of repeaters of the same grade.

On the other hand, in the aspect of sustainability, since the responsibility for school maintenance was recently transferred from the central government to the commune, the support mechanism of the administration has weakened. While routine maintenance is handled individually by the parents' association and other parties concerned, which shows good performance basically until now, large-scale repair needs in the future will be likely to ask structural as well as financial challenges.

Overall, the project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the implementing agency.

The task of maintaining school facilities has recently been transferred to communes, but the current level of ability of commune staff is extremely limited. Without the support of personnel dispatched from the Ministry of Basic Education and Literacy, it would be very difficult to carry out work smoothly. Therefore, it is essential to reinforce the ability of commune staff involved in the education sector, from a mid- and long-term perspective. As a preliminary step forward, the scopes of tasks assigned to the office of school inspectors¹⁶ and the commune staff must clearly be defined. After setting the contents of work and the level expected of commune staff, it is recommended to carry out the above-mentioned capacity building efforts.

¹⁶ Local administrative officers in charge of education.

4.2.2 Recommendations to JICA

None in particular.

4.3 Lessons Learned

1. The literacy rates in the areas included in the project are low in general. Under such circumstances, the project provided a ten-page “Manual for School Well Maintenance” as part of the soft components. The document provides bare minimum information and is not intended to provide answers to technical questions. This approach is considered realistic for a project in such areas with low literacy rates. In the light of this situation, the project rightfully focused on technical transfer through demonstrations at workshops.

Soft components typically take up preparation of manuals as one of the pillar outputs. However, depending on the literacy rate and other factors at the project site, it is considered more effective to provide technical assistance by handling the manual preparation task in a flexible way and allocating more time to demonstration.

2. It is only three to five years since the completion of the primary schools constructed under the project. Usually, a well (borehole) starts to exhibit various breakdowns five years after it was put in use, and the sustainable management ability is called into question¹⁷. Thus, in order to evaluate sustainability of managing “wells”, ex-post evaluation should be conducted at right timing for assessing and judging the maintenance and repair conditions after the completion of the project.

¹⁷ Based on an interview with an expert who is a member of the team for the “Project for Improving Water Supply Facility Management and Sanitation in Central Plateau Region in Burkina Faso” to provide assistance in operation and maintenance of community wells in the country.

Ex-Post Evaluation of Japanese Grant Aid Project
“The Third Project for Construction of Primary Schools”

External Evaluator: Jun TOTSUKAWA, Sano Planning Co., Ltd.

0. Summary

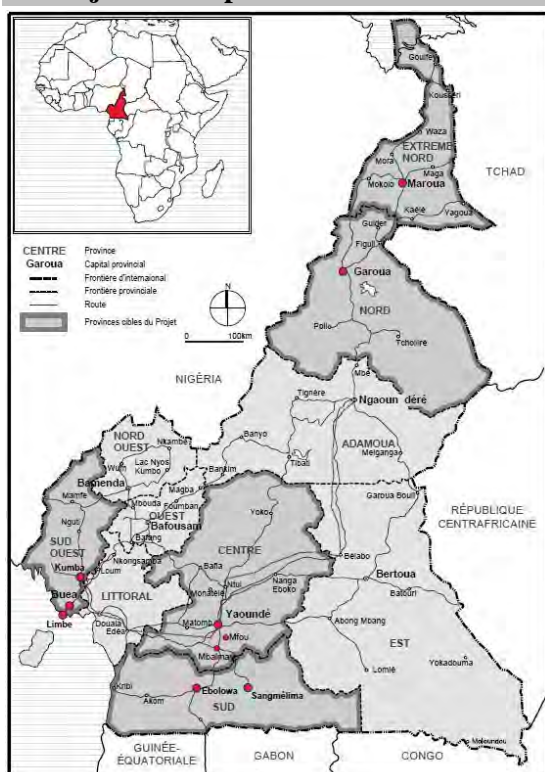
In Cameroon, lacks of classrooms in primary schools and overcrowded conditions per classroom have been a growing concern. The construction of new classrooms by this grant aid project was expected to fulfill this urgent need, and thereby it is considered to be highly relevant. As a result of its implementation, the average number of students per classroom in the target schools has fallen from 62 to 44, which are fewer than 50 as the government of Cameroon has so far striven to achieve.

In addition, newly constructed schools have improved the school environment, which in turn has contributed to make students more willing to learn. At the same time, their teachers think that they are more motivated than before in pursuing their work. Compared to before the construction, a positive impact has been found over several schools where the pass rate of graduation examination has improved.

In terms of the project sustainability, it can be generally said that the target schools manage to ensure maintenance system and financial resources. This is primarily attributed to efforts of a Japan unit for project implementation established within the Ministry of Primary Education.

Overall, this project is evaluated to be highly satisfactory.

1. Project Description



External appearance of a constructed school building (Primary School of Ebolowa in South region)

Project Location

* Cities with red dots are project sites for primary school construction.

1.1 Background

In 1980s, the economic stagnation of Cameroon had worsened poverty across the country, and as a result, the enrolment rate of primary schools fell down from above 90% to 74.7% in FY1995. In addition, the educational environment had rapidly deteriorated as the austere financial policy by the government at that time had cut down investment in educational facilities and recruitment of teachers. Although, the school enrolment rate had steadily improved along with the economic recovery since 1995, a negative effect of suspending educational provisions for past years was so significant that lack of classrooms became a serious problem, unable to catch up an increasing number of students. Moreover, existing school buildings had further deteriorated. As of 2003, it was estimated that the number of classrooms was insufficient as many as 14,600 over the country, and temporary classrooms rose up to 18% as a proportion of the total number of the existing classrooms.

To address these problems, the government of Cameroon has developed policies to realize equal access to education and improvement of qualities of the education. Those objectives are underpinned in the “Education Sector Strategy” announced in 2001 that is a basic policy in education, and also in the “Poverty Reduction Strategy Paper” prepared in 2003 as a basis of the mid-term national development plan. In primary education, the government has aimed at realizing a class size of no more than 50 by constructing about 2,500 classrooms every year, while also recruiting teachers as required. Although the costs of these provisions have been covered by way of external funding as debt reduction, the financial resources of the government are far from sufficient to achieve the plan. This has resulted in the construction of classrooms as few as about 1,000 per year.

The lack of classrooms is serious in populated large cities as well as in North and Far North regions where educational development is particularly lagged behind. The number of students per classroom reaches 112 in Garoua in North region, 91 in Maroua in Far North region, and 73 in Yaounde in Central region respectively. As a result, classes have been often constrained in overcrowded situations with over 100 students per classroom, or many schools had to manage two shift schooling in order to secure the room capacity. This project has thus targeted those areas where such urgent need for classrooms had to be fulfilled.

1.2 Project Outline

The objective of this project is to contribute to improve the learning environment for students at primary schools, by providing school facilities, equipment and basic teaching materials at 33 primary schools in five regions.

| | |
|-----------------------------------|--|
| Grant Limit / Actual Grant Amount | 2,617 million yen /2,596 million yen |
| Exchange of Notes Date | August, 2004 (Phase 1), June, 2005 (Phase 2), June, 2006 (Phase 3) |
| Implementing Agency | Ministry of Primary Education |

| | |
|---------------------------|---|
| Project Completion Date | November, 2007 |
| Main Contractor(s) | Shimizu Corporation |
| Main Consultant(s) | Matsuda Consultants International Co., Ltd. and AAU Co., Ltd. (joint venture) |
| Basic Design | February, 2004 |
| Related Projects (if any) | “The First Project for Construction of Primary Schools” (Grant Aid: 1997-1999) “The Second Project for Construction of Primary Schools” (Grant Aid: 2001-2003) |

2. Outline of the Evaluation Study

2.1 External Evaluator

Jun TOTSUKAWA, Sano Planning Co., Ltd.

2.2 Duration of Evaluation Study

This ex-post evaluation was undertaken on the following schedule.

Duration of the Study: October, 2010 – October, 2011

Duration of the Field Study: February 19, 2011 – March 9, and 2011, June 12, 2011 – June 27, 2011

2.3 Constraints during the Evaluation Study

Not found.

3. Results of the Evaluation (Overall Rating: A¹)

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Policy of Cameroon

The government of Cameroon developed the “Education Sector Strategy” in 2001 which is a basic policy in education, and subsequently the “Poverty Reduction Strategy Paper” in 2003 as a basis of the mid-term national development plan, both that stresses education as one of the major issues to work through. These strategies aim at universalizing primary education and redressing educational disparities through ensuring equal opportunity in education as well as improving the quality of education. Given this policy background, this project is to contribute to expanding “equal opportunity in education,” and thereby is highly relevant with the country’s development strategies and policies that endorse such objective.

The revised “Education Sector Strategies” in 2006 essentially take over the principles and objectives of the preceding strategy. Namely, the priorities are to 1) redress educational disparities and achieve full rates of enrollment and graduation, 2) improve efficiencies and qualities of educational services, 3) develop an effective partnership between schools and communities, and 4) manage better education system and improve school governance. Accordingly, this project is designed to promote 1) redressing educational

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

² ① : High, ②: Fair, ③: Low

disparities and 2) improving efficiencies and qualities of education. Therefore, it remains consistent with policies of the government of Cameroon from at the time of the project planning through its completion.

3.1.2 Relevance with the Development Needs of Cameroon

(1) The development needs at the time of project planning

In Cameroon, along with the economic recovery since 1995, the school enrollment rate had steadily increased. In the 2002-03 academic year, the gross enrollment rate reached as high as 99.6%. However, since investment in educational facilities had been severely cut during an economic recession in the 1980s and 1990s, insufficient classrooms as well as overcrowded conditions have become a serious problem since the late 1990s. At the time of planning this project, it was estimated that the number of classrooms was insufficient as many as 14,600 over the country, and temporary classrooms reached up to 18% as a proportion of the total number of the existing classrooms.

In addition, while the government of Cameroon had attempted to provide better learning environment by constructing about 2,500 classrooms every year, the actual output remained as few as about 1,000 per year due to its financial difficulties.

In the light of these, this project supporting classroom provisions is considered to be consistent with the development needs of Cameroon.

Moreover, as indicated in the Table 1, while the number of student per classroom is 48.8 at the national average as of 2002, that of the target schools of this project is as many as 96.3, which illustrates excessively overcrowded conditions. This fact also underpins the pressing needs which this project expected to meet.

(2) The development needs at the time of the ex-post evaluation

Over the past 10 years until the ex-post evaluation of this project was undertaken, the government of Cameroon had made its own efforts to improve educational facilities. And yet, students are still forced to learn under severe circumstances of overcrowded classrooms in deteriorated facilities, besides two shift schooling.

So far, the government of Cameroon, that of Japan, African Development Bank, Islamic Development Bank, and other donors have respectively constructed new classrooms to achieve the above-mentioned objectives defined in the Education Sector Strategies (including its revision). Nonetheless, the number of classrooms has not yet been satisfied compared to that of students enrolled.

For this reason, it can be said that the construction project of new classrooms continues to be relevant at the time of the ex-post evaluation, as it is still consistent with the important development needs in the education sector of the country today.

Table 1 Change of the total number of students in primary education, the gross enrollment rate and the net enrollment rate (%)³

| | 1995 | 2000 | 2002 | 2007 | 2008 | 2009 |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Number of students | 1,786,340 | 2,689,052 | 2,798,523 | 3,201,477 | 3,350,662 | 3,502,636 |
| Gross enrollment rate (%) | 74.7 | 99.3 | 99.6 | 104.5 | 103.2 | 104.9 |
| Net enrollment rate (%) | NA | NA | NA | 82.9 | 83.1 | 85.8 |
| Number of student per classroom | NA | NA | 48.8 | 49.5 | 51.5 | 50.2 |

Source: The Annual Statistics of Ministry of Education

Table 2 Change of the number of constructed classrooms across the country

| | | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|------------------------|----------------------------|-------|------|-------|--------|--------|--------|--------|
| Number of classrooms | | Public and private schools | - | - | - | 64,550 | 64,941 | 69,804 | 72,485 |
| | | Public schools | - | - | - | 44,865 | 44,512 | 47,107 | 48,802 |
| Number of newly constructed classrooms | Government of Cameroon | PPTE(HIPC) | 646 | 0 | 429 | 874 | 586 | 456 | 1,061 |
| | | BIP | 300 | 422 | 546 | 880 | 870 | 549 | - |
| | | MDRI | - | - | - | 293 | - | - | - |
| | Donors | Japan | 163 | 138 | 150 | 138 | - | - | 132 |
| | | BAD | 114 | - | - | - | - | - | - |
| | | BID | 72 | - | - | - | - | - | - |
| Total number of newly constructed classrooms | | | 1,295 | 560 | 1,125 | 2,185 | 1,456 | 1,005 | 1,193 |

Note 1: MDRI: Multilateral Debt Relief Initiative, BIP: Budget Investment Public, PPTE: Fond Pays Pauvre Tres Endette

Note 2: The number of newly constructed classrooms by this project is a sum of the columns between 2005 and 2007 in a row of Japanese fund.

Source: The Annual Statistics of Ministry of Education, and the reference by the Department of Statistic in Ministry of Education

3.1.3 Relevance with Japan's ODA Policy

This project provides support for education sector which "Japan Official Development Assistance (ODA) Charter" (August, 2003) defines as one of the high priorities to work for.

Furthermore, at the time of the project planning, the government of Japan stated regarding its development assistance for Cameroon that it would engage particularly in meeting basic human needs of the country, developing infrastructure of such sectors as education (construction of primary schools and training institutions for teachers), water supply (especially in rural areas), health care, and fisheries (small-scale fishery promotion).⁴

Given these backgrounds, the development assistance in education sector in Cameroon is considered to be one of Japan's principal concerns. Therefore, this project is considered to be relevant with Japan's ODA policy.

