

**Ex-Post Project Evaluation 2010
Package IV-2
(Indonesia, China, Nepal)**

October 2011

JAPAN INTERNATIONAL COOPERATION AGENCY

**International Development Center of Japan Incorporated
OPMAC 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)

Disclaimer

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JICA's comments may be added at the end of each report when the views held by the operations departments do not match those of the external evaluator.

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Ex-Post Evaluation of Japanese ODA Loan Project
“Gadjah Mada University Development Project”

External Evaluator: Naomi Murayama, OPMAC Corporation

0. Summary

The Project objective was to develop high-quality human resources through improving the internal efficiency (shortening years from enrollment to graduation) and the education and research activities quantitatively and qualitatively by supporting development of Gadjah Mada University. This objective has been highly relevant to the country’s development plan, development needs, as well as Japan’s ODA policy; therefore its relevance is high. The building construction, the equipment procurement and the fellowship program were essentially completed in line with the initial plans, and the project cost was within the plan. However, the project period was extended for two years; therefore efficiency of the Project is fair. Based on the information gathered during this evaluation work, the Project has achieved its objectives or has shown a trend toward improvement regarding all the indicators of the internal efficiency of education, and quantitative and qualitative improvement of education and research activities, which were set at the time of appraisal; therefore its effectiveness is high. However, since some problems have been observed in terms of structural aspects, namely the operation and maintenance regulation/ system is not properly implemented, and technical aspects such as difficulties in repairs of the procured equipment, sustainability of the project effect is fair.

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

1. Project Description



Project Location



Gadjah Mada University

1.1 Background

Gadjah Mada University (hereinafter referred to as UGM) in Jogjakarta, Indonesia, is one of the key universities for education and research activities in Indonesia. UGM also places emphasis on contribution to local community. That is why UGM is a model school for other universities in Indonesia. UGM has played an important role in producing quality graduates who meet social needs especially in the fields of medicine and agriculture.

At the time of appraisal, development of high-quality human resources was required for industrialization in Indonesia. In addition, demand far exceeding supply was expected especially in the fields of medicine and agriculture. Under this circumstance, UGM had a plan to expand education and research activities quantitatively and qualitatively as one of the core higher education institutions in order to correspond to the social needs.

It was expected to develop high-quality human resources in the fields of medicine and agriculture as well as to make an impact on the entire higher education in Indonesia through implementation of the Project.

1.2 Project Outline

The objective of this project was to improve the education and research activities quantitatively and qualitatively in UGM, Indonesia by developing the buildings and the equipment and strengthening the teaching staff in the faculties of medicine and agriculture, thereby contributing to development of regional and national economy through supplying high-quality human resources to governmental organizations and private enterprises.

Loan Approved Amount/ Disbursed Amount	7,499 million yen / 6,479 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	January, 1998 / January, 1998
Terms and Conditions	Interest Rate: 2.7 % (Consulting service: 2.3%) Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General untied
Borrower / Executing Agencies	The Republic of Indonesia/ DG of Higher Education, Ministry of National Education (DGHE) and Gadjah Mada University (UGM)
Final Disbursement Date	February, 2009
Main Contractor (Over 1 billion yen)	PT. Pembangunan Perumahan (Indonesia), PT. Wijaya Karya (Indonesia), PT. Adhi Karya (Indonesia)
Main Consultant (Over 100 million yen)	PT. Duta Hari Murthi (Indonesia), PT. Cakra Manggilingan Jaya (Indonesia) /Kerta Gana (Indonesia)/ Pacific Consultants International (Japan) (JV)
Feasibility Studies, etc.	“Implementation Program” DGHE and UGM, August, 1996

2. Outline of the Evaluation Study

2.1 External Evaluator

Naomi Murayama, OPMAC Corporation

2.2 Duration of Evaluation Study

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

Duration of the Field Study: March 19 – April 3, 2011, May 22 – May 28, 2011

2.3 Constraints during the Evaluation Study

There were some constraints on data availabilities making it difficult to compare the data between appraisal and ex-post evaluation and to consider the transition of data. In particular, UGM's statistical data prior to 2005 such as number of students are not available because they have not been computerized and properly stored. Furthermore, the premises of calculation for baseline data and targets set at the time of appraisal are unknown at this time.

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

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Plan of Indonesia

Regarding higher education, Repelita VI (1994-1998), Indonesia's sixth five-year national development plan, aimed at increasing the percentage of science major students, especially engineers, from 14% to 25% of total students for the duration of Repelita VI by intensively strengthening the faculties of science at universities in order to realize education appropriate to the societal demand. Regionally, it put a priority on universities located in eastern regions of Indonesia. Therefore, at the time of appraisal, it met the national development plan to enforce the fields of science in higher education in eastern region of Indonesia.

In PRJM (2010-2014), the national development plan at the time of ex-post evaluation, education is cited as the second priority issue out of 11 issues. It says that "education development directly contributes to the achievement of economic development by being conducted along with measures for creation of job opportunities and entrepreneurs and against challenge of labour demand". Moreover, it strives to enhance higher education in order to develop human resources with leadership and in order to promote economic development. According to DG of Higher Education Ministry of National Education (hereinafter referred to as DGHE), they put emphasis on human development in the fields of science, technology, vocational training and agriculture, especially agricultural economics and agribusiness, even today. Therefore, the objective of the Project is still consistent with the development policy at the time of ex-post evaluation.

3.1.2 Relevance with the Development Needs of Indonesia

At the time of appraisal, since severe shortfalls in human resources in the fields of medicine and agriculture are pointed out in Indonesia, it was necessary to develop the faculties of medicine and agriculture in universities. At the time of ex-post evaluation, it is difficult to identify which faculties need support based on the statistics because it is not possible to obtain the excess and deficiency data disaggregated on human resources by academic field. It can be said in general, however, that development needs for higher education are growing more than before for the following reasons. Table 1 shows that graduates from primary education and secondary education have been increasing for nearly a decade. In addition, it is aimed to increase gross enrollment rate of higher education from 18%³ in 2009 to 25% in 2014 in PRJM (2010-2014).

Table 1: Transition of gross enrollment rate in Indonesia

		Unit: %		
age \ year	year	2003	2006	2009
7-12		96.4	97.39	97.95
13-15		81.0	84.08	85.43
16-18		51.0	53.92	55.05
19-24		11.7	11.38	12.66

Source: BPS, Statistik Pendidikan, 2003, 2006, and 2009

Furthermore, as the economy steadily grows in Indonesia, households can afford to increase their children's educational expenditure. Thus the number of students going on to universities is expected to increase. In light of the above, it is assumed that there are still development needs for higher education.