³ The net enrollment rate is the number of children who are enrolled in primary education as a percentage of the total children of the official school age population (thereby it only includes children of the official school age). The gross enrollment rate, on the other hand, is the number of children of any age who are enrolled in primary education as a percentage of the total children of the official school age population. Therefore, the latter includes children with grade repetition or delayed enrollment, which is likely to exceed 100% in some cases.

⁴ Source: ODA Country Data Book 2004. The government of Japan generally formulates Country Assistance Programs for selected countries, and Cameroon is not yet included.

In the light of all these policy directions, this project has been highly relevant with Cameroon's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

This construction project has been implemented in the 33 school sites in five regions including Central region, South region, Southwest region, Far North region and North region.

Table 3 Project outputs

| | Number of schools | Number of classrooms | Number of principal's offices* | Other |
|------------------|-------------------|----------------------|--------------------------------|---|
| Central region | 8 | 140 | 30 | <ul style="list-style-type: none"> • Toilet facilities 45 • Multipurpose rooms 14 |
| South region | 5 | 38 | 10 | |
| Southwest region | 10 | 110 | 22 | |
| Far North region | 7 | 74 | 14 | |
| North region | 4 | 64 | 8 | |
| Total | 33 | 426 | 84 | — |

Note: The schools at the project sites employ two shift schooling in the morning and afternoon and teaching by groups, and accordingly more than one principal work at school. Thus, the number of principal's offices does not necessarily correspond to that of schools.

In addition to outputs indicated in the Table 3, the project has provided for each target school with such equipment as chairs, desks and notice boards as well as basic tools including scales, compasses, maps, and flip charts.

【Difference between actual outputs and planned outputs】

While minor revisions to design were made over a location of toilet facilities and classroom buildings, the number of classrooms and other facilities were completed as planned.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned cost and actual cost of the project are indicated in the Table 4 as below, and the project cost was lower than planned.

Table 4 The planned and the actual cost of the project

| | Planned cost | Actual cost |
|------------|-------------------|---|
| Phase 1 | 796 million yen | 790 million yen |
| Phase 2 | 889 million yen | 886 million yen |
| Phase 3 | 932 million yen | 920 million yen |
| Total cost | 2,617 million yen | 2,536 million yen (96.0% compared to the planned cost) |

【Difference between the planned and actual cost of the project】

The project cost was almost as planned, but it was slightly lower than estimated. This was primarily due to changes of airfare and bid price of local construction contractors, both occurred during the project period.

【Reference : Comparison between the preceding projects and similar projects of other donors】

1) Comparison between this project and the preceding projects (The First Project and the Second Project)

Compared with the preceding projects implemented as the First Construction Project of Primary Schools (1997-1999) and the Second Construction Project (2001-2003), this Third Project attempted to change building frames, modify finishing process as well as facility components (including scaling down a classroom size and corridors, reducing the number of multipurpose rooms). As a result, the overall construction cost was lowered.

Moreover, local contractors working since the First Construction Project have steadily developed their technical capabilities. This has enabled to make more efficient plan of construction works, allocation of supervisors and their staffs engaged in the construction works. These factors contributed to reducing cost for labour and construction.

Table 5 Comparison of the project cost
(the First through Third Construction Project funded by Japan)

| | per floor area | per classroom | Floor area per classroom (m ²) |
|---|--|---|---|
| | Direct construction cost 1,000 yen/m ² | Direct construction cost 1,000 yen/classroom | |
| The First Construction Project | 45.5 | 6,135 | 134.8 |
| The Second Construction Project | 43.5 | 5,247 | 120.5 |
| The Third Construction Project (the target of this ex-post evaluation) | 38.0 | 4,021 | 105.8 |

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon

2) Comparison between this project and similar projects by other donors

Compared with other donors' projects for school construction, the cost of this project is slightly higher, as it has employed aseismic structure (which is the Rahmen structure with reinforced concrete).

While other donors generally apply confined masonry structure, the duration period of the school buildings constructed by this project is 60 years, which is half as long again as those constructed by other donors. In the long run, therefore, the unit cost of a Japan-funded school is within a reasonable expense.

In Cameroon, furthermore, volcanic earthquakes have been often recorded. Applying earthquake-resistant design is considered to be a practical decision.⁵

⁵ So far in Cameroon, effects of earthquake have not been considered in structural design. In recent years, however, the

Table 6 Comparison of the project costs (this project and similar projects of other donors)

| | Project resources | Year of estimation | per floor area | per classroom | Number of classrooms |
|---|-----------------------------------|--------------------|---|---|----------------------|
| | | | Direct construction cost 1,000 yen/ m ² | Direct construction cost 1,000 yen/classroom | |
| Construction Project of 48 Primary Schools | Loan (Islamic Development Bank) | 1998 | 30.3 | 3,161 | 294 |
| Construction Project of 1241 Classrooms | Government of Cameroon/ HIPC Fund | 2003 | 26.9 | 2,328 | 1,241 |
| Third Construction Project of Primary Schools | Grant aid (Japan) | 2004 | 38.0 | 4,021 | 426 |

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon

3.2.2.2 Project Period

The planned project period and the actual period are indicated in the Table 7 as below, and the entire project period was shorter than planned.

Table 7 Planned and actual project periods

| Project phase | Planned | Actual |
|----------------------|--|--|
| Phase 1 | August, 2004-February, 2006 (19 months) | August, 2004-October, 2005 (15 months) |
| Phase 2 | June, 2005-February, 2007 (21 months) | June, 2005-October, 2006 (17 months) |
| Phase 3 | June, 2006-February, 2008 (21 months) | June, 2006-November, 2007 (18 months) |
| Total project period | August, 2004-February, 2008 (Net duration: 43 months) (Total months added all phases: 61 months) | August, 2004-November, 2007 (Net duration: 40 months) (Total months added all phases: 50 months (93% and 81% respectively compared to the <u>planned period</u>) |

Source: Document by JICA

【Difference between the planned and actual project period】

As mentioned above, the project period was shortened primarily due to the experienced local contractors who had engaged in the First and Second Construction Projects. Within a shorter time frame, they efficiently managed a preparation period from transporting and allocating materials to starting construction work.

In the light of these factors above, both the project cost and project period were within the plan, therefore efficiency of the project is high.

importance of earthquake resistance and structural durability has been increasingly recognized (Currently, certain criteria for material components are defined by the French norm, ANFOR, an industrial standard adopted in Cameroon). The Department of International Affairs at Ministry of Education mentioned that by consulting with the projects implemented by Japan it would be desirable to develop design standards or a guideline for construction applicable in Cameroon.

3.3 Effectiveness (Rating: ③)⁶

3.3.1 Quantitative Effects

The quantitative effects of this project have been achieved as indicated in the Table 8.

Table 8 Degree of achievement of the quantitative effects

| Indicator (measure of unit) | Baseline (2003/04) | End target (2008/09) | Output (2009/10)* |
|--|-----------------------|-------------------------|----------------------|
| Number of students per classroom (person)* | 96.3 | 62.0 | 44.8 |
| Number of temporary and deteriorated classrooms on the project sites/Total number of classrooms | 280/537 (52.1%) | 0/683 (0%) | — |

Note 1: The number of students per classroom at the target schools

Note 2: The output indicator of 2008/09 was unable to obtain, therefore it is substituted with the indicator achieved in 2009/10.

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon, and document by Ministry of Primary Education

While the number of students per classroom targeted by this project was 62, the actual output achieved is successfully surpassed a government target, 50.

Furthermore, it was observed on this ex-post evaluation study that the constructed school facilities have been mostly used in a good condition.

Besides these project effects, several other factors contributed to significantly improving overcrowded conditions in classrooms. In 2007, seven years of primary schooling in Cameroon was changed to six years. Also, the grade repetition rate has been lowered over the country due to policy direction. (The grade repetition rate in Francophone schools was 14.9% in the 2009/2010 academic year down from 28.1% in the 2002/2003 academic year. Accordingly, in Anglophone schools, it was 12.2% down from 17.4% in the same period⁷.)

It should be noted that the Ministry of Primary Education does not keep a precise record on how many temporary and deteriorated classrooms are still in use on the project sites because some schools still need these facilities besides newly completed classrooms for some special events. In the survey on the project sites, it was often observed that those temporary or deteriorated classrooms are somehow still in use. For this reason, the indicator mentioned above is not perfectly valid for evaluating the quantitative effects in this context.

3.3.2 Qualitative Effects

The qualitative effects to be achieved by this project are the following four aspects. Each outcome has been positively observed.

- (1) School facility environment is improved by reconstructing deteriorated classrooms.

⁶ Effectiveness is evaluated taking impacts into consideration.

⁷ Source : Document by Ministry of Primary Education

- (2) Overcrowded conditions are improved by increasing the number of classrooms.
- (3) Learning effects are enhanced by providing educational tools.
- (4) Hygienic environment is improved by installing toilet facilities.

Regarding (1) and (2) above, the numerical evidence on the quantitative effects clearly indicates positive outcomes. Moreover, in a beneficiary survey⁸ conducted at this ex-post evaluation, a majority of the respondents said that overcrowded conditions of classrooms were improved compared to before the project implementation.

Table 9 Recognition on the improvement of overcrowded conditions
(responses by teachers and PTA)

| | Significantly improved | Generally improved | Not changed | Worsened | Total |
|-----------------------|------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 43 | 41 | 10 | 2 | 96 |
| % | 44.8 | 42.7 | 10.4 | 2.1 | 100 |

Note: Responses by 78 teachers and 18 members of PTA

Source: The beneficiary survey

Regarding (3) on learning effects, new educational tools, which were previously unavailable, are utilized in each classroom, including large scales, maps and flip charts with various illustrations, contributing to enhancing the understanding of students. In particular, because visual aids such as flip charts are rarely used in Cameroon, they work well to attract attentions of students and to help their better comprehension of subjects.

Table 10 Recognition on the degree of understanding with the use of educational tools
(response by teachers)

| | Significantly increased | Somewhat increased | Not changed | Worsened | Total |
|-----------------------|-------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 42 | 29 | 6 | 1 | 78 |
| % | 53.8 | 37.2 | 7.7 | 1.3 | 100 |

Source: The beneficiary survey

Regarding (4) on the hygienic environment among the expected qualitative effects, it has been obviously improved compared to prior inadequate and unsanitary facilities. Along with improved toilet facilities, a positive secondary effect was found in that education on hygiene has been promoted at school.

⁸ The beneficiary survey was conducted at 13 schools equivalent to a half of the targeted schools. They include 5 (out of 13) schools in Central and South regions, 4 (out of 10) schools in Southwest region, 4 (out of 10) schools in Far North and North regions. The total number of the respondents is 704, including the following 104 persons from those 13 schools: 1) principal, 2) representatives of PTA (2 respondents), 3) teachers (5 respondents), 4) students (the entire class).

Table 11 Recognition on improvement of the hygienic environment by toilet installation
(responses by teachers and PTA)

| | Significantly increased | Somewhat increased | Not changed | Worsened | Total |
|-----------------------|-------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 71 | 25 | 0 | 0 | 96 |
| % | 74.0 | 26.0 | 0 | 0 | 100 |

Note: Responses by 78 teachers and 18 members of PTA

Source: The beneficiary survey

In the light of these effects found, this project has achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

The impacts of this project have been observed as follows.

(1) The impact on the quality of education and motivation to learn

It has been observed that as a result of this project implementation the quality of education has been improved and that students' motivation to learn has been fostered. The impacts of the project on these two aspects are described in detail as below, focusing on "enhancement of students' learning motivation," "increase of the pass rate of graduation examination," and "enhancement of teachers' motivation."

(1)-1 Enhancement of students' learning motivation

The improvement of the school environment has led to fostering students' motivation to learn. More than 90% of the students responded that they have become more willing to learn as a result of improved school facilities.

Table 12 Recognition of students on their learning motivation

| | Highly motivated | Somewhat motivated | Not changed | Worsened | Total |
|---|------------------|--------------------|--------------|-------------|-------|
| Degree of learning motivation fostered by school facilities improvement | 675 (90.1%) | 43 (5.7%) | 14 (1.9%) | 8 (1.1%) | 740 |
| Degree of learning motivation fostered by educational tools | 547 (73.0%) | 160 (21.4%) | 31 (4.1%) | 2 (0.3%) | 740 |

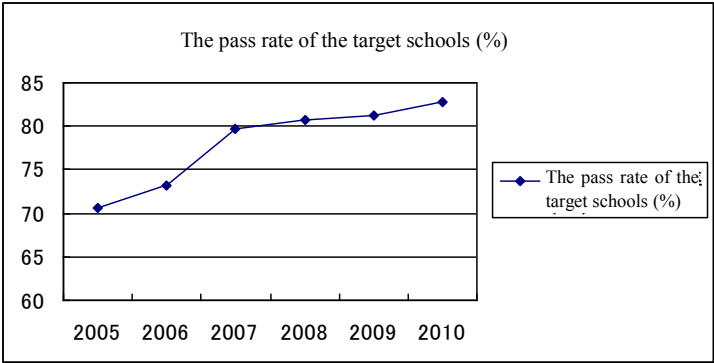
Note: The respondents are selected from highest graders in order to make values comparable before and after the project implementation.

Source: The beneficiary survey

(1)-2 Increase of the pass rate of graduation examination in primary education

In the 13 target primary schools of the beneficiary survey, the pass rate of graduation examination has been steadily improved. Since around 2006, when the project was just about complete, the pass rate started to show an increase, and it is slightly higher than the national average (The pass rate of the target

schools in 2009 was 81.3% as compared to 80.9% of the national average).⁹



Graph 1 Change in the pass rate of graduation examination in primary education (an average of the 13 target schools of the beneficiary survey)

(1)-3 Enhancement of teachers’ motivation

Newly constructed school facilities have supposedly contributed to enhance motivation of teachers as well.

In the beneficiary survey for teachers, about 62% of them said that they are more motivated than before the project implementation. For many of the respondents, as found in the survey, working as a teacher at “Japan school” noted in local communities has nurtured their self-respect, leading to higher sense of commitment in education.

(2) Impact on improvement on management capacities of document and teaching materials

Installing a storehouse has enabled organized storage and appropriate utilization of document and teaching materials, contributing in part to enhancing capacities to manage materials. More than 80% of the teachers responded that conditions storing documents and materials have been improved. On the project sites, it was observed that materials are used in an organized manner at many of the schools.

3.4.2 Other Impacts

(1) Impacts on the Natural Environment

Positive or negative impact on the natural environment has not been found.

(2) Land Acquisition and Resettlement

No land acquisition or resettlement has been undertaken.

(3) Other impact

In some cases, more students than estimated have been enrolled since the target schools of the projects had gained an increasing popularity. One of such examples is that EPF Buea School has more than 30

⁹ A graduation examination in primary education is offered for those students who wish to go on to the secondary school. About 50 to 60% of the highest graders take this examination.

students who commute by their parents' car driven over approximately 20 kilometres.

However, the popularity has not caused overcrowded conditions of classrooms at the same level as before the project. This is primarily due to an increasing private and public schools constructed around neighboring areas of the project sites.

In the light of these mentioned above, the project has given positive impacts on the quality of education and learning motivation.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

In 2007, a “Japan unit for project implementation” was set up within the Ministry of Primary Education,¹⁰ which undertakes maintenance of the facilities built by the Japanese ODA as well as educational activities to foster their sustainable operations (The Japan unit currently employs 10 staffs including engineers).

By installing the Japan unit, the sustainability of operation and maintenance has been increased more than expected at the time of the project planning. The Ministry of Primary Education plans to carry through this Japan unit, and thereby a probability is that the sustainability of the project will be ensured at the central government level.

The Japan unit, for instance, undertook in 2008 and 2009 such an educational activity as picture drawing contests with a subject of how one can keep his or her school clean. Also in 2010 and 2011, it carried out a “KIREI NA GAKKO Competition” (meaning a clean school), which awards distinguished schools working for cleanliness and maintenance of the facilities. As observed in several project sites, these activities with educational purpose have led some schools to start unique efforts such as growing trees and plants over the schoolyard.

Thus as long as the Japan unit ensures operation and maintenance of the school facilities, the sustainability is considered to be high.

Besides the ministry involvement, general operation and maintenance of the facilities is entrusted with shared responsibilities among a school, PTA and the school council. However, because most of the school councils are not practically functioning, the schools and PTAs assume a role of managing their school facilities.¹¹

Although there are some differences in organizational capabilities depending on PTAs, most of them occasionally have meetings with their schools or the parents. It is presumably considered that a certain

¹⁰ Given that the construction projects by Japanese grant aid have been carried out for extended period, the unit was established in 2007 for the purpose of specifically engaging in such operation as planning, allocating budget, supervising bid and maintaining constructed facilities.

¹¹ A school council generally constitutes of about 10 members with a principal, PTA members and a community representative such as a village chief. According to the hearing at the ex-post evaluation, however, it is not functioning primarily for the following reasons; 1) there is no control tower to direct council activities (and while the Ministry of Primary Education is essentially to assume this role, it offers virtually no support), 2) neither the Ministry of Primary Education or the local government provide financial resources for activities, and 3) since roles of a school council somewhat overlap those of PTA, objectives of its activities tend to remain undefined.

framework is somehow retained for sustainable operation and maintenance.

3.5.2 Technical Aspects of Operation and Maintenance

The facilities of this project employed specifications that require no specialized techniques in their maintenance. Thus, the structural sustainability seems to be mostly ensured.

A primary example of design specifications enabled maintenance-free facilities is a use of hollow blocks. In this project, windows have applied those blocks instead of roll-up shutters which normally require regular maintenance. As a result, little damage has been observed with minimum maintenance work. In addition, classrooms with hollow blocks need no lighting. (Until recently similar projects of other donors installed lighting, but, using hollow blocks has become increasingly popularity.)

As for repairs, quite minor adjustments have been so far made such as door lock. Whenever necessary, teachers, PTA or a local repairer in a village or town have fixed problems at their own cost. Technical aspects of sustainability are therefore considered to be high.

3.5.3 Financial Aspects of Operation and Maintenance

For regular repairs and repairs on extensive damage, they are expected to be financed by the Japan unit from the budget allocated for operation and maintenance. Minor repairs, as mentioned above, will continue to be covered by a financial contribution by PTA.

In 2009 and 2010, the Japan unit undertook rehabilitations including recoating of the schools of the First and Second Construction Projects. It also plans to rehabilitate the schools constructed by this project approximately 10 years after their completion. These indicate a possibility of a sustainable, long-term use of the facilities.

Table 13 Budget of the Project Implementation Unit (FY 2011)

| Items of expense | Number of the project unit | Amount of budget (1,000 Fcfa) | Percentage of the total budget |
|---|----------------------------|-------------------------------|--------------------------------|
| Construction and rehabilitation* | | | 51.1% |
| Rehabilitation of the primary schools constructed by Japan including repairs and recoating (West region and Central region) | 7 | 119,000 | 32.6% |
| Rehabilitation of the primary schools constructed by Japan including drainage facilities (Coast region and Central region) | 3 | 67,500 | 18.5% |
| Maintenance* | | | 48.9% |
| Salaries | 12 | 45,600 | 12.5% |
| Monitoring and evaluation | — | 41,507 | 11.3% |
| Overseas training for employees | 4 | 10,296 | 2.8% |
| Rent for Japan Overseas Cooperation Volunteer (JOCV) | 10 | 10,000 | 2.7% |
| Other (Utilities, office rent, fuel cost) | — | 70,661 | 19.3% |
| Total | — | 364,564 | 100% |

Note: The budget (FY2011) indicated above is allocated for the schools completed by the Second Construction Project. The rehabilitation of those schools will be finished in 2011.

Source: Document by Ministry of Primary Education

Minor repairs, on the other hand, will be presumably covered by PTA membership fees, as the amount

is expected to be relatively small.

Although only about a half of the PTA members pay membership fees, they will be sufficient to meet the expenses of minor repairs because many of the schools register a large number of students due to two shift schooling. Therefore, few concerns are seen over financial sustainability regarding payment for minor repairs.

【Examples of financial contributions by PTA】

(Case 1) In the project site of GBS Essos School in Yaounde, the number of students is as many as 4,246, taking two shift schooling by four groups. Even if only a half of their parents pay their PTA membership fees of 2,000Fcfā annually, the sum of those collected fees would be as much as 4.25 million Fcfā. Estimated that an exchange of a broken door lock costs approximately 5,000Fcfā, minor repairs of similar cases are likely to be covered by part of the PTA membership fees.

(Case 2) Many of the PTAs contribute to school operations by employing security guards, cleaning workers and teachers. Of the 13 target schools of the beneficiary survey, 9 schools employ security guards, 2 schools having cleaning works, 5 schools hiring up to 8 teachers. School operations carried on cost sharing indicate a positive prospect for financial sustainability.

3.5.4 Current Status of Operation and Maintenance

Minor damages were repaired over door lock and other parts so far at many of the schools. In some of cases, those broken locks have been fixed with simple box nails, instead of replacing by purchase. However, there seems to be no case that severe damages on roofs or walls remain overlooked. In other cases, a principal’s office was once burglarized, and then the school has installed with metallic double doors and pillars blocking the roof-spaces to prevent intrusion.

As a whole, the sustainability of the project is considered to be high, given that it is generally possible to maintain these facilities with locally available materials and techniques.

In the light of these mentioned above, no major problems have been observed in the operation and maintenance system, therefore the sustainability of the project is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In Cameroon, lacks of classrooms in primary schools and overcrowded conditions per classroom have been a growing concern. The construction of new classrooms by this grant aid project was expected to fulfill this urgent need, and thereby it is considered to be highly relevant. As a result of its implementation, the average number of students per classroom in the target schools has fallen from 62 to 44, which are fewer than 50 as the government of Cameroon has so far striven to achieve.

In addition, newly constructed schools have improved the school environment, which in turn has contributed to make students more willing to learn. At the same time, their teachers think that they are more motivated than before in pursuing their work. Compared to before the construction, a positive impact has been found over several schools where the pass rate of graduation examination has improved.

In terms of the project sustainability, it can be generally said that the target schools manage to ensure maintenance system and financial resources. This is primarily attributed to efforts of a Japan unit for project implementation established within the Ministry of Primary Education.

Overall, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

In this project, the Ministry of Primary Education has established the Japan unit for its implementation, and continued its efforts to strengthen facility maintenance, as observed in such educational activities as picture drawing contests and “KIRE NA GAKKO Competitions.”

While “KIRE NA GAKKO Competitions” in 2011 have been undertaken only around Yaounde in Central region, it is desirable to expand such opportunity over the country.

Furthermore, it is suggested that the Japan unit pursues more diverse educational activities for better facility maintenance. For instance, a KIREI NA GAKKO Competition can be more than just an event, and it is expected that the Competition will develop the winner as a model school for other lower ranking schools. A study tour to the model school may be a chance to learn its good practice.

4.2.2 Recommendations to JICA

Not found.

4.3 Lessons Learned

The Japan unit for project implementation established by the Ministry of Primary Education is an effective organization in enhancing the project sustainability. By taking overall control over the project implementation, the unit has gained assignment to play specific responsibilities, avoiding overlapping or scattering operations with other sections/staffs.

Furthermore, as in the case of this project, a long-term project with several subsequent phases is more likely to foster experienced staffs, know-how and networks obtained from the preceding projects. The experience indicates that a project implementation unit has played a central role in that process, therefore can be an effective means to increase overall efficiency including administrative cost reduction for the government.

Column

This Construction Project of Primary Schools is known as one of the longest and the most distinguished Japanese development assistance in Cameroon.

Since 1997 when the First Construction Project of Primary Schools started, Japan has continued its assistance expanding all over the 10 regions in Cameroon, implementing the Second Construction Project from 2001 to 2003, this Third Construction Project from 2004 to 2007, and the Forth Project from 2009 to 2011. Most recently, the Fifth Construction Project was officially agreed in July, 2011, having the Exchange of Notes signed. The number of the schools constructed by these projects is 1,333 classrooms in total (which is estimated to be 1,521 classrooms including the plan of the Fifth Construction Project). In the communities, they have gained popularity by name of “Japan schools,” regarded as clean and refined schools.

The schools constructed by these projects have distinctive features in not only their refined designs, but also antiseismic structures with specifications requiring little maintenance. At first, however, some of the unique specifications were regarded unfamiliar with the local experiences. Today, using hollow blocks over the windows instead of lighting has become a common method, increasingly applied by the government of Cameroon and other donors.

It is noteworthy that this project, fully utilizing the experiences obtained since the First Construction Project, has successfully managed cost reduction and modification of specifications. For instance, a teachers’ room requested by the government of Cameroon was used less frequently than expected, and therefore has been changed to a multipurpose room after the Third Construction Project. Also, careful considerations over local practices are reflected in changing components. Toilet facilities been substituted with a retention system that is more familiar and practical for users. It also saves costs for laying water pipe the implementing agency had to bear.

Also noteworthy is that the government of Cameroon has made significant efforts in implementing this project. As represented in establishing the Japan unit for project implantation in 2007, the Ministry of Primary Education has committed to ensure the sustainability of the completed and ongoing construction projects. Those efforts include rehabilitation of the constructed facilities and promotion of educational activities, both that were unexpected outcomes on the Japanese side. They have certainly contributed to the project achievement.

The Ministry of Primary Education states that having learned from the experiences they are now at a new stage to work toward expanding all over the country a good model of “Japan schools.”

Ex-Post Evaluation of Japanese Grant Aid Project
“The Third Project for Construction of Primary Schools”

External Evaluator: Jun TOTSUKAWA, Sano Planning Co., Ltd.

0. Summary

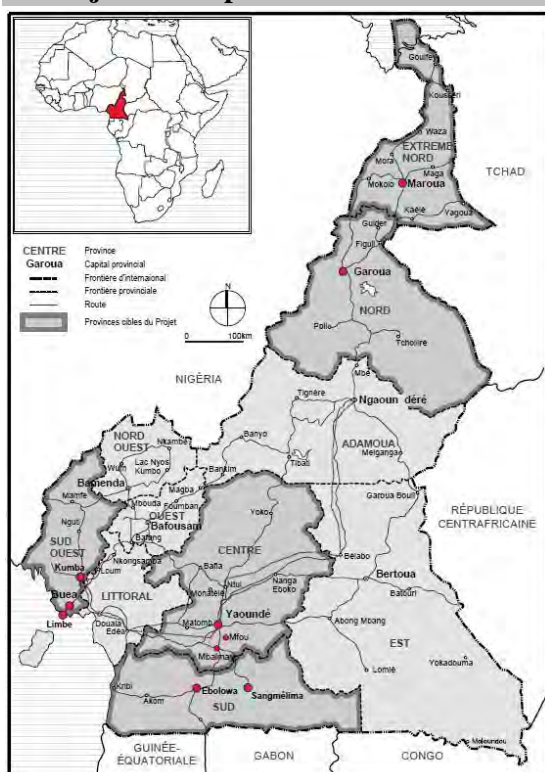
In Cameroon, lacks of classrooms in primary schools and overcrowded conditions per classroom have been a growing concern. The construction of new classrooms by this grant aid project was expected to fulfill this urgent need, and thereby it is considered to be highly relevant. As a result of its implementation, the average number of students per classroom in the target schools has fallen from 62 to 44, which are fewer than 50 as the government of Cameroon has so far striven to achieve.

In addition, newly constructed schools have improved the school environment, which in turn has contributed to make students more willing to learn. At the same time, their teachers think that they are more motivated than before in pursuing their work. Compared to before the construction, a positive impact has been found over several schools where the pass rate of graduation examination has improved.

In terms of the project sustainability, it can be generally said that the target schools manage to ensure maintenance system and financial resources. This is primarily attributed to efforts of a Japan unit for project implementation established within the Ministry of Primary Education.