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

² ③: High, ②: Fair, ①: Low

³ This is not consistent with the figures in Table 1 due to the different sources.

3.1.3 Relevance with Japan's ODA Policy

Japan's Official Development Assistance (hereinafter referred to as ODA) Charter in 1992 stressed that Japan was tied closely to Asian countries historically, geographically, politically and economically and put priorities on support to the Asian region. It also focused on human development and research collaboration for improvement and promotion of technology. The project objective was consistent with Japan's ODA policy at the time of appraisal.

This project has been highly relevant to the country's development plan, development needs, as well as Japan's ODA policy; therefore its relevance is high.

3.2 Efficiency (Rating:②)

3.2.1 Project Outputs

The Project is composed of construction of buildings for faculties of medicine and agriculture⁴, procurement of education and research equipment, fellowship program (degree program and non-degree program of UGM lecturers in Japan), and technical assistance and consulting services for smooth project implementation. The outputs of each component are as shown in Table 2.



Building (Faculty of Forestry)

Table 2: Comparison of Outputs (planned and actual)

	Planned	Actual
① Construction of buildings and infrastructure development for seven faculties		
Gross floor area	68,000 m ²	86,180 m ²
Infrastructure development	Land development and utilities	Access road, landscape development, fence, parking area and additional facilities (power supply, water supply, firefighting and electrical distribution systems)
② Procurement of education and research equipment		
Quantity of procured equipment	1,058	2,433
Quantity of procured furniture	22,308	26,689
③ Academic fellowship program		
Degree program	20 persons	25 persons
Non-degree training	15 persons	16 persons
④ Technical assistance		
Selection of equipment	7.5 MM	2.47 MM
Selection of fellows	4.0 MM	0.00 MM
⑤ Consulting services		
Engineering services	440 MM	776.05 MM
Project management services	327 MM	505 MM
Fellowship services	73 MM	79 MM

Source: JICA appraisal documents, Responses to the questionnaire

⁴ Targeted faculties of the Project are seven faculties as follows: Faculty of Medicine, Faculty of Dentistry, Faculty of Forestry, Faculty of Agriculture, Faculty of Agricultural Technology, Faculty of Veterinary Medicine, and Faculty of Animal Husbandry.

The project outputs were slightly added and/or modified from the plan depending on components. Regarding construction of buildings for seven faculties, the gross floor area of buildings and the related space increased by 18,180 m² because of wider lobby area for student waiting, additional greenhouse and warehouse space and so on. In regard to infrastructure development, access roads, power supply facilities and the chemical waste water treatment facilities etc. were added for smooth and efficient operation of other components of the Project. In respect of procurement of academic equipment, some equipment was additionally procured because the planned equipment was not sufficient for research and education especially in Faculty of Agriculture, Faculty of Agriculture Technology and Faculty of Forestry. Some furniture was also added as Package F1 in response to the addition of buildings. As to fellowship program, since more degree holders and teaching staff with the latest academic knowledge were needed in order to accelerate the UGM's plan of Center of Excellence in Science and Technology Development, six fellows were added. The technical assistance experts for selection of fellows were not hired because the consultant for fellowship services dealt with the selection work and the workload was increased. The workloads of other consulting services, engineering services and project management services, were increased due to extension of the project period. In any case, these additions and modifications were acceptable as the planned components were modified with JICA's concurrence.

3.2.2 Project Inputs

3.2.2.1 Project Cost

Actual project costs amounted to 7,702 million yen (of this, the actual loan disbursement amounted to 6,479 million yen) against the estimated costs of 9,998 million yen (of this, the planned loan amounted to 6,479 million yen), and were lower than planned. The reasons for the lower project cost were attributable to the depreciation of local currency which exceeded inflation and to competitive bidding which enabled cost-effective ordering.

3.2.2.2 Project Period

The project period planned at the time of appraisal, which was defined as the period from signing of the Loan Agreement to the final disbursement, was 108 months, or from November 1997 to February 2007. The actual project period was 132 months, or from January 1998 to February 2009, which was equivalent to 122% of the original plan, and was slightly longer than planned. The main reasons for the longer project period were as follows:

- 1) As the Java earthquake that occurred on May 27, 2006 during implementation of the Project caused damage to buildings and equipment supported by the Project, the project period was extended for two years in view of the period needed for restoration and exchange of damaged items, and
- 2) The procurement of some additional equipment, Package F1, was delayed for two years later than planned because it took more time for the procurement procedure than planned and for getting the export permit for some equipment from the Japanese government.

In regard to reason 1), it could not be avoided since the earthquake was an unforeseen natural disaster. The first handing-over of the restoration package, added after the earthquake, was completed in October 2008 on time. On the other hand, Package F1 (the second reason) was added before the earthquake and basically was not affected by the disaster. The main reason was to take time for the procurement procedure. Although tenders were invited in 2006 and two companies bided, both did not meet the requirements; therefore the rebidding was conducted. In addition, it took time to get the export permit for some equipment as mentioned above. Consequently, Package F1 could not be also completed by the time set after the rebidding (December 2008).

All the procurement of equipment included in the original plan was completed within the

planned period.

Although the project cost was within the plan, the project period slightly exceeded the plan; therefore efficiency of the Project was fair.

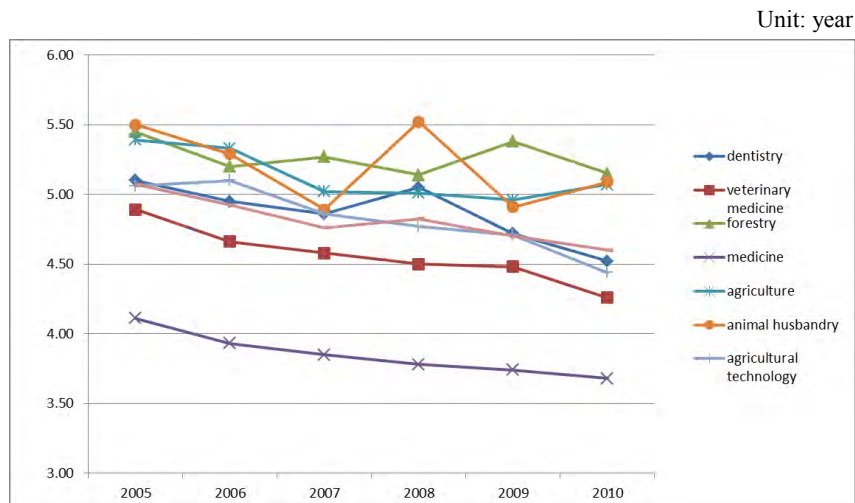
3.3 Effectiveness (Rating: ③)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

(1) Internal Efficiency of Education

There are several indicators for internal efficiency of education. The number of years from enrollment to graduation is utilized as an indicator in this evaluation since it is possible to obtain the baseline data before the implementation of the Project. The prescribed years from enrollment to graduation are four years in UGM.⁵ The average years from enrollment to graduation were 5.5 years in the faculties of medicine and 6.7 years in the agricultural faculties before the implementation of the Project. It was targeted to graduate within five years on average in every faculty by 2005. As the Project was not completed as of 2005, the average number of years from enrollment to graduation in the agricultural faculties was 5.35 years and was still more than five years. On the other hand, Faculty of Medicine and Faculty of Veterinary Medicine already achieved the target and the average numbers of years were 4.11 years and 4.89 years in 2005, respectively. At the time of ex-post evaluation, it was 4.15 years in the medical faculties and 4.94 years in the agricultural faculties. These are dramatically improved as shortened by 1.35 years in the medical faculties and by 1.76 years in the agricultural faculties.



Source: Responses to the questionnaire (UGM)

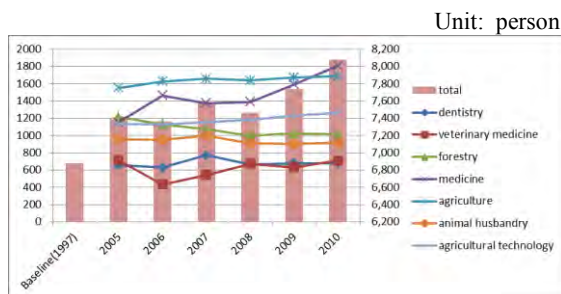
Figure 1: Numbers of years to graduation (Average in each faculty)

The main reason for shortening the duration from enrollment to graduation is considered that the laboratory equipment and clinical training instruments procured by the Project made it possible to reduce student waiting time for the equipment and to make education and research more efficient.

⁵ Regardless of the prescribed years, students have been able to graduate in a shorter time if they can get the required credits since mid-1990s.

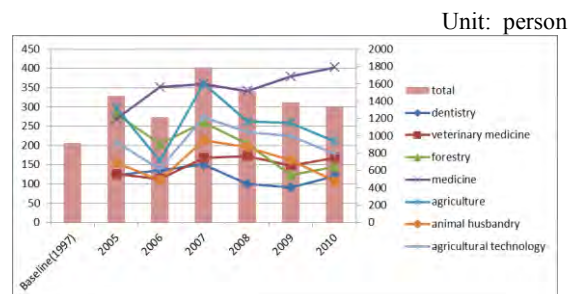
(2) Quantitative Improvement of Education: Increase of Number of Students and Graduates

In order to confirm quantitative improvement of education by development of buildings and educational facilities, the numbers of students and graduates, which had been set as indicators at the time of appraisal, were analyzed.⁶



Source: JICA appraisal documents, Responses to the questionnaire

Figure 2: Transition in number of registered students in 7 faculties



Source: JICA appraisal documents, Responses to the questionnaire

Figure 3: Transition in number of graduates in 7 faculties

Table 3: Transition in number of dropouts in 7 faculties

Year	Baseline (1996/97)	2005	2006	2007	2008	2009	2010
dropout	23	25	45	33	10	1	1

Source: JICA appraisal documents, Responses to the questionnaire

The total number of registered students in seven faculties has been increasing since 2005 and reached as many as 8,106 in 2010. This is attributed to expansion of admissions by setting up new departments in the faculties. Although total number of graduates in seven faculties increased from 915 in 1996/97 to 1,334 in 2010, the number has been decreasing in faculties other than Faculty of Medicine and Faculty of Veterinary Medicine especially since 2007. The total number has been decreasing year by year, too. The number of dropouts has been decreasing since 2007, and it was only one in total in 2009 and 2010, respectively (Table 3). Considering that the number of registered students in the faculties other than Faculty of Forestry, Faculty of Animal Husbandry and Faculty of Dentistry is increasing and the number of years to graduation in each faculty is shortening, it is very difficult to explain the decrease in the total number of graduates, in particular the decrease in the number of graduates in Faculty of Agriculture based on these figures. The data on number of graduates submitted by UGM might not be reliable in view of UGM's data archiving and interviews with all relevant persons who explained that the number of students and graduates is supposed to increase. In order to monitor the project effect and to manage the university properly, it is necessary to improve the data archiving on numbers of registered students and graduates.

At any rate, the development of buildings (86,180 m²) in seven faculties and equipment allows UGM to accept more students than before implementation of the Project. The Project contributed to quantitative improvement of education, namely increase in registered students, to certain extent.

⁶ The basis for calculation of the baseline data and the target are unknown and it was not possible to reconfirm the number of students as of 1997 during the site survey because of data archiving problems in UGM. Therefore, the analysis was attempted based on recent transition, but not in comparison with the target.

(3) Qualitative Improvement of Education

In this section, the ratio of lecturers with master's/ doctorate degrees, which was available data during the site survey, was considered and improvement of their education/ research abilities was confirmed in order to analyze qualitative improvement of education quantitatively. In addition, the degree of improvement of students' performance was confirmed based on the Grade Point Average (hereinafter referred to as GPA)⁷ which is generally used as an indicator for performance in Indonesia.

As of 2010, 100% or close to 100% of lecturers in the faculties except for Faculty of Forestry took master's/ doctorate degrees. The lecturers with master's or doctorate degrees increased drastically compared to the time of appraisal (Table 4).

Even in Faculty of Forestry which has the least degree holders, it increased by approximately 6% or from 68.91% in 1997 to 75.28% in 2010. This resulted from UGM's active encouragement to take degrees as the Center of Excellence in Science and Technology Development. Many lecturers completed degrees with assistance from international donors such as Germany. Considering this in relation to the Project, it is assumed that the Project made a contribution to qualitative improvement of UGM's education because all the participants in the degree program (25 lecturers) completed degrees in Japan.

GPA, an indicator of students' performance, has been improving in the seven faculties. The average GPA in the seven faculties improved by 0.1 points or from 3.04 points in 2005 to 3.14 points in 2010. It is considered that improvement of lecturers' quality by the fellowship program as well as development of buildings and equipment contributed to better students' GPA in the seven faculties to some extent.