Overall, this project is evaluated to be highly satisfactory.

1. Project Description



External appearance of a constructed school building (Primary School of Ebolowa in South region)

Project Location

* Cities with red dots are project sites for primary school construction.

1.1 Background

In 1980s, the economic stagnation of Cameroon had worsened poverty across the country, and as a result, the enrolment rate of primary schools fell down from above 90% to 74.7% in FY1995. In addition, the educational environment had rapidly deteriorated as the austere financial policy by the government at that time had cut down investment in educational facilities and recruitment of teachers. Although, the school enrolment rate had steadily improved along with the economic recovery since 1995, a negative effect of suspending educational provisions for past years was so significant that lack of classrooms became a serious problem, unable to catch up an increasing number of students. Moreover, existing school buildings had further deteriorated. As of 2003, it was estimated that the number of classrooms was insufficient as many as 14,600 over the country, and temporary classrooms rose up to 18% as a proportion of the total number of the existing classrooms.

To address these problems, the government of Cameroon has developed policies to realize equal access to education and improvement of qualities of the education. Those objectives are underpinned in the “Education Sector Strategy” announced in 2001 that is a basic policy in education, and also in the “Poverty Reduction Strategy Paper” prepared in 2003 as a basis of the mid-term national development plan. In primary education, the government has aimed at realizing a class size of no more than 50 by constructing about 2,500 classrooms every year, while also recruiting teachers as required. Although the costs of these provisions have been covered by way of external funding as debt reduction, the financial resources of the government are far from sufficient to achieve the plan. This has resulted in the construction of classrooms as few as about 1,000 per year.

The lack of classrooms is serious in populated large cities as well as in North and Far North regions where educational development is particularly lagged behind. The number of students per classroom reaches 112 in Garoua in North region, 91 in Maroua in Far North region, and 73 in Yaounde in Central region respectively. As a result, classes have been often constrained in overcrowded situations with over 100 students per classroom, or many schools had to manage two shift schooling in order to secure the room capacity. This project has thus targeted those areas where such urgent need for classrooms had to be fulfilled.

1.2 Project Outline

The objective of this project is to contribute to improve the learning environment for students at primary schools, by providing school facilities, equipment and basic teaching materials at 33 primary schools in five regions.

| | |
|-----------------------------------|--|
| Grant Limit / Actual Grant Amount | 2,617 million yen /2,596 million yen |
| Exchange of Notes Date | August, 2004 (Phase 1), June, 2005 (Phase 2), June, 2006 (Phase 3) |
| Implementing Agency | Ministry of Primary Education |

| | |
|---------------------------|---|
| Project Completion Date | November, 2007 |
| Main Contractor(s) | Shimizu Corporation |
| Main Consultant(s) | Matsuda Consultants International Co., Ltd. and AAU Co., Ltd. (joint venture) |
| Basic Design | February, 2004 |
| Related Projects (if any) | “The First Project for Construction of Primary Schools” (Grant Aid: 1997-1999) “The Second Project for Construction of Primary Schools” (Grant Aid: 2001-2003) |

2. Outline of the Evaluation Study

2.1 External Evaluator

Jun TOTSUKAWA, Sano Planning Co., Ltd.

2.2 Duration of Evaluation Study

This ex-post evaluation was undertaken on the following schedule.

Duration of the Study: October, 2010 – October, 2011

Duration of the Field Study: February 19, 2011 – March 9, and 2011, June 12, 2011 – June 27, 2011

2.3 Constraints during the Evaluation Study

Not found.

3. Results of the Evaluation (Overall Rating: A¹)

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Policy of Cameroon

The government of Cameroon developed the “Education Sector Strategy” in 2001 which is a basic policy in education, and subsequently the “Poverty Reduction Strategy Paper” in 2003 as a basis of the mid-term national development plan, both that stresses education as one of the major issues to work through. These strategies aim at universalizing primary education and redressing educational disparities through ensuring equal opportunity in education as well as improving the quality of education. Given this policy background, this project is to contribute to expanding “equal opportunity in education,” and thereby is highly relevant with the country’s development strategies and policies that endorse such objective.

The revised “Education Sector Strategies” in 2006 essentially take over the principles and objectives of the preceding strategy. Namely, the priorities are to 1) redress educational disparities and achieve full rates of enrollment and graduation, 2) improve efficiencies and qualities of educational services, 3) develop an effective partnership between schools and communities, and 4) manage better education system and improve school governance. Accordingly, this project is designed to promote 1) redressing educational

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

² ① : High, ②: Fair, ③: Low

disparities and 2) improving efficiencies and qualities of education. Therefore, it remains consistent with policies of the government of Cameroon from at the time of the project planning through its completion.

3.1.2 Relevance with the Development Needs of Cameroon

(1) The development needs at the time of project planning

In Cameroon, along with the economic recovery since 1995, the school enrollment rate had steadily increased. In the 2002-03 academic year, the gross enrollment rate reached as high as 99.6%. However, since investment in educational facilities had been severely cut during an economic recession in the 1980s and 1990s, insufficient classrooms as well as overcrowded conditions have become a serious problem since the late 1990s. At the time of planning this project, it was estimated that the number of classrooms was insufficient as many as 14,600 over the country, and temporary classrooms reached up to 18% as a proportion of the total number of the existing classrooms.

In addition, while the government of Cameroon had attempted to provide better learning environment by constructing about 2,500 classrooms every year, the actual output remained as few as about 1,000 per year due to its financial difficulties.

In the light of these, this project supporting classroom provisions is considered to be consistent with the development needs of Cameroon.

Moreover, as indicated in the Table 1, while the number of student per classroom is 48.8 at the national average as of 2002, that of the target schools of this project is as many as 96.3, which illustrates excessively overcrowded conditions. This fact also underpins the pressing needs which this project expected to meet.

(2) The development needs at the time of the ex-post evaluation

Over the past 10 years until the ex-post evaluation of this project was undertaken, the government of Cameroon had made its own efforts to improve educational facilities. And yet, students are still forced to learn under severe circumstances of overcrowded classrooms in deteriorated facilities, besides two shift schooling.

So far, the government of Cameroon, that of Japan, African Development Bank, Islamic Development Bank, and other donors have respectively constructed new classrooms to achieve the above-mentioned objectives defined in the Education Sector Strategies (including its revision). Nonetheless, the number of classrooms has not yet been satisfied compared to that of students enrolled.

For this reason, it can be said that the construction project of new classrooms continues to be relevant at the time of the ex-post evaluation, as it is still consistent with the important development needs in the education sector of the country today.

Table 1 Change of the total number of students in primary education, the gross enrollment rate and the net enrollment rate (%)³

| | 1995 | 2000 | 2002 | 2007 | 2008 | 2009 |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Number of students | 1,786,340 | 2,689,052 | 2,798,523 | 3,201,477 | 3,350,662 | 3,502,636 |
| Gross enrollment rate (%) | 74.7 | 99.3 | 99.6 | 104.5 | 103.2 | 104.9 |
| Net enrollment rate (%) | NA | NA | NA | 82.9 | 83.1 | 85.8 |
| Number of student per classroom | NA | NA | 48.8 | 49.5 | 51.5 | 50.2 |

Source: The Annual Statistics of Ministry of Education

Table 2 Change of the number of constructed classrooms across the country

| | | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|------------------------|----------------------------|-------|------|-------|--------|--------|--------|--------|
| Number of classrooms | | Public and private schools | - | - | - | 64,550 | 64,941 | 69,804 | 72,485 |
| | | Public schools | - | - | - | 44,865 | 44,512 | 47,107 | 48,802 |
| Number of newly constructed classrooms | Government of Cameroon | PPTE(HIPC) | 646 | 0 | 429 | 874 | 586 | 456 | 1,061 |
| | | BIP | 300 | 422 | 546 | 880 | 870 | 549 | - |
| | | MDRI | - | - | - | 293 | - | - | - |
| | Donors | Japan | 163 | 138 | 150 | 138 | - | - | 132 |
| | | BAD | 114 | - | - | - | - | - | - |
| | | BID | 72 | - | - | - | - | - | - |
| Total number of newly constructed classrooms | | | 1,295 | 560 | 1,125 | 2,185 | 1,456 | 1,005 | 1,193 |

Note 1: MDRI: Multilateral Debt Relief Initiative, BIP: Budget Investment Public, PPTE: Fond Pays Pauvre Tres Endette

Note 2: The number of newly constructed classrooms by this project is a sum of the columns between 2005 and 2007 in a row of Japanese fund.

Source: The Annual Statistics of Ministry of Education, and the reference by the Department of Statistic in Ministry of Education

3.1.3 Relevance with Japan's ODA Policy

This project provides support for education sector which "Japan Official Development Assistance (ODA) Charter" (August, 2003) defines as one of the high priorities to work for.

Furthermore, at the time of the project planning, the government of Japan stated regarding its development assistance for Cameroon that it would engage particularly in meeting basic human needs of the country, developing infrastructure of such sectors as education (construction of primary schools and training institutions for teachers), water supply (especially in rural areas), health care, and fisheries (small-scale fishery promotion).⁴

Given these backgrounds, the development assistance in education sector in Cameroon is considered to be one of Japan's principal concerns. Therefore, this project is considered to be relevant with Japan's ODA policy.

³ The net enrollment rate is the number of children who are enrolled in primary education as a percentage of the total children of the official school age population (thereby it only includes children of the official school age). The gross enrollment rate, on the other hand, is the number of children of any age who are enrolled in primary education as a percentage of the total children of the official school age population. Therefore, the latter includes children with grade repetition or delayed enrollment, which is likely to exceed 100% in some cases.

⁴ Source: ODA Country Data Book 2004. The government of Japan generally formulates Country Assistance Programs for selected countries, and Cameroon is not yet included.

In the light of all these policy directions, this project has been highly relevant with Cameroon's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

This construction project has been implemented in the 33 school sites in five regions including Central region, South region, Southwest region, Far North region and North region.

Table 3 Project outputs

| | Number of schools | Number of classrooms | Number of principal's offices* | Other |
|------------------|-------------------|----------------------|--------------------------------|---|
| Central region | 8 | 140 | 30 | <ul style="list-style-type: none"> • Toilet facilities 45 • Multipurpose rooms 14 |
| South region | 5 | 38 | 10 | |
| Southwest region | 10 | 110 | 22 | |
| Far North region | 7 | 74 | 14 | |
| North region | 4 | 64 | 8 | |
| Total | 33 | 426 | 84 | — |

Note: The schools at the project sites employ two shift schooling in the morning and afternoon and teaching by groups, and accordingly more than one principal work at school. Thus, the number of principal's offices does not necessarily correspond to that of schools.

In addition to outputs indicated in the Table 3, the project has provided for each target school with such equipment as chairs, desks and notice boards as well as basic tools including scales, compasses, maps, and flip charts.

【Difference between actual outputs and planned outputs】

While minor revisions to design were made over a location of toilet facilities and classroom buildings, the number of classrooms and other facilities were completed as planned.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned cost and actual cost of the project are indicated in the Table 4 as below, and the project cost was lower than planned.

Table 4 The planned and the actual cost of the project

| | Planned cost | Actual cost |
|------------|-------------------|---|
| Phase 1 | 796 million yen | 790 million yen |
| Phase 2 | 889 million yen | 886 million yen |
| Phase 3 | 932 million yen | 920 million yen |
| Total cost | 2,617 million yen | 2,536 million yen (96.0% compared to the planned cost) |

【Difference between the planned and actual cost of the project】

The project cost was almost as planned, but it was slightly lower than estimated. This was primarily due to changes of airfare and bid price of local construction contractors, both occurred during the project period.

【Reference : Comparison between the preceding projects and similar projects of other donors】

1) Comparison between this project and the preceding projects (The First Project and the Second Project)

Compared with the preceding projects implemented as the First Construction Project of Primary Schools (1997-1999) and the Second Construction Project (2001-2003), this Third Project attempted to change building frames, modify finishing process as well as facility components (including scaling down a classroom size and corridors, reducing the number of multipurpose rooms). As a result, the overall construction cost was lowered.

Moreover, local contractors working since the First Construction Project have steadily developed their technical capabilities. This has enabled to make more efficient plan of construction works, allocation of supervisors and their staffs engaged in the construction works. These factors contributed to reducing cost for labour and construction.

Table 5 Comparison of the project cost
(the First through Third Construction Project funded by Japan)

| | per floor area | per classroom | Floor area per classroom (m ²) |
|---|--|---|---|
| | Direct construction cost 1,000 yen/m ² | Direct construction cost 1,000 yen/classroom | |
| The First Construction Project | 45.5 | 6,135 | 134.8 |
| The Second Construction Project | 43.5 | 5,247 | 120.5 |
| The Third Construction Project (the target of this ex-post evaluation) | 38.0 | 4,021 | 105.8 |

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon

2) Comparison between this project and similar projects by other donors

Compared with other donors' projects for school construction, the cost of this project is slightly higher, as it has employed aseismic structure (which is the Rahmen structure with reinforced concrete).

While other donors generally apply confined masonry structure, the duration period of the school buildings constructed by this project is 60 years, which is half as long again as those constructed by other donors. In the long run, therefore, the unit cost of a Japan-funded school is within a reasonable expense.

In Cameroon, furthermore, volcanic earthquakes have been often recorded. Applying earthquake-resistant design is considered to be a practical decision.⁵

⁵ So far in Cameroon, effects of earthquake have not been considered in structural design. In recent years, however, the

Table 6 Comparison of the project costs (this project and similar projects of other donors)

| | Project resources | Year of estimation | per floor area | per classroom | Number of classrooms |
|---|-----------------------------------|--------------------|---|---|----------------------|
| | | | Direct construction cost 1,000 yen/ m ² | Direct construction cost 1,000 yen/classroom | |
| Construction Project of 48 Primary Schools | Loan (Islamic Development Bank) | 1998 | 30.3 | 3,161 | 294 |
| Construction Project of 1241 Classrooms | Government of Cameroon/ HIPC Fund | 2003 | 26.9 | 2,328 | 1,241 |
| Third Construction Project of Primary Schools | Grant aid (Japan) | 2004 | 38.0 | 4,021 | 426 |

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon

3.2.2.2 Project Period

The planned project period and the actual period are indicated in the Table 7 as below, and the entire project period was shorter than planned.