(4) Improvement of Research Level

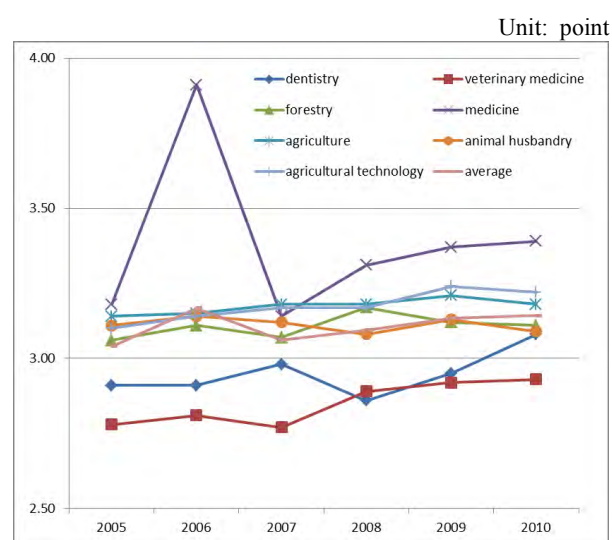
In order to analyze improvement of research level quantitatively, the research activities in the fields of medicine and agriculture (number of research papers⁸) and number of awarded research funds were confirmed during the site survey.

Referring to Table 5, the number of research papers which were produced by the lecturers

Table 4: Ratio of lecturers with degrees

faculty	year	
	1997	2010
Medicine	53.49	98.68
Dentistry	58.97	100.00
Forestry	68.91	75.28
Agriculture	63.35	96.00
Agricultural technology	82.22	98.80
Veterinary medicine	67.31	100.00
Animal husbandry	80.77	94.59

Source: UGM



Source: UGM

Figure 4: Transition of GPA in 7 faculties

⁷ Students' performance is assessed by 5-level rating system (A, B, C, D and E) and by the Absolute Evaluation System. GPA is calculated as follows: Firstly, the performance assessment is converted into grade point (in the case of UGM, A= 4, B=3, C=2, D=1, E=0 (failing score)). Secondly, each grade point is multiplied by the number of registered credits. Finally, the average grade point is calculated by dividing total grade point by the number of courses.

⁸ Research papers in this evaluation are not limited to those put in SCI (Science Citation Index) and EI (Engineering Index) which are utilized as international evaluation criteria of research level.

in the seven faculties has annually been increasing from 128, or the baseline in 1997, to 687 in 2010. The number exponentially increased before and after the implementation of the Project.

Table 5: Number of research papers produced by lecturers in 7 faculties

Year	1997	2005	2006	2007	2008	2009	2010
Number of research papers in 7 faculties	128	311	332	408	429	523	687
(ref.) Number of lecturers in 7 faculties	n/a	862	834	801	788	784	771

Source: UGM

On the other hand, the total number of the research papers produced by 40 lecturers who participated in the fellowship program⁹ was 18 in 2010, which is equivalent to 0.45 per lecturer. This is about half of the number of per lecturer research papers in seven faculties, 0.89 in 2010¹⁰. Nevertheless, many participants in the focus group interview (the lecturers who studied in Japan under the Project), as mentioned later, expressed that the research projects or collaborative research with other universities in Indonesia/ foreign universities including Japan have increased by improvement of their facilities. It is presumed that the smaller number of the research papers at this moment is because the participants in the fellowship program are composed of relatively young lecturers. Generally speaking, it needs time to bear fruits in education projects. The number of research papers produced by the lecturers is expected to increase given the fellowship support by the Project.

Table 6: Number of funded research projects

Year	1997	2010
Number of research projects	n/a	160

Source: UGM

In regard to the awarded research funds, it is impossible to compare the performance before and after the Project because the data in 1997 is not available. However, it can be seen that UGM gets a lot of funded research projects in 2010¹¹.

Therefore, it can be considered that development of buildings and equipment contributes to enforcement of research activities in UGM to some extent although it is too soon to judge the performance of research abilities of young lecturers who participated in the fellowship program.

3.3.1.2 Results of Calculations of Internal Rates of Return (IRR)

Due to the fact that data needed for quantitative analysis was not available, analysis for the internal rate of return was not possible.

⁹ The lecturers who studied in Japan under the Project were 41 in total. However, as one lecturer of this passed away five years ago, this lecturer was not included in the figures in compiling the data.

¹⁰ This number comes from UGM's official responses to the questionnaire. According to UGM's other survey, however, the total number of the research papers was at least 149 by 13 JICA ex-fellows (the performance of remaining ex-fellows is unknown). Supposing the remaining 27 lecturers have not written any papers, the figure would be 0.62 per lecturer. The annual average of these 13 lecturers is 1.9 per lecturer.

¹¹ For example, according to the ex-post evaluation report of "Development Project of the Institute of Technology in Bandung (II)" the research activities were 234 in 2003. Of this, there were contracted researches or collaborative researches with about 60 private companies. Although it cannot be compared simply with other projects which are different in view of kinds and numbers of faculties assisted by projects and the definition of contracted research, the number of contracted projects in UGM is assumed to be quite a lot compared to the number of contracted projects in the Institute of Technology in Bandung if it is defined as the number of researches with these 60 private companies.

3.3.2 Qualitative Effects

3.3.2.1 Satisfaction with Facilities (Beneficiary Survey)

During the site survey, the questionnaire survey targeted at 74 lecturers and 137 students in the seven faculties was conducted in order to confirm their satisfaction with facilities and project effect.

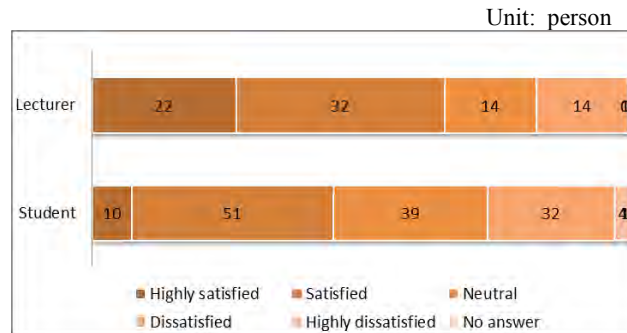
According to the results of the questionnaire survey of students, a key factor in choosing the university is that UGM has more advanced facilities than other universities in Indonesia. Many students are satisfied with the Project outputs and are grateful for them (61 students or about 45% of 137 students are satisfied with the equipment and 26% are unsatisfied). On the other hand, after they start attending university, 65% of students are inconvenienced by waiting for the experimental equipment due to the shortage of facilities. The low operating rate of equipment causes the queue for the equipment although shortage of equipment is also one of causes in some laboratories. The low operation rate is due to breakdown caused by lack of maintenance and aging equipment, and due to inefficient utilization by the scattered placement.

Lecturers are also satisfied with facilities. About 73% of the respondents answered “satisfied” to the questionnaire. Even some lecturers who marked “satisfied” expressed their dissatisfaction with defectives, breakdown, impossibility of repairs and shortage of equipment as well as mismatch between their needs and allocated equipment. Both lecturers and students are highly satisfied with buildings constructed by the Project.

Regarding convenient facilities and unnecessary facilities, the majority of respondents highly appreciate the research equipment and buildings which they utilize every day, but 16 out of 74 respondents (21.6%) answered that there are unnecessary items among the equipment allocated to their laboratories. Of this, many respondents gave reasons why the equipment was not suitable for the needs of their laboratories and why they cannot use the equipment due to breakdown.

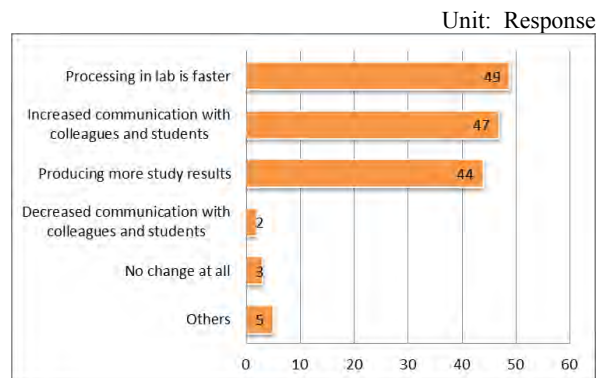
In regard to the equipment allocated to each laboratory, the needs assessment targeted at each laboratory was conducted before the project implementation in order to make preliminary procurement list. Some experts on equipment were dispatched to assist UGM in finalizing the list during the implementation. However, sometimes the practicing lecturer in a laboratory is different from the lecturer at the time of the needs assessment and her/ his research theme is different, and the specs of equipment have been changed or a part of planned equipment have not been procured through the finalization of the procurement list even if same lecturer works at the laboratory. This leads to the mismatch between their needs and the allocated equipment. Sometimes, one laboratory needs some equipment, which another laboratory does not need.

In sum, these responses to the beneficiary survey show the problems on mismatch between users’ needs and the allocated equipment and insufficient



Source: Beneficiary survey

Figure 5: Satisfaction with facilities



Source: Beneficiary survey

Note: Multiple answers

Figure 6: Changes of education and research before and after the project implementation

maintenance of equipment¹².

As to the question on changes of education and research before and after the project implementation, about 67% of the respondents answered that processing in their laboratories was faster than before the project and about 59.5% of the respondents answered that they produced more research results than before. These indicate that research efficiency is improved by development of buildings and equipment. Moreover, about 63.5% of the respondents marked the increase of communication with their colleagues and students. Positive effects on education and research are seen as a result of the development of buildings and equipment.

3.3.2.2 Achievement of Fellowship Program

Twenty five lecturers aimed at completing academic degrees in the fellowship program and all of them got master's or doctorate degrees. Nobody has moved to a different institute since returning from Japan. Every lecturer still teaches and conducts researches in UGM.

During the site survey, the achievement of degree program and non-degree program was confirmed by focus group interviews with 16 lecturers who participated in these programs. Each lecturer had several objectives to study in Japan as follows: to complete degrees (9 lecturers), to brush up their academic knowledge (12 lecturers), to learn Japanese (1 lecturer), to understand research culture in Japan (2 lecturers) and so on. Twelve out of 14 participants expressed that they could achieve their objectives. Regarding remaining two participants, one answered that he could mostly accomplish his objectives and the other answered that he achieved from 50% to 60% of his goals. Almost all the respondents achieved results as expected.

Most of them pointed out the effects of the fellowship program as follows: they could improve their academic technique and knowledge, they could gain confidence to teach and conduct researches, and they personally could get the worldwide network with researchers in other universities. Many lecturers appreciate that UGM has better reputation due to increase of degree holders and that UGM's internationalization progresses because of the Project. Moreover, a lot of lecturers expressed that they were impressed by research attitudes and education methods in Japan and they have been practicing it by themselves to their students or their teaching method has been improved since their return to UGM. Based on these opinions, it can be assumed that the effects of the fellowship program extend not only to degrees but also to qualitative improvement on education and research.

This Project has largely achieved its objectives; therefore its effectiveness is high

3.4 Impact

3.4.1 Intended Impacts

The goal of the Project is contribution to the development of regional and national economy through supplying high-quality human resources to governmental organizations and private enterprises. As mentioned above, UGM is one of the universities which puts priority on community activities as well as a core higher education institution in Indonesia. There are many examples regarded as indirect contribution to regional and national economic development although they directly affect macroeconomic indicators such as gross domestic product (hereinafter referred to as GDP).

3.4.1.1 Contribution to Regional Society and Economy

There were a lot of responses to the question about lecturers' academic performance contributing to national and regional development¹³ including Indonesian government project

¹² To be described later in detail.

¹³ For instance, Research about Traditional Medicine, Evaluation Analysis of Avian Influenza Virus Genetic, Development of Food Technology, Research about Kinds of Biomass, Research on Community Forestry, Research about Water Harvesting & Climate Change, Research about Rice etc.

and researches rooted in community. Although these researches directly affect GDP, considering the increase of academic results through having improved the research environment as mentioned above, it can be assumed that the Project made a certain contribution to economic development in communities and Indonesia indirectly.

There are many kinds of social contributions through, not only research but also advisory work to other universities in Indonesia as a core university and dispatch of lecturers as experts to Indonesian government or other governments. For the example of direct impact, a lecturer who studied pediatric care in Japan takes advantages of the knowledge and works for local children as a volunteer activity.

In addition, UGM makes contributions to regional society and economy through rental of UGM equipment procured under the Project and contracting of product tests with private companies by utilizing the equipment, as the procured research equipment is not widespread in Indonesian universities yet.

3.4.1.2 Contribution to Strengthening Collaboration with Japanese Universities and UGM's Internationalization

Currently there are 25 Japanese universities which conclude the Memorandum of Understanding (hereinafter referred to as MOU) with UGM. Academic exchanges between UGM and universities in Japan and various countries have become more active due to the implementation of the Project.

Table 7: Number of MOU (Top 15 countries, total)

Country	Pre-project	During Implementation	Post-project	Time Unknown	Accumulated total
Japan	13	42	14	2	71
Netherlands	12	22	5	4	43
South Korea	3	18	10	1	32
Austria	10	14	6	0	30
U.S.A	7	12	4	4	27
Malaysia	3	14	3	2	22
Germany	3	14	1	1	19
France	2	3	6	0	11
Sweden	3	6	2	0	11
China	0	5	4	1	10
U.K.	4	5	0	1	10
Canada	3	3	1	2	9
Australia	1	5	2	0	8
Thailand	1	5	0	2	8
Philippines	1	6	0	0	7

Source: UGM

Table 7 is classification of the total number of MOU which UGM has concluded so far by timing of conclusion (pre-project, during implementation of project, and post-project). The number of MOU with universities in Japan is the largest. It increased especially after completion of the Project. The number of MOU with universities with other countries increased after the Project too. According to UGM, the facilities in UGM are evaluated in concluding MOU so that the number of MOU increased after the Project. Therefore, it can be assumed that the development of buildings and equipment by the Project contributes to increased number of MOU to some extent. The Project may help not only promotion of joint research with universities in Japan but also international academic collaboration, or community activities derived from international collaborative researches.