Table 7 Planned and actual project periods

| Project phase | Planned | Actual |
|----------------------|--|--|
| Phase 1 | August, 2004-February, 2006 (19 months) | August, 2004-October, 2005 (15 months) |
| Phase 2 | June, 2005-February, 2007 (21 months) | June, 2005-October, 2006 (17 months) |
| Phase 3 | June, 2006-February, 2008 (21 months) | June, 2006-November, 2007 (18 months) |
| Total project period | August, 2004-February, 2008 (Net duration: 43 months) (Total months added all phases: 61 months) | August, 2004-November, 2007 (Net duration: 40 months) (Total months added all phases: 50 months (93% and 81% respectively compared to the <u>planned period</u>) |

Source: Document by JICA

【Difference between the planned and actual project period】

As mentioned above, the project period was shortened primarily due to the experienced local contractors who had engaged in the First and Second Construction Projects. Within a shorter time frame, they efficiently managed a preparation period from transporting and allocating materials to starting construction work.

In the light of these factors above, both the project cost and project period were within the plan, therefore efficiency of the project is high.

importance of earthquake resistance and structural durability has been increasingly recognized (Currently, certain criteria for material components are defined by the French norm, ANFOR, an industrial standard adopted in Cameroon). The Department of International Affairs at Ministry of Education mentioned that by consulting with the projects implemented by Japan it would be desirable to develop design standards or a guideline for construction applicable in Cameroon.

3.3 Effectiveness (Rating: ③)⁶

3.3.1 Quantitative Effects

The quantitative effects of this project have been achieved as indicated in the Table 8.

Table 8 Degree of achievement of the quantitative effects

| Indicator (measure of unit) | Baseline (2003/04) | End target (2008/09) | Output (2009/10)* |
|--|-----------------------|-------------------------|----------------------|
| Number of students per classroom (person)* | 96.3 | 62.0 | 44.8 |
| Number of temporary and deteriorated classrooms on the project sites/Total number of classrooms | 280/537 (52.1%) | 0/683 (0%) | — |

Note 1: The number of students per classroom at the target schools

Note 2: The output indicator of 2008/09 was unable to obtain, therefore it is substituted with the indicator achieved in 2009/10.

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon, and document by Ministry of Primary Education

While the number of students per classroom targeted by this project was 62, the actual output achieved is successfully surpassed a government target, 50.

Furthermore, it was observed on this ex-post evaluation study that the constructed school facilities have been mostly used in a good condition.

Besides these project effects, several other factors contributed to significantly improving overcrowded conditions in classrooms. In 2007, seven years of primary schooling in Cameroon was changed to six years. Also, the grade repetition rate has been lowered over the country due to policy direction. (The grade repetition rate in Francophone schools was 14.9% in the 2009/2010 academic year down from 28.1% in the 2002/2003 academic year. Accordingly, in Anglophone schools, it was 12.2% down from 17.4% in the same period⁷.)

It should be noted that the Ministry of Primary Education does not keep a precise record on how many temporary and deteriorated classrooms are still in use on the project sites because some schools still need these facilities besides newly completed classrooms for some special events. In the survey on the project sites, it was often observed that those temporary or deteriorated classrooms are somehow still in use. For this reason, the indicator mentioned above is not perfectly valid for evaluating the quantitative effects in this context.

3.3.2 Qualitative Effects

The qualitative effects to be achieved by this project are the following four aspects. Each outcome has been positively observed.

- (1) School facility environment is improved by reconstructing deteriorated classrooms.

⁶ Effectiveness is evaluated taking impacts into consideration.

⁷ Source : Document by Ministry of Primary Education

- (2) Overcrowded conditions are improved by increasing the number of classrooms.
- (3) Learning effects are enhanced by providing educational tools.
- (4) Hygienic environment is improved by installing toilet facilities.

Regarding (1) and (2) above, the numerical evidence on the quantitative effects clearly indicates positive outcomes. Moreover, in a beneficiary survey⁸ conducted at this ex-post evaluation, a majority of the respondents said that overcrowded conditions of classrooms were improved compared to before the project implementation.

Table 9 Recognition on the improvement of overcrowded conditions
(responses by teachers and PTA)

| | Significantly improved | Generally improved | Not changed | Worsened | Total |
|-----------------------|------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 43 | 41 | 10 | 2 | 96 |
| % | 44.8 | 42.7 | 10.4 | 2.1 | 100 |

Note: Responses by 78 teachers and 18 members of PTA

Source: The beneficiary survey

Regarding (3) on learning effects, new educational tools, which were previously unavailable, are utilized in each classroom, including large scales, maps and flip charts with various illustrations, contributing to enhancing the understanding of students. In particular, because visual aids such as flip charts are rarely used in Cameroon, they work well to attract attentions of students and to help their better comprehension of subjects.

Table 10 Recognition on the degree of understanding with the use of educational tools
(response by teachers)

| | Significantly increased | Somewhat increased | Not changed | Worsened | Total |
|-----------------------|-------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 42 | 29 | 6 | 1 | 78 |
| % | 53.8 | 37.2 | 7.7 | 1.3 | 100 |

Source: The beneficiary survey

Regarding (4) on the hygienic environment among the expected qualitative effects, it has been obviously improved compared to prior inadequate and unsanitary facilities. Along with improved toilet facilities, a positive secondary effect was found in that education on hygiene has been promoted at school.

⁸ The beneficiary survey was conducted at 13 schools equivalent to a half of the targeted schools. They include 5 (out of 13) schools in Central and South regions, 4 (out of 10) schools in Southwest region, 4 (out of 10) schools in Far North and North regions. The total number of the respondents is 704, including the following 104 persons from those 13 schools: 1) principal, 2) representatives of PTA (2 respondents), 3) teachers (5 respondents), 4) students (the entire class).

Table 11 Recognition on improvement of the hygienic environment by toilet installation
(responses by teachers and PTA)

| | Significantly increased | Somewhat increased | Not changed | Worsened | Total |
|-----------------------|-------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 71 | 25 | 0 | 0 | 96 |
| % | 74.0 | 26.0 | 0 | 0 | 100 |

Note: Responses by 78 teachers and 18 members of PTA

Source: The beneficiary survey

In the light of these effects found, this project has achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

The impacts of this project have been observed as follows.

(1) The impact on the quality of education and motivation to learn

It has been observed that as a result of this project implementation the quality of education has been improved and that students' motivation to learn has been fostered. The impacts of the project on these two aspects are described in detail as below, focusing on "enhancement of students' learning motivation," "increase of the pass rate of graduation examination," and "enhancement of teachers' motivation."

(1)-1 Enhancement of students' learning motivation

The improvement of the school environment has led to fostering students' motivation to learn. More than 90% of the students responded that they have become more willing to learn as a result of improved school facilities.

Table 12 Recognition of students on their learning motivation

| | Highly motivated | Somewhat motivated | Not changed | Worsened | Total |
|---|------------------|--------------------|--------------|-------------|-------|
| Degree of learning motivation fostered by school facilities improvement | 675 (90.1%) | 43 (5.7%) | 14 (1.9%) | 8 (1.1%) | 740 |
| Degree of learning motivation fostered by educational tools | 547 (73.0%) | 160 (21.4%) | 31 (4.1%) | 2 (0.3%) | 740 |

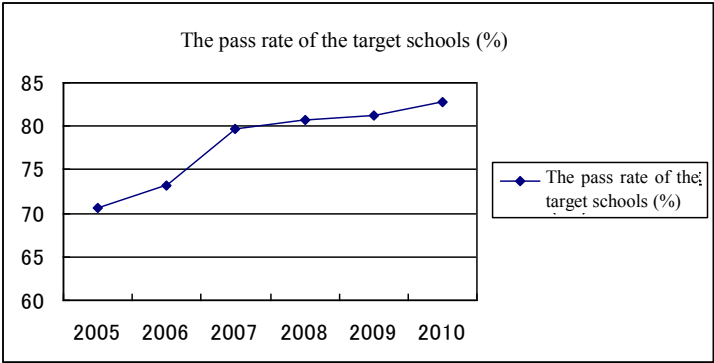
Note: The respondents are selected from highest graders in order to make values comparable before and after the project implementation.

Source: The beneficiary survey

(1)-2 Increase of the pass rate of graduation examination in primary education

In the 13 target primary schools of the beneficiary survey, the pass rate of graduation examination has been steadily improved. Since around 2006, when the project was just about complete, the pass rate started to show an increase, and it is slightly higher than the national average (The pass rate of the target

schools in 2009 was 81.3% as compared to 80.9% of the national average).⁹



Graph 1 Change in the pass rate of graduation examination in primary education (an average of the 13 target schools of the beneficiary survey)

(1)-3 Enhancement of teachers’ motivation

Newly constructed school facilities have supposedly contributed to enhance motivation of teachers as well.

In the beneficiary survey for teachers, about 62% of them said that they are more motivated than before the project implementation. For many of the respondents, as found in the survey, working as a teacher at “Japan school” noted in local communities has nurtured their self-respect, leading to higher sense of commitment in education.

(2) Impact on improvement on management capacities of document and teaching materials

Installing a storehouse has enabled organized storage and appropriate utilization of document and teaching materials, contributing in part to enhancing capacities to manage materials. More than 80% of the teachers responded that conditions storing documents and materials have been improved. On the project sites, it was observed that materials are used in an organized manner at many of the schools.

3.4.2 Other Impacts

(1) Impacts on the Natural Environment

Positive or negative impact on the natural environment has not been found.

(2) Land Acquisition and Resettlement

No land acquisition or resettlement has been undertaken.

(3) Other impact

In some cases, more students than estimated have been enrolled since the target schools of the projects had gained an increasing popularity. One of such examples is that EPF Buea School has more than 30

⁹ A graduation examination in primary education is offered for those students who wish to go on to the secondary school. About 50 to 60% of the highest graders take this examination.

students who commute by their parents' car driven over approximately 20 kilometres.

However, the popularity has not caused overcrowded conditions of classrooms at the same level as before the project. This is primarily due to an increasing private and public schools constructed around neighboring areas of the project sites.

In the light of these mentioned above, the project has given positive impacts on the quality of education and learning motivation.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

In 2007, a “Japan unit for project implementation” was set up within the Ministry of Primary Education,¹⁰ which undertakes maintenance of the facilities built by the Japanese ODA as well as educational activities to foster their sustainable operations (The Japan unit currently employs 10 staffs including engineers).

By installing the Japan unit, the sustainability of operation and maintenance has been increased more than expected at the time of the project planning. The Ministry of Primary Education plans to carry through this Japan unit, and thereby a probability is that the sustainability of the project will be ensured at the central government level.

The Japan unit, for instance, undertook in 2008 and 2009 such an educational activity as picture drawing contests with a subject of how one can keep his or her school clean. Also in 2010 and 2011, it carried out a “KIREI NA GAKKO Competition” (meaning a clean school), which awards distinguished schools working for cleanliness and maintenance of the facilities. As observed in several project sites, these activities with educational purpose have led some schools to start unique efforts such as growing trees and plants over the schoolyard.

Thus as long as the Japan unit ensures operation and maintenance of the school facilities, the sustainability is considered to be high.

Besides the ministry involvement, general operation and maintenance of the facilities is entrusted with shared responsibilities among a school, PTA and the school council. However, because most of the school councils are not practically functioning, the schools and PTAs assume a role of managing their school facilities.¹¹

Although there are some differences in organizational capabilities depending on PTAs, most of them occasionally have meetings with their schools or the parents. It is presumably considered that a certain

¹⁰ Given that the construction projects by Japanese grant aid have been carried out for extended period, the unit was established in 2007 for the purpose of specifically engaging in such operation as planning, allocating budget, supervising bid and maintaining constructed facilities.

¹¹ A school council generally constitutes of about 10 members with a principal, PTA members and a community representative such as a village chief. According to the hearing at the ex-post evaluation, however, it is not functioning primarily for the following reasons; 1) there is no control tower to direct council activities (and while the Ministry of Primary Education is essentially to assume this role, it offers virtually no support), 2) neither the Ministry of Primary Education or the local government provide financial resources for activities, and 3) since roles of a school council somewhat overlap those of PTA, objectives of its activities tend to remain undefined.

framework is somehow retained for sustainable operation and maintenance.

3.5.2 Technical Aspects of Operation and Maintenance

The facilities of this project employed specifications that require no specialized techniques in their maintenance. Thus, the structural sustainability seems to be mostly ensured.

A primary example of design specifications enabled maintenance-free facilities is a use of hollow blocks. In this project, windows have applied those blocks instead of roll-up shutters which normally require regular maintenance. As a result, little damage has been observed with minimum maintenance work. In addition, classrooms with hollow blocks need no lighting. (Until recently similar projects of other donors installed lighting, but, using hollow blocks has become increasingly popularity.)

As for repairs, quite minor adjustments have been so far made such as door lock. Whenever necessary, teachers, PTA or a local repairer in a village or town have fixed problems at their own cost. Technical aspects of sustainability are therefore considered to be high.

3.5.3 Financial Aspects of Operation and Maintenance

For regular repairs and repairs on extensive damage, they are expected to be financed by the Japan unit from the budget allocated for operation and maintenance. Minor repairs, as mentioned above, will continue to be covered by a financial contribution by PTA.

In 2009 and 2010, the Japan unit undertook rehabilitations including recoating of the schools of the First and Second Construction Projects. It also plans to rehabilitate the schools constructed by this project approximately 10 years after their completion. These indicate a possibility of a sustainable, long-term use of the facilities.