3.4.2 Other Impacts

(1) Impacts on the Natural Environment

Waste from UGM has been segregated and properly disposed during implementation and after completion of the Project. Regarding wastewater including chemicals in particular, since a chemical wastewater treatment plant was constructed under the Project, the former situation has been improved so that the negative impact on the natural environment has been properly mitigated. Moreover, the landscape development under the Project impacted the natural environment in UGM positively.



Chemical wastewater treatment plant

(2) Land Acquisition and Resettlement

There has been no land acquisition and relocation of residents for the Project.

The Project has contributed to regional society and economic development in Indonesia. No negative impact on the natural environment has been observed.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

According to JICA appraisal documents, the Project Implementation Unit (hereinafter referred to as PIU) was established in UGM for the Project and it was supposed to engage in maintenance of buildings constructed and equipment procured under the Project. After confirming the current structure for Operation and Maintenance (hereinafter referred to as O&M) during the site survey, PIU still exists and has three administration staff. However, PIU does not have any responsibilities for O&M but is in charge of planning and implementation of new projects. Traditionally O&M has been conducted by each faculty. Although some personal initiatives on maintenance of equipment are taken by several lecturers who are conscious of O&M, there is no systematic regular maintenance. Each responsible department or each lecturer in faculties requests manufacturers or suppliers of equipment to repair each breakdown. Buildings are maintained according to the regulation by Minister of Public Works (No.:24/Prt/M/2008, dated December 30, 2008). There are problems in aspects of operation of the O&M system although the O&M system/ structure is established for form's sake. It is assumed that the main factors lie in miscommunication between laboratories/lecturers and administration staff and little awareness about O&M of lecturers and students who utilize the equipment.

As will be mentioned in Financial Aspects of Operation and Maintenance, the O&M budget which is needed at this moment is substantially allocated. However, for example, some broken equipment is abandoned without repair since it is not familiarized to each lecturer in laboratories that have budget available for repair of their equipment. No regular maintenance of equipment resulted in emergency breakdown to which they cannot respond financially. Although there is a repair workshop on campus, some lecturers are not familiar with it. It was also observed that equipment such as microscopes, which could be repaired easier if they could get only spare parts, lies in neglect. These are attributable to not only inadequate publicity of the regulation and system but also lack of awareness that users have to get actively involved in maintenance of their equipment.

UGM management said that they would make efforts to publicize and raise awareness in order to let lecturers and students participate in the O&M process.

3.5.2 Technical Aspects of Operation and Maintenance

At the time of appraisal, concerning UGM's O&M capacity, it was assessed that UGM could operate and maintain newly procured equipment under the Project because UGM had maintained their existing equipment. During the site survey, however, it was confirmed that some equipment had been left unrepaired due to the technical reasons such as unavailability of the spare parts or impossibility of repairs in Indonesia. Moreover, there was a little unused equipment that users did not know how to use because some equipment did not have the manuals or because users could not get adequate practical training although they had simple instruction from suppliers at delivery.

While most equipment is adequately operated and maintained, some is unutilized or abandoned without repairs. In many cases of the abandoned equipment, newly procured equipment was technically more sophisticated than the average equipment that UGM had owned before the Project implementation. It is assumed that their O&M ability for newly procured equipment was insufficiently confirmed at the time of appraisal. The problem might be attributable to inadequate studies of necessary, sufficient and feasible countermeasures against the O&M for such sophisticated equipment.

On the other hand, the equipment procured under the Project is required for researches even if it is difficult to obtain the spare parts or to repair it in Indonesia. In addition, it seems unlikely that it is unnecessarily sophisticated equipment, judging from the level of equipment procured under other similar projects in Indonesia. The sustainability of equipment for higher education institutions playing key roles such as UGM should be enhanced by adopting proper countermeasures during the implementation of the Project rather than by limiting the capacity to technologically-feasible ones in view of their missions to seek for cutting edge researches.

In the Project, some technical assistant experts for equipment selection had been hired to assist UGM in selecting equipment that met users' needs. And after the procurement, they were supposed to hold workshops on proper usage and O&M of the equipment and to prepare manuals if necessary. This plan was very realistic but it was also difficult to realize because the number of experts was limited and they have their day jobs as researchers at universities or governmental research institutes. As a result, the contracts with these experts were modified and their assignments were limited to giving advice on usages of some equipment within their expertise in the shorter term than the plan. In addition, the problems which the experts found out during their assignments were not fed back to consultants/ PIU staff. Those problems remained unsolved due to insufficient communication between the experts and project management consultants / PIU staff.

3.5.3 Financial Aspects of Operation and Maintenance

At the time of appraisal, it was confirmed that DGHE allocated UGM's O&M budget. After that, the university system reform has been conducted and introduced the independent accounting system¹⁴. At the time of ex-post evaluation, most of the O&M budget is appropriated from students' payments at university entry. The rate of budget execution is approximately 70% to 80%.

¹⁴ The independent accounting system is now being revised toward expanding the universities' independence and autonomy. Both DGHE and UGM expressed that the budget cuts to universities related to the independent accounting system had no impact on the operation and maintenance.

Table 8: Ratio of Own Funds to Subsidies

Unit: million Rp.

Year	O&M Budget (Repair Budget) ¹⁵	
	UGM	Subsidy
2008	944,534 (24,174)	249,395
2009	1,498,661 (68,939)	Unknown
2010	1,811,801 (43,324)	Unknown

Source: UGM

According to UGM's self-evaluation, UGM has enough O&M budget (Table 8) and no financial problems. However, the regular maintenance is not conducted at this moment. If UGM introduces the regular maintenance system, they might need additional budget.

3.5.4 Current Status of Operation and Maintenance

During the site survey, stains in many roofs of the buildings due to leakage in the drainage pipes were observed. However, those have been already repaired. There is no particular problem at the time of ex-post evaluation. The equipment is basically maintained well. A part of it, however, went out of order in the early stage of the project implementation and some was left abandoned. The reason it wasn't repaired, as mentioned above, was attributed to the institutional and technical problems.

In the focus group interviews, many participants cited inconsistency between the procured equipment and their research themes, inadequacy of equipment and financial and/or technical insufficiency of O&M and expressed displeasure with their research environment in UGM compared to more favorable research environment in Japan. In particular, concerning inconsistency between the procured equipment and their research themes, five out of 16 participants expressed that they do not use the allocated equipment because of mismatch to their research themes. Most participants pointed out problems on the timing of the needs assessment and procurement of equipment. Some participants explained that some equipment is unneeded in one laboratory, but it is needed in another laboratory. One of participants suggested expanding the integrated laboratories as one of the solutions.

Some problems have been observed in terms of structural aspects and technical aspects of operation and maintenance; therefore sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The Project objective was to develop high-quality human resources through improving the internal efficiency and the education and research activities quantitatively and qualitatively by supporting development of Gadjah Mada University. This objective has been highly relevant to the country's development plan, development needs, as well as Japan's ODA policy; therefore its relevance is high. Although the outputs were essentially completed in line with the initial plans, the project cost was within the plan, the project period slightly exceeded; therefore efficiency of the Project is fair. Based on the information gathered in this evaluation work, all the indicators (the internal efficiency of education, quantitative and qualitative improvement of education and research activities) have largely achieved the objectives or have shown a trend toward improvement; therefore its effectiveness is high. However, some problems have been observed in terms of structural aspects such as miscommunication between

¹⁵ The O&M budget includes salaries, supplies expense, maintenance cost, travel allowance, and investment. Number in parentheses shows only repair budget, equivalent to maintenance cost.

laboratories/researchers and administration office/staff and technical aspects such as difficulties in repairs; therefore sustainability of the project effect is fair.

In light of the above, this project is evaluated to be (B) satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

If funds permit, the investigation on the procured equipment should be conducted in order to clarify which items are not utilized and why they are not utilized. It is preferable to take the necessary countermeasures based on the results of the investigation. Without having to conduct expensive investigation, it is possible to enhance the sustainability of the Project effect by awareness-raising and effective use of the existing system. The concrete examples are as follows:

- 1) Efforts should be made to prepare manuals and deliver them to each laboratory in order to inform lecturers and students about various kinds of existing O&M systems and regulations in UGM;
- 2) Emergency breakdowns should be avoided by regular maintenance or preventive part replacement because cost of emergency repair for sophisticated equipment would be extremely expensive in many cases. In addition, lecturers and students who use equipment in their laboratories should not leave the broken equipment but participate in the O&M process actively;
- 3) Communication should be facilitated between administration offices and laboratories and the maintenance management system in UGM should be strengthened. In order to improve the communication, UGM should develop and introduce a kind of check list for reporting the problems to the administration office; and
- 4) In order to improve the operation rate of equipment, information exchange should be activated between the existing integrated laboratory and each lecturer's laboratory by the school LAN system to ensure researchers' open access to the unutilized equipment.

4.2.2 Recommendations to JICA

After the confirmation of the needs on the Indonesian side, it is desirable to provide assistance to the investigation about current state of equipment, its reparability and users' demands as follow-up measures.

4.3 Lessons Learned

In the case of projects that include equipment provision, generally speaking, it is not only difficult to determine the users' needs for each item of equipment in detail in advance but also necessary for both executing agencies and JICA to carry the several burdens of management costs due to the short cycle of technology innovation and equipment renewal. Therefore, when JICA assists with facilities/ equipment in higher education institutions like this project, it is necessary to consider what and how JICA should assist in accordance with the project objectives, their missions and their O&M capacities.

For example, if JICA provides assistance to core research institutions like UGM, it is necessary to procure a certain level of equipment. However, since laboratories in universities or research institutions are compartmentalized by expertise, if JICA provides sophisticated equipment to these institutions, the ingenious project implementation is required; such as intensive support to limited laboratories and experts' assignments in order to let the equipment meet users' needs to some extent. In the latter case, a variety and number of experts should be considered. As professors usually cannot stay at the project sites for a long time, frequency and duration of experts' trips to the site also should be considered. Moreover, if technical assistance experts are hired in addition to the consultants, project implementation structure should be

established in order to be able to coordinate each other and to take long-term measures to the problems found out by the experts' short-term activities.

On the other hand, if the project objective put emphasis on "education" rather than "research", consideration should be given to restricting the equipment to commonly-used items or to develop the system for equipment sharing in order to raise the operation rate of equipment and maintain the equipment easily. It might be worthwhile to consider excluding equipment from the components of ODA loan or lending to the recurrent cost.

It is necessary to collect data and information needed for monitoring the project effect, especially operation and effect indicators set at the time of appraisal, during the implementation of the Project. Project management consultant should provide on-the-job training of project monitoring to staff concerned in executing agencies (not only to PIU staff but also staff that actually operate the facilities). Moreover, the project monitoring system should be planned in accordance with the existing system, if any, and should not be unique to the ODA loan project in order to ensure the feasibility of implementation.

End

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs		
1) Building construction	Construction (total 68,000 m ²) and infrastructure development for 7 faculties	Construction (total 86,180 m ²) and infrastructure development for 7 faculties (partially added to the plan)
2) Equipment procurement	Procurement of equipment for education and research and fanitures	Almost as planned. Partially added to the planed equipment for faculties of agriculture.
3) Fellowship program	35 lecturers in total	41 lectures in total
4) Consulting services		
- Engineering services	440MM	776.05MM
- Project Management services	327MM	505MM
- Fellowship services	73MM	79MM
5) Technical assistance	Equipment: 7.5MM Fellowship: 4.0MM	Equipment: 2.47MM Fellowship: 0 MM
2. Project Period	Nov. 1997 – Feb. 2007 (108 months)	Jan. 1998 – Feb. 2009 (132 months)
3. Project Cost		
Amount paid in Foreign currency	3,002 million yen	2,847 million yen
Amount paid in Local currency	6,996 million yen (134,538 million Rp)	4,855 million yen (406,896 million Rp)
Total	9,998 million yen	7,702 million yen
Japanese ODA loan portion	7,499 million yen	6,479 million yen
Exchange rate	1 Rp = 0.052 yen (As of April 1997)	1 Rp = 0.012 yen (Average between Jan. 1998 and Feb. 2009)

China

Ex-Post Evaluation of Japanese ODA Loan Project
“Shaanxi Higher Education Project”

External Evaluator: Yoko Ishida,
International Development Center of Japan Inc.

0. Summary

This project aimed to improve higher education in Shaanxi Province quantitatively and qualitatively by supporting construction of buildings, procurement of equipment and teachers’ training in the target universities. The purpose of this project has been highly relevant to the country’s development plan, development needs as well as Japan’s ODA policy; therefore, its relevance is high. The project has yielded the outcomes mostly as planned. The Chinese authorities have provided funds so that some target universities would expand their construction projects in line with their needs. Project cost and project period both exceed the initial plan. However, as increased project cost has resulted in expanded outcomes, the efficiency of this project is fair. This project is highly effective because the target universities are seeing increased students and larger school building dimension per student as well as improvement in their educational/research environments. The target universities utilize, operate, and maintain their facilities/equipment as their routine tasks from the viewpoint of their operational framework, technical capabilities, and financial capacities; therefore sustainability of the project effect is high. In light of the above, this project is evaluated to be highly satisfactory.

1. Project Description



Project Location



University Building Constructed by the Project
(Xi’an University of Technology)

1.1 Background

Shaanxi Province has its province capital at the historical education city of Xi’an and is expected to serve as the base for China’s Western Development project. According to its 10th 5-year plan (2001–2005), Shaanxi Provincial People’s Government had a plan to expand its gross domestic product (GDP) growth rate to 10%, and push ahead with market economy and further economic growth. Since achieving these targets requires expansion of higher education, the province aimed to send up the higher education enrollment ratio to 15% and the number of higher education students to around 700,000 (out of this total, 400,000 ordinary higher education students) by 2005 at latest. In addition, the province also put focus on enhancing/strengthening higher education institutes from the following perspectives: mitigating urban poverty through occupational training sessions for workers getting laid off by state-owned enterprises, and encouraging education in rural areas through fostering teachers serving for rural areas.

1.2 Project Outline

The objective of this project was to improve higher education in Shaanxi Province quantitatively and qualitatively by developing educational infrastructures such as university buildings and equipment and enhancing human resources through teachers' training in 16 universities¹ that play important roles in narrowing the gap between coastal areas and inland areas through market-oriented economic reform and economic growth in Shaanxi Province, rural development and state enterprises reform, thereby contributing to the market-oriented economic reform and disparity rectification in China.

Loan Approved Amount / Disbursed Amount	6,021 million yen / 6,020 million yen
Exchange of Notes Date / Loan Agreement Signing Date	March 29, 2002 / March 29, 2002
Terms and Conditions	Interest Rate: 0.75% Repayment Period: 40 years (Grace Period: 10 years) Conditions for Procurement: Bilateral tied
Borrower/Executing Agency	The government of People's Republic of China / Shaanxi Provincial People's Government
Final Disbursement Date	January 26, 2009
Feasibility Studies, etc.	<ol style="list-style-type: none"> 1. F/S: "Feasibility Study of the Project of Training Qualified Personnel for the Mid-West of China Using Loan from Japan International Cooperation Bank" (Shaanxi Province Investment Consulting Company, June 2001) 2. JBIC reports <ol style="list-style-type: none"> 1) "FY2001 Special Assistance for Project Implementation (SAPI) for Higher Education Project in China" (August 2003) 2) "SAPI for Higher Education in the People's Republic of China" (March 2004) 3) "SAPI for Higher Education Project in China" (May 2005)

2. Outline of the Evaluation Study

2.1 External Evaluator

Yoko Ishida, International Development Center of Japan Inc.

2.2 Duration of Evaluation Study

Duration of the Study: December 2010 – October 2011

Duration of the Field Study: February 27 – March 19, 2011; and June 11 – June 17, 2011

2.3 Constraints during the Evaluation Study (if any)

N/A

¹ This project covers the following 16 target universities: Northwest University, Xi'an University of Architecture and Technology, Xi'an University of Technology, Xi'an Polytechnic University, Xi'an University of Science and Technology, Xi'an International Studies University, Northwest University of Politics and Law, Baoji University of Arts and Sciences, Xi'an Institute of Technology, Weinan Teachers College, Yulin College, Yanan University, Shaanxi University of Technology, Xianyang Normal College, Shaanxi Polytechnic Institute, and Xi'an University of Arts and Science.

3. Results of the Evaluation (Overall Rating: A²)

3.1 Relevance (Rating: ③³)

3.1.1 Relevance with the Development Plan of China

China was admitted to the World Trade Organization (hereinafter, referred to as WTO) in December 2001 and aimed at high rates of economic growth, openness and reform through industrial structural adjustment. Disparities between coastal and inland areas, and urban and rural areas were challenges in China.

This project had the following purposes: 1) addressing industrial structural adjustments through fostering human resources in high technology, biotechnologies, manufacturing technologies etc.; 2) coping with market needs and international competition through fostering high-level human resources in legal, finance, and trade sectors; and 3) narrowing gaps between coastal and inland areas as well as between urban and rural areas. These project objectives were consistent with the basic principles of the 10th 5-year Plan for National Economic and Social Development (2001–2005), the 10th 5-year Plan for Education (2001–2005), the Western Development project, and Shaanxi Province 10th 5-year Plan for Education (2001–2005), which aimed at fostering highly technical human resources capable of contributing to economic growth.

At the time of the ex-post evaluation, the Chinese authorities developed the 12th 5-year Plan for National Economic and Social Development (2011–2015), the 12th 5-year Plan for Education Sector (2011–2015), and the “National Mid- and Long-term Reform and Development Plan for Education Sector” (2010–2020), aiming at economic growth and further openness and reform. To this end, they are pushing ahead with human resource development programs. Shaanxi Province’s 12th 5-year Plan has shifted its focus from quantitative expansion more to qualitative improvements in primary and secondary education programs, recognizing that diffusion of compulsory education has been almost achieved. Higher education is expected to foster practical human resources capable of contributing to industrial development and is anticipated to play more important roles. Therefore, the project objectives are consistent with the development policies in China.

3.1.2 Relevance with the Development Needs of China

At the time of appraisal, Shaanxi Province had stronger needs to quantitatively expand senior high schools and higher education institutes because compulsory education at elementary schools and junior high schools has spread well. As shown in Table 1, the number of senior high school graduates increased 2.3 times from 2002 to 2009 from 139.1 thousand in 2002 to 259.6 thousand in 2005 and then to 325.4 thousand in 2009. The number of new students at the higher education stage⁴ also increased 1.8 times between 2002 and 2009, from 147 thousand in 2002 to 273 thousand in 2009. To address increasingly stronger needs for higher education, the province authorities were expected to urgently enhance higher education institutes’ facilities/equipment, improve abilities of school staff, and strengthen school operations and financial capabilities. Since 2008, policy-makers have been shifting their focus on enhancement of higher education from qualitatively to qualitatively. This project aimed at both quantitative expansion and qualitative enhancement; therefore, it was relevant with development needs of the education development needs of China.

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

³ ③: High, ② Fair, ① Low

⁴ China has two types of higher education institutes: “ordinary universities” provide higher middle school graduates with full-time ordinary education programs; and “adult universities” provide continuing education and training for adults. For the purpose of this report, the term “higher education institute