Table 13 Budget of the Project Implementation Unit (FY 2011)

| Items of expense | Number of the project unit | Amount of budget (1,000 Fcfa) | Percentage of the total budget |
|---|----------------------------|-------------------------------|--------------------------------|
| Construction and rehabilitation* | | | 51.1% |
| Rehabilitation of the primary schools constructed by Japan including repairs and recoating (West region and Central region) | 7 | 119,000 | 32.6% |
| Rehabilitation of the primary schools constructed by Japan including drainage facilities (Coast region and Central region) | 3 | 67,500 | 18.5% |
| Maintenance* | | | 48.9% |
| Salaries | 12 | 45,600 | 12.5% |
| Monitoring and evaluation | — | 41,507 | 11.3% |
| Overseas training for employees | 4 | 10,296 | 2.8% |
| Rent for Japan Overseas Cooperation Volunteer (JOCV) | 10 | 10,000 | 2.7% |
| Other (Utilities, office rent, fuel cost) | — | 70,661 | 19.3% |
| Total | — | 364,564 | 100% |

Note: The budget (FY2011) indicated above is allocated for the schools completed by the Second Construction Project. The rehabilitation of those schools will be finished in 2011.

Source: Document by Ministry of Primary Education

Minor repairs, on the other hand, will be presumably covered by PTA membership fees, as the amount

is expected to be relatively small.

Although only about a half of the PTA members pay membership fees, they will be sufficient to meet the expenses of minor repairs because many of the schools register a large number of students due to two shift schooling. Therefore, few concerns are seen over financial sustainability regarding payment for minor repairs.

【Examples of financial contributions by PTA】

(Case 1) In the project site of GBS Essos School in Yaounde, the number of students is as many as 4,246, taking two shift schooling by four groups. Even if only a half of their parents pay their PTA membership fees of 2,000Fcfā annually, the sum of those collected fees would be as much as 4.25 million Fcfā. Estimated that an exchange of a broken door lock costs approximately 5,000Fcfā, minor repairs of similar cases are likely to be covered by part of the PTA membership fees.

(Case 2) Many of the PTAs contribute to school operations by employing security guards, cleaning workers and teachers. Of the 13 target schools of the beneficiary survey, 9 schools employ security guards, 2 schools having cleaning works, 5 schools hiring up to 8 teachers. School operations carried on cost sharing indicate a positive prospect for financial sustainability.

3.5.4 Current Status of Operation and Maintenance

Minor damages were repaired over door lock and other parts so far at many of the schools. In some of cases, those broken locks have been fixed with simple box nails, instead of replacing by purchase. However, there seems to be no case that severe damages on roofs or walls remain overlooked. In other cases, a principal’s office was once burglarized, and then the school has installed with metallic double doors and pillars blocking the roof-spaces to prevent intrusion.

As a whole, the sustainability of the project is considered to be high, given that it is generally possible to maintain these facilities with locally available materials and techniques.

In the light of these mentioned above, no major problems have been observed in the operation and maintenance system, therefore the sustainability of the project is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In Cameroon, lacks of classrooms in primary schools and overcrowded conditions per classroom have been a growing concern. The construction of new classrooms by this grant aid project was expected to fulfill this urgent need, and thereby it is considered to be highly relevant. As a result of its implementation, the average number of students per classroom in the target schools has fallen from 62 to 44, which are fewer than 50 as the government of Cameroon has so far striven to achieve.

In addition, newly constructed schools have improved the school environment, which in turn has contributed to make students more willing to learn. At the same time, their teachers think that they are more motivated than before in pursuing their work. Compared to before the construction, a positive impact has been found over several schools where the pass rate of graduation examination has improved.

In terms of the project sustainability, it can be generally said that the target schools manage to ensure maintenance system and financial resources. This is primarily attributed to efforts of a Japan unit for project implementation established within the Ministry of Primary Education.

Overall, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

In this project, the Ministry of Primary Education has established the Japan unit for its implementation, and continued its efforts to strengthen facility maintenance, as observed in such educational activities as picture drawing contests and “KIRE NA GAKKO Competitions.”

While “KIRE NA GAKKO Competitions” in 2011 have been undertaken only around Yaounde in Central region, it is desirable to expand such opportunity over the country.

Furthermore, it is suggested that the Japan unit pursues more diverse educational activities for better facility maintenance. For instance, a KIREI NA GAKKO Competition can be more than just an event, and it is expected that the Competition will develop the winner as a model school for other lower ranking schools. A study tour to the model school may be a chance to learn its good practice.

4.2.2 Recommendations to JICA

Not found.

4.3 Lessons Learned

The Japan unit for project implementation established by the Ministry of Primary Education is an effective organization in enhancing the project sustainability. By taking overall control over the project implementation, the unit has gained assignment to play specific responsibilities, avoiding overlapping or scattering operations with other sections/staffs.

Furthermore, as in the case of this project, a long-term project with several subsequent phases is more likely to foster experienced staffs, know-how and networks obtained from the preceding projects. The experience indicates that a project implementation unit has played a central role in that process, therefore can be an effective means to increase overall efficiency including administrative cost reduction for the government.

Column

This Construction Project of Primary Schools is known as one of the longest and the most distinguished Japanese development assistance in Cameroon.

Since 1997 when the First Construction Project of Primary Schools started, Japan has continued its assistance expanding all over the 10 regions in Cameroon, implementing the Second Construction Project from 2001 to 2003, this Third Construction Project from 2004 to 2007, and the Forth Project from 2009 to 2011. Most recently, the Fifth Construction Project was officially agreed in July, 2011, having the Exchange of Notes signed. The number of the schools constructed by these projects is 1,333 classrooms in total (which is estimated to be 1,521 classrooms including the plan of the Fifth Construction Project). In the communities, they have gained popularity by name of “Japan schools,” regarded as clean and refined schools.

The schools constructed by these projects have distinctive features in not only their refined designs, but also antiseismic structures with specifications requiring little maintenance. At first, however, some of the unique specifications were regarded unfamiliar with the local experiences. Today, using hollow blocks over the windows instead of lighting has become a common method, increasingly applied by the government of Cameroon and other donors.

It is noteworthy that this project, fully utilizing the experiences obtained since the First Construction Project, has successfully managed cost reduction and modification of specifications. For instance, a teachers’ room requested by the government of Cameroon was used less frequently than expected, and therefore has been changed to a multipurpose room after the Third Construction Project. Also, careful considerations over local practices are reflected in changing components. Toilet facilities been substituted with a retention system that is more familiar and practical for users. It also saves costs for laying water pipe the implementing agency had to bear.

Also noteworthy is that the government of Cameroon has made significant efforts in implementing this project. As represented in establishing the Japan unit for project implantation in 2007, the Ministry of Primary Education has committed to ensure the sustainability of the completed and ongoing construction projects. Those efforts include rehabilitation of the constructed facilities and promotion of educational activities, both that were unexpected outcomes on the Japanese side. They have certainly contributed to the project achievement.

The Ministry of Primary Education states that having learned from the experiences they are now at a new stage to work toward expanding all over the country a good model of “Japan schools.”

1.1 Background

In 1980s, the economic stagnation of Cameroon had worsened poverty across the country, and as a result, the enrolment rate of primary schools fell down from above 90% to 74.7% in FY1995. In addition, the educational environment had rapidly deteriorated as the austere financial policy by the government at that time had cut down investment in educational facilities and recruitment of teachers. Although, the school enrolment rate had steadily improved along with the economic recovery since 1995, a negative effect of suspending educational provisions for past years was so significant that lack of classrooms became a serious problem, unable to catch up an increasing number of students. Moreover, existing school buildings had further deteriorated. As of 2003, it was estimated that the number of classrooms was insufficient as many as 14,600 over the country, and temporary classrooms rose up to 18% as a proportion of the total number of the existing classrooms.

To address these problems, the government of Cameroon has developed policies to realize equal access to education and improvement of qualities of the education. Those objectives are underpinned in the “Education Sector Strategy” announced in 2001 that is a basic policy in education, and also in the “Poverty Reduction Strategy Paper” prepared in 2003 as a basis of the mid-term national development plan. In primary education, the government has aimed at realizing a class size of no more than 50 by constructing about 2,500 classrooms every year, while also recruiting teachers as required. Although the costs of these provisions have been covered by way of external funding as debt reduction, the financial resources of the government are far from sufficient to achieve the plan. This has resulted in the construction of classrooms as few as about 1,000 per year.

The lack of classrooms is serious in populated large cities as well as in North and Far North regions where educational development is particularly lagged behind. The number of students per classroom reaches 112 in Garoua in North region, 91 in Maroua in Far North region, and 73 in Yaounde in Central region respectively. As a result, classes have been often constrained in overcrowded situations with over 100 students per classroom, or many schools had to manage two shift schooling in order to secure the room capacity. This project has thus targeted those areas where such urgent need for classrooms had to be fulfilled.

1.2 Project Outline

The objective of this project is to contribute to improve the learning environment for students at primary schools, by providing school facilities, equipment and basic teaching materials at 33 primary schools in five regions.

| | |
|-----------------------------------|--|
| Grant Limit / Actual Grant Amount | 2,617 million yen /2,596 million yen |
| Exchange of Notes Date | August, 2004 (Phase 1), June, 2005 (Phase 2), June, 2006 (Phase 3) |
| Implementing Agency | Ministry of Primary Education |

| | |
|---------------------------|---|
| Project Completion Date | November, 2007 |
| Main Contractor(s) | Shimizu Corporation |
| Main Consultant(s) | Matsuda Consultants International Co., Ltd. and AAU Co., Ltd. (joint venture) |
| Basic Design | February, 2004 |
| Related Projects (if any) | “The First Project for Construction of Primary Schools” (Grant Aid: 1997-1999) “The Second Project for Construction of Primary Schools” (Grant Aid: 2001-2003) |

2. Outline of the Evaluation Study

2.1 External Evaluator

Jun TOTSUKAWA, Sano Planning Co., Ltd.

2.2 Duration of Evaluation Study

This ex-post evaluation was undertaken on the following schedule.

Duration of the Study: October, 2010 – October, 2011

Duration of the Field Study: February 19, 2011 – March 9, and 2011, June 12, 2011 – June 27, 2011

2.3 Constraints during the Evaluation Study

Not found.

3. Results of the Evaluation (Overall Rating: A¹)

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Policy of Cameroon

The government of Cameroon developed the “Education Sector Strategy” in 2001 which is a basic policy in education, and subsequently the “Poverty Reduction Strategy Paper” in 2003 as a basis of the mid-term national development plan, both that stresses education as one of the major issues to work through. These strategies aim at universalizing primary education and redressing educational disparities through ensuring equal opportunity in education as well as improving the quality of education. Given this policy background, this project is to contribute to expanding “equal opportunity in education,” and thereby is highly relevant with the country’s development strategies and policies that endorse such objective.

The revised “Education Sector Strategies” in 2006 essentially take over the principles and objectives of the preceding strategy. Namely, the priorities are to 1) redress educational disparities and achieve full rates of enrollment and graduation, 2) improve efficiencies and qualities of educational services, 3) develop an effective partnership between schools and communities, and 4) manage better education system and improve school governance. Accordingly, this project is designed to promote 1) redressing educational

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

² ① : High, ②: Fair, ③: Low

disparities and 2) improving efficiencies and qualities of education. Therefore, it remains consistent with policies of the government of Cameroon from at the time of the project planning through its completion.

3.1.2 Relevance with the Development Needs of Cameroon

(1) The development needs at the time of project planning

In Cameroon, along with the economic recovery since 1995, the school enrollment rate had steadily increased. In the 2002-03 academic year, the gross enrollment rate reached as high as 99.6%. However, since investment in educational facilities had been severely cut during an economic recession in the 1980s and 1990s, insufficient classrooms as well as overcrowded conditions have become a serious problem since the late 1990s. At the time of planning this project, it was estimated that the number of classrooms was insufficient as many as 14,600 over the country, and temporary classrooms reached up to 18% as a proportion of the total number of the existing classrooms.

In addition, while the government of Cameroon had attempted to provide better learning environment by constructing about 2,500 classrooms every year, the actual output remained as few as about 1,000 per year due to its financial difficulties.

In the light of these, this project supporting classroom provisions is considered to be consistent with the development needs of Cameroon.

Moreover, as indicated in the Table 1, while the number of student per classroom is 48.8 at the national average as of 2002, that of the target schools of this project is as many as 96.3, which illustrates excessively overcrowded conditions. This fact also underpins the pressing needs which this project expected to meet.

(2) The development needs at the time of the ex-post evaluation

Over the past 10 years until the ex-post evaluation of this project was undertaken, the government of Cameroon had made its own efforts to improve educational facilities. And yet, students are still forced to learn under severe circumstances of overcrowded classrooms in deteriorated facilities, besides two shift schooling.

So far, the government of Cameroon, that of Japan, African Development Bank, Islamic Development Bank, and other donors have respectively constructed new classrooms to achieve the above-mentioned objectives defined in the Education Sector Strategies (including its revision). Nonetheless, the number of classrooms has not yet been satisfied compared to that of students enrolled.

For this reason, it can be said that the construction project of new classrooms continues to be relevant at the time of the ex-post evaluation, as it is still consistent with the important development needs in the education sector of the country today.

Table 1 Change of the total number of students in primary education, the gross enrollment rate and the net enrollment rate (%)³

| | 1995 | 2000 | 2002 | 2007 | 2008 | 2009 |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Number of students | 1,786,340 | 2,689,052 | 2,798,523 | 3,201,477 | 3,350,662 | 3,502,636 |
| Gross enrollment rate (%) | 74.7 | 99.3 | 99.6 | 104.5 | 103.2 | 104.9 |
| Net enrollment rate (%) | NA | NA | NA | 82.9 | 83.1 | 85.8 |
| Number of student per classroom | NA | NA | 48.8 | 49.5 | 51.5 | 50.2 |

Source: The Annual Statistics of Ministry of Education

Table 2 Change of the number of constructed classrooms across the country

| | | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|------------------------|----------------------------|-------|------|-------|--------|--------|--------|--------|
| Number of classrooms | | Public and private schools | - | - | - | 64,550 | 64,941 | 69,804 | 72,485 |
| | | Public schools | - | - | - | 44,865 | 44,512 | 47,107 | 48,802 |
| Number of newly constructed classrooms | Government of Cameroon | PPTE(HIPC) | 646 | 0 | 429 | 874 | 586 | 456 | 1,061 |
| | | BIP | 300 | 422 | 546 | 880 | 870 | 549 | - |
| | | MDRI | - | - | - | 293 | - | - | - |
| | Donors | Japan | 163 | 138 | 150 | 138 | - | - | 132 |
| | | BAD | 114 | - | - | - | - | - | - |
| | | BID | 72 | - | - | - | - | - | - |
| Total number of newly constructed classrooms | | | 1,295 | 560 | 1,125 | 2,185 | 1,456 | 1,005 | 1,193 |

Note 1: MDRI: Multilateral Debt Relief Initiative, BIP: Budget Investment Public, PPTE: Fond Pays Pauvre Tres Endette

Note 2: The number of newly constructed classrooms by this project is a sum of the columns between 2005 and 2007 in a row of Japanese fund.

Source: The Annual Statistics of Ministry of Education, and the reference by the Department of Statistic in Ministry of Education

3.1.3 Relevance with Japan's ODA Policy

This project provides support for education sector which "Japan Official Development Assistance (ODA) Charter" (August, 2003) defines as one of the high priorities to work for.

Furthermore, at the time of the project planning, the government of Japan stated regarding its development assistance for Cameroon that it would engage particularly in meeting basic human needs of the country, developing infrastructure of such sectors as education (construction of primary schools and training institutions for teachers), water supply (especially in rural areas), health care, and fisheries (small-scale fishery promotion).⁴

Given these backgrounds, the development assistance in education sector in Cameroon is considered to be one of Japan's principal concerns. Therefore, this project is considered to be relevant with Japan's ODA policy.

³ The net enrollment rate is the number of children who are enrolled in primary education as a percentage of the total children of the official school age population (thereby it only includes children of the official school age). The gross enrollment rate, on the other hand, is the number of children of any age who are enrolled in primary education as a percentage of the total children of the official school age population. Therefore, the latter includes children with grade repetition or delayed enrollment, which is likely to exceed 100% in some cases.

⁴ Source: ODA Country Data Book 2004. The government of Japan generally formulates Country Assistance Programs for selected countries, and Cameroon is not yet included.

In the light of all these policy directions, this project has been highly relevant with Cameroon's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

This construction project has been implemented in the 33 school sites in five regions including Central region, South region, Southwest region, Far North region and North region.

Table 3 Project outputs

| | Number of schools | Number of classrooms | Number of principal's offices* | Other |
|------------------|-------------------|----------------------|--------------------------------|---|
| Central region | 8 | 140 | 30 | <ul style="list-style-type: none"> • Toilet facilities 45 • Multipurpose rooms 14 |
| South region | 5 | 38 | 10 | |
| Southwest region | 10 | 110 | 22 | |
| Far North region | 7 | 74 | 14 | |
| North region | 4 | 64 | 8 | |
| Total | 33 | 426 | 84 | — |

Note: The schools at the project sites employ two shift schooling in the morning and afternoon and teaching by groups, and accordingly more than one principal work at school. Thus, the number of principal's offices does not necessarily correspond to that of schools.

In addition to outputs indicated in the Table 3, the project has provided for each target school with such equipment as chairs, desks and notice boards as well as basic tools including scales, compasses, maps, and flip charts.

【Difference between actual outputs and planned outputs】

While minor revisions to design were made over a location of toilet facilities and classroom buildings, the number of classrooms and other facilities were completed as planned.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned cost and actual cost of the project are indicated in the Table 4 as below, and the project cost was lower than planned.

Table 4 The planned and the actual cost of the project

| | Planned cost | Actual cost |
|------------|-------------------|---|
| Phase 1 | 796 million yen | 790 million yen |
| Phase 2 | 889 million yen | 886 million yen |
| Phase 3 | 932 million yen | 920 million yen |
| Total cost | 2,617 million yen | 2,536 million yen (96.0% compared to the planned cost) |

【Difference between the planned and actual cost of the project】

The project cost was almost as planned, but it was slightly lower than estimated. This was primarily due to changes of airfare and bid price of local construction contractors, both occurred during the project period.

【Reference : Comparison between the preceding projects and similar projects of other donors】

1) Comparison between this project and the preceding projects (The First Project and the Second Project)

Compared with the preceding projects implemented as the First Construction Project of Primary Schools (1997-1999) and the Second Construction Project (2001-2003), this Third Project attempted to change building frames, modify finishing process as well as facility components (including scaling down a classroom size and corridors, reducing the number of multipurpose rooms). As a result, the overall construction cost was lowered.

Moreover, local contractors working since the First Construction Project have steadily developed their technical capabilities. This has enabled to make more efficient plan of construction works, allocation of supervisors and their staffs engaged in the construction works. These factors contributed to reducing cost for labour and construction.

Table 5 Comparison of the project cost
(the First through Third Construction Project funded by Japan)

| | per floor area | per classroom | Floor area per classroom (m ²) |
|---|--|---|---|
| | Direct construction cost 1,000 yen/m ² | Direct construction cost 1,000 yen/classroom | |
| The First Construction Project | 45.5 | 6,135 | 134.8 |
| The Second Construction Project | 43.5 | 5,247 | 120.5 |
| The Third Construction Project (the target of this ex-post evaluation) | 38.0 | 4,021 | 105.8 |

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon

2) Comparison between this project and similar projects by other donors

Compared with other donors' projects for school construction, the cost of this project is slightly higher, as it has employed aseismic structure (which is the Rahmen structure with reinforced concrete).

While other donors generally apply confined masonry structure, the duration period of the school buildings constructed by this project is 60 years, which is half as long again as those constructed by other donors. In the long run, therefore, the unit cost of a Japan-funded school is within a reasonable expense.

In Cameroon, furthermore, volcanic earthquakes have been often recorded. Applying earthquake-resistant design is considered to be a practical decision.⁵

⁵ So far in Cameroon, effects of earthquake have not been considered in structural design. In recent years, however, the

Table 6 Comparison of the project costs (this project and similar projects of other donors)

| | Project resources | Year of estimation | per floor area | per classroom | Number of classrooms |
|---|-----------------------------------|--------------------|---|---|----------------------|
| | | | Direct construction cost 1,000 yen/ m ² | Direct construction cost 1,000 yen/classroom | |
| Construction Project of 48 Primary Schools | Loan (Islamic Development Bank) | 1998 | 30.3 | 3,161 | 294 |
| Construction Project of 1241 Classrooms | Government of Cameroon/ HIPC Fund | 2003 | 26.9 | 2,328 | 1,241 |
| Third Construction Project of Primary Schools | Grant aid (Japan) | 2004 | 38.0 | 4,021 | 426 |

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon

3.2.2.2 Project Period

The planned project period and the actual period are indicated in the Table 7 as below, and the entire project period was shorter than planned.

Table 7 Planned and actual project periods

| Project phase | Planned | Actual |
|----------------------|--|--|
| Phase 1 | August, 2004-February, 2006 (19 months) | August, 2004-October, 2005 (15 months) |
| Phase 2 | June, 2005-February, 2007 (21 months) | June, 2005-October, 2006 (17 months) |
| Phase 3 | June, 2006-February, 2008 (21 months) | June, 2006-November, 2007 (18 months) |
| Total project period | August, 2004-February, 2008 (Net duration: 43 months) (Total months added all phases: 61 months) | August, 2004-November, 2007 (Net duration: 40 months) (Total months added all phases: 50 months) <u>(93% and 81% respectively compared to the planned period)</u> |

Source: Document by JICA

【Difference between the planned and actual project period】

As mentioned above, the project period was shortened primarily due to the experienced local contractors who had engaged in the First and Second Construction Projects. Within a shorter time frame, they efficiently managed a preparation period from transporting and allocating materials to starting construction work.

In the light of these factors above, both the project cost and project period were within the plan, therefore efficiency of the project is high.

importance of earthquake resistance and structural durability has been increasingly recognized (Currently, certain criteria for material components are defined by the French norm, ANFOR, an industrial standard adopted in Cameroon). The Department of International Affairs at Ministry of Education mentioned that by consulting with the projects implemented by Japan it would be desirable to develop design standards or a guideline for construction applicable in Cameroon.

3.3 Effectiveness (Rating: ③)⁶

3.3.1 Quantitative Effects

The quantitative effects of this project have been achieved as indicated in the Table 8.

Table 8 Degree of achievement of the quantitative effects

| Indicator (measure of unit) | Baseline (2003/04) | End target (2008/09) | Output (2009/10)* |
|--|-----------------------|-------------------------|----------------------|
| Number of students per classroom (person)* | 96.3 | 62.0 | 44.8 |
| Number of temporary and deteriorated classrooms on the project sites/Total number of classrooms | 280/537 (52.1%) | 0/683 (0%) | — |

Note 1: The number of students per classroom at the target schools

Note 2: The output indicator of 2008/09 was unable to obtain, therefore it is substituted with the indicator achieved in 2009/10.

Source: The Basic Design Study Report of the Third Construction Project of Primary Schools in Cameroon, and document by Ministry of Primary Education

While the number of students per classroom targeted by this project was 62, the actual output achieved is successfully surpassed a government target, 50.

Furthermore, it was observed on this ex-post evaluation study that the constructed school facilities have been mostly used in a good condition.

Besides these project effects, several other factors contributed to significantly improving overcrowded conditions in classrooms. In 2007, seven years of primary schooling in Cameroon was changed to six years. Also, the grade repetition rate has been lowered over the country due to policy direction. (The grade repetition rate in Francophone schools was 14.9% in the 2009/2010 academic year down from 28.1% in the 2002/2003 academic year. Accordingly, in Anglophone schools, it was 12.2% down from 17.4% in the same period⁷.)

It should be noted that the Ministry of Primary Education does not keep a precise record on how many temporary and deteriorated classrooms are still in use on the project sites because some schools still need these facilities besides newly completed classrooms for some special events. In the survey on the project sites, it was often observed that those temporary or deteriorated classrooms are somehow still in use. For this reason, the indicator mentioned above is not perfectly valid for evaluating the quantitative effects in this context.

3.3.2 Qualitative Effects

The qualitative effects to be achieved by this project are the following four aspects. Each outcome has been positively observed.

(1) School facility environment is improved by reconstructing deteriorated classrooms.

⁶ Effectiveness is evaluated taking impacts into consideration.

⁷ Source : Document by Ministry of Primary Education

- (2) Overcrowded conditions are improved by increasing the number of classrooms.
- (3) Learning effects are enhanced by providing educational tools.
- (4) Hygienic environment is improved by installing toilet facilities.

Regarding (1) and (2) above, the numerical evidence on the quantitative effects clearly indicates positive outcomes. Moreover, in a beneficiary survey⁸ conducted at this ex-post evaluation, a majority of the respondents said that overcrowded conditions of classrooms were improved compared to before the project implementation.

Table 9 Recognition on the improvement of overcrowded conditions
(responses by teachers and PTA)

| | Significantly improved | Generally improved | Not changed | Worsened | Total |
|-----------------------|------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 43 | 41 | 10 | 2 | 96 |
| % | 44.8 | 42.7 | 10.4 | 2.1 | 100 |

Note: Responses by 78 teachers and 18 members of PTA

Source: The beneficiary survey

Regarding (3) on learning effects, new educational tools, which were previously unavailable, are utilized in each classroom, including large scales, maps and flip charts with various illustrations, contributing to enhancing the understanding of students. In particular, because visual aids such as flip charts are rarely used in Cameroon, they work well to attract attentions of students and to help their better comprehension of subjects.

Table 10 Recognition on the degree of understanding with the use of educational tools
(response by teachers)

| | Significantly increased | Somewhat increased | Not changed | Worsened | Total |
|-----------------------|-------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 42 | 29 | 6 | 1 | 78 |
| % | 53.8 | 37.2 | 7.7 | 1.3 | 100 |

Source: The beneficiary survey

Regarding (4) on the hygienic environment among the expected qualitative effects, it has been obviously improved compared to prior inadequate and unsanitary facilities. Along with improved toilet facilities, a positive secondary effect was found in that education on hygiene has been promoted at school.

⁸ The beneficiary survey was conducted at 13 schools equivalent to a half of the targeted schools. They include 5 (out of 13) schools in Central and South regions, 4 (out of 10) schools in Southwest region, 4 (out of 10) schools in Far North and North regions. The total number of the respondents is 704, including the following 104 persons from those 13 schools: 1) principal, 2) representatives of PTA (2 respondents), 3) teachers (5 respondents), 4) students (the entire class).

Table 11 Recognition on improvement of the hygienic environment by toilet installation
(responses by teachers and PTA)

| | Significantly increased | Somewhat increased | Not changed | Worsened | Total |
|-----------------------|-------------------------|--------------------|-------------|----------|-------|
| Quantity of responses | 71 | 25 | 0 | 0 | 96 |
| % | 74.0 | 26.0 | 0 | 0 | 100 |

Note: Responses by 78 teachers and 18 members of PTA

Source: The beneficiary survey

In the light of these effects found, this project has achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

The impacts of this project have been observed as follows.

(1) The impact on the quality of education and motivation to learn

It has been observed that as a result of this project implementation the quality of education has been improved and that students' motivation to learn has been fostered. The impacts of the project on these two aspects are described in detail as below, focusing on "enhancement of students' learning motivation," "increase of the pass rate of graduation examination," and "enhancement of teachers' motivation."

(1)-1 Enhancement of students' learning motivation

The improvement of the school environment has led to fostering students' motivation to learn. More than 90% of the students responded that they have become more willing to learn as a result of improved school facilities.

Table 12 Recognition of students on their learning motivation

| | Highly motivated | Somewhat motivated | Not changed | Worsened | Total |
|---|------------------|--------------------|--------------|-------------|-------|
| Degree of learning motivation fostered by school facilities improvement | 675 (90.1%) | 43 (5.7%) | 14 (1.9%) | 8 (1.1%) | 740 |
| Degree of learning motivation fostered by educational tools | 547 (73.0%) | 160 (21.4%) | 31 (4.1%) | 2 (0.3%) | 740 |

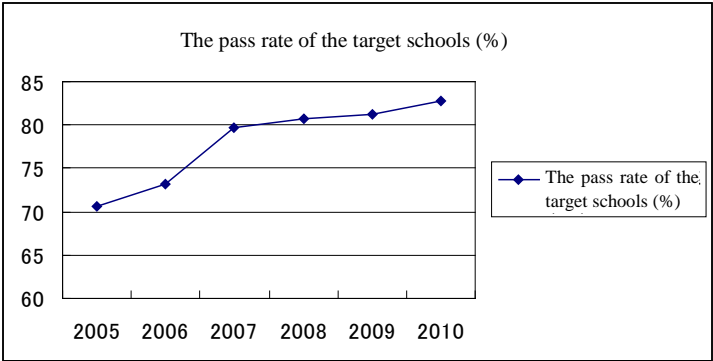
Note: The respondents are selected from highest graders in order to make values comparable before and after the project implementation.

Source: The beneficiary survey

(1)-2 Increase of the pass rate of graduation examination in primary education

In the 13 target primary schools of the beneficiary survey, the pass rate of graduation examination has been steadily improved. Since around 2006, when the project was just about complete, the pass rate started to show an increase, and it is slightly higher than the national average (The pass rate of the target

schools in 2009 was 81.3% as compared to 80.9% of the national average).⁹



Graph 1 Change in the pass rate of graduation examination in primary education (an average of the 13 target schools of the beneficiary survey)

(1)-3 Enhancement of teachers’ motivation

Newly constructed school facilities have supposedly contributed to enhance motivation of teachers as well.

In the beneficiary survey for teachers, about 62% of them said that they are more motivated than before the project implementation. For many of the respondents, as found in the survey, working as a teacher at “Japan school” noted in local communities has nurtured their self-respect, leading to higher sense of commitment in education.

(2) Impact on improvement on management capacities of document and teaching materials

Installing a storehouse has enabled organized storage and appropriate utilization of document and teaching materials, contributing in part to enhancing capacities to manage materials. More than 80% of the teachers responded that conditions storing documents and materials have been improved. On the project sites, it was observed that materials are used in an organized manner at many of the schools.

3.4.2 Other Impacts

(1) Impacts on the Natural Environment

Positive or negative impact on the natural environment has not been found.

(2) Land Acquisition and Resettlement

No land acquisition or resettlement has been undertaken.

(3) Other impact

In some cases, more students than estimated have been enrolled since the target schools of the projects had gained an increasing popularity. One of such examples is that EPF Buea School has more than 30

⁹ A graduation examination in primary education is offered for those students who wish to go on to the secondary school. About 50 to 60% of the highest graders take this examination.

students who commute by their parents' car driven over approximately 20 kilometres.

However, the popularity has not caused overcrowded conditions of classrooms at the same level as before the project. This is primarily due to an increasing private and public schools constructed around neighboring areas of the project sites.

In the light of these mentioned above, the project has given positive impacts on the quality of education and learning motivation.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

In 2007, a “Japan unit for project implementation” was set up within the Ministry of Primary Education,¹⁰ which undertakes maintenance of the facilities built by the Japanese ODA as well as educational activities to foster their sustainable operations (The Japan unit currently employs 10 staffs including engineers).

By installing the Japan unit, the sustainability of operation and maintenance has been increased more than expected at the time of the project planning. The Ministry of Primary Education plans to carry through this Japan unit, and thereby a probability is that the sustainability of the project will be ensured at the central government level.

The Japan unit, for instance, undertook in 2008 and 2009 such an educational activity as picture drawing contests with a subject of how one can keep his or her school clean. Also in 2010 and 2011, it carried out a “KIREI NA GAKKO Competition” (meaning a clean school), which awards distinguished schools working for cleanliness and maintenance of the facilities. As observed in several project sites, these activities with educational purpose have led some schools to start unique efforts such as growing trees and plants over the schoolyard.

Thus as long as the Japan unit ensures operation and maintenance of the school facilities, the sustainability is considered to be high.

Besides the ministry involvement, general operation and maintenance of the facilities is entrusted with shared responsibilities among a school, PTA and the school council. However, because most of the school councils are not practically functioning, the schools and PTAs assume a role of managing their school facilities.¹¹

Although there are some differences in organizational capabilities depending on PTAs, most of them occasionally have meetings with their schools or the parents. It is presumably considered that a certain

¹⁰ Given that the construction projects by Japanese grant aid have been carried out for extended period, the unit was established in 2007 for the purpose of specifically engaging in such operation as planning, allocating budget, supervising bid and maintaining constructed facilities.

¹¹ A school council generally constitutes of about 10 members with a principal, PTA members and a community representative such as a village chief. According to the hearing at the ex-post evaluation, however, it is not functioning primarily for the following reasons; 1) there is no control tower to direct council activities (and while the Ministry of Primary Education is essentially to assume this role, it offers virtually no support), 2) neither the Ministry of Primary Education or the local government provide financial resources for activities, and 3) since roles of a school council somewhat overlap those of PTA, objectives of its activities tend to remain undefined.

framework is somehow retained for sustainable operation and maintenance.

3.5.2 Technical Aspects of Operation and Maintenance

The facilities of this project employed specifications that require no specialized techniques in their maintenance. Thus, the structural sustainability seems to be mostly ensured.

A primary example of design specifications enabled maintenance-free facilities is a use of hollow blocks. In this project, windows have applied those blocks instead of roll-up shutters which normally require regular maintenance. As a result, little damage has been observed with minimum maintenance work. In addition, classrooms with hollow blocks need no lighting. (Until recently similar projects of other donors installed lighting, but, using hollow blocks has become increasingly popularity.)

As for repairs, quite minor adjustments have been so far made such as door lock. Whenever necessary, teachers, PTA or a local repairer in a village or town have fixed problems at their own cost. Technical aspects of sustainability are therefore considered to be high.

3.5.3 Financial Aspects of Operation and Maintenance

For regular repairs and repairs on extensive damage, they are expected to be financed by the Japan unit from the budget allocated for operation and maintenance. Minor repairs, as mentioned above, will continue to be covered by a financial contribution by PTA.

In 2009 and 2010, the Japan unit undertook rehabilitations including recoating of the schools of the First and Second Construction Projects. It also plans to rehabilitate the schools constructed by this project approximately 10 years after their completion. These indicate a possibility of a sustainable, long-term use of the facilities.

Table 13 Budget of the Project Implementation Unit (FY 2011)

| Items of expense | Number of the project unit | Amount of budget (1,000 Fcfa) | Percentage of the total budget |
|---|----------------------------|-------------------------------|--------------------------------|
| Construction and rehabilitation* | | | 51.1% |
| Rehabilitation of the primary schools constructed by Japan including repairs and recoating (West region and Central region) | 7 | 119,000 | 32.6% |
| Rehabilitation of the primary schools constructed by Japan including drainage facilities (Coast region and Central region) | 3 | 67,500 | 18.5% |
| Maintenance* | | | 48.9% |
| Salaries | 12 | 45,600 | 12.5% |
| Monitoring and evaluation | — | 41,507 | 11.3% |
| Overseas training for employees | 4 | 10,296 | 2.8% |
| Rent for Japan Overseas Cooperation Volunteer (JOCV) | 10 | 10,000 | 2.7% |
| Other (Utilities, office rent, fuel cost) | — | 70,661 | 19.3% |
| Total | — | 364,564 | 100% |

Note: The budget (FY2011) indicated above is allocated for the schools completed by the Second Construction Project. The rehabilitation of those schools will be finished in 2011.

Source: Document by Ministry of Primary Education

Minor repairs, on the other hand, will be presumably covered by PTA membership fees, as the amount

is expected to be relatively small.

Although only about a half of the PTA members pay membership fees, they will be sufficient to meet the expenses of minor repairs because many of the schools register a large number of students due to two shift schooling. Therefore, few concerns are seen over financial sustainability regarding payment for minor repairs.

【Examples of financial contributions by PTA】

(Case 1) In the project site of GBS Essos School in Yaounde, the number of students is as many as 4,246, taking two shift schooling by four groups. Even if only a half of their parents pay their PTA membership fees of 2,000Fcfa annually, the sum of those collected fees would be as much as 4.25 million Fcfa. Estimated that an exchange of a broken door lock costs approximately 5,000Fcfa, minor repairs of similar cases are likely to be covered by part of the PTA membership fees.

(Case 2) Many of the PTAs contribute to school operations by employing security guards, cleaning workers and teachers. Of the 13 target schools of the beneficiary survey, 9 schools employ security guards, 2 schools having cleaning works, 5 schools hiring up to 8 teachers. School operations carried on cost sharing indicate a positive prospect for financial sustainability.

3.5.4 Current Status of Operation and Maintenance

Minor damages were repaired over door lock and other parts so far at many of the schools. In some of cases, those broken locks have been fixed with simple box nails, instead of replacing by purchase. However, there seems to be no case that severe damages on roofs or walls remain overlooked. In other cases, a principal's office was once burglarized, and then the school has installed with metallic double doors and pillars blocking the roof-spaces to prevent intrusion.

As a whole, the sustainability of the project is considered to be high, given that it is generally possible to maintain these facilities with locally available materials and techniques.

In the light of these mentioned above, no major problems have been observed in the operation and maintenance system, therefore the sustainability of the project is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In Cameroon, lacks of classrooms in primary schools and overcrowded conditions per classroom have been a growing concern. The construction of new classrooms by this grant aid project was expected to fulfill this urgent need, and thereby it is considered to be highly relevant. As a result of its implementation, the average number of students per classroom in the target schools has fallen from 62 to 44, which are fewer than 50 as the government of Cameroon has so far striven to achieve.

In addition, newly constructed schools have improved the school environment, which in turn has contributed to make students more willing to learn. At the same time, their teachers think that they are more motivated than before in pursuing their work. Compared to before the construction, a positive impact has been found over several schools where the pass rate of graduation examination has improved.

In terms of the project sustainability, it can be generally said that the target schools manage to ensure maintenance system and financial resources. This is primarily attributed to efforts of a Japan unit for project implementation established within the Ministry of Primary Education.

Overall, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

In this project, the Ministry of Primary Education has established the Japan unit for its implementation, and continued its efforts to strengthen facility maintenance, as observed in such educational activities as picture drawing contests and “KIRE NA GAKKO Competitions.”

While “KIRE NA GAKKO Competitions” in 2011 have been undertaken only around Yaounde in Central region, it is desirable to expand such opportunity over the country.

Furthermore, it is suggested that the Japan unit pursues more diverse educational activities for better facility maintenance. For instance, a KIREI NA GAKKO Competition can be more than just an event, and it is expected that the Competition will develop the winner as a model school for other lower ranking schools. A study tour to the model school may be a chance to learn its good practice.

4.2.2 Recommendations to JICA

Not found.

4.3 Lessons Learned

The Japan unit for project implementation established by the Ministry of Primary Education is an effective organization in enhancing the project sustainability. By taking overall control over the project implementation, the unit has gained assignment to play specific responsibilities, avoiding overlapping or scattering operations with other sections/staffs.

Furthermore, as in the case of this project, a long-term project with several subsequent phases is more likely to foster experienced staffs, know-how and networks obtained from the preceding projects. The experience indicates that a project implementation unit has played a central role in that process, therefore can be an effective means to increase overall efficiency including administrative cost reduction for the government.

Column

This Construction Project of Primary Schools is known as one of the longest and the most distinguished Japanese development assistance in Cameroon.

Since 1997 when the First Construction Project of Primary Schools started, Japan has continued its assistance expanding all over the 10 regions in Cameroon, implementing the Second Construction Project from 2001 to 2003, this Third Construction Project from 2004 to 2007, and the Forth Project from 2009 to 2011. Most recently, the Fifth Construction Project was officially agreed in July, 2011, having the Exchange of Notes signed. The number of the schools constructed by these projects is 1,333 classrooms in total (which is estimated to be 1,521 classrooms including the plan of the Fifth Construction Project). In the communities, they have gained popularity by name of “Japan schools,” regarded as clean and refined schools.

The schools constructed by these projects have distinctive features in not only their refined designs, but also antiseismic structures with specifications requiring little maintenance. At first, however, some of the unique specifications were regarded unfamiliar with the local experiences. Today, using hollow blocks over the windows instead of lighting has become a common method, increasingly applied by the government of Cameroon and other donors.

It is noteworthy that this project, fully utilizing the experiences obtained since the First Construction Project, has successfully managed cost reduction and modification of specifications. For instance, a teachers’ room requested by the government of Cameroon was used less frequently than expected, and therefore has been changed to a multipurpose room after the Third Construction Project. Also, careful considerations over local practices are reflected in changing components. Toilet facilities been substituted with a retention system that is more familiar and practical for users. It also saves costs for laying water pipe the implementing agency had to bear.

Also noteworthy is that the government of Cameroon has made significant efforts in implementing this project. As represented in establishing the Japan unit for project implantation in 2007, the Ministry of Primary Education has committed to ensure the sustainability of the completed and ongoing construction projects. Those efforts include rehabilitation of the constructed facilities and promotion of educational activities, both that were unexpected outcomes on the Japanese side. They have certainly contributed to the project achievement.

The Ministry of Primary Education states that having learned from the experiences they are now at a new stage to work toward expanding all over the country a good model of “Japan schools.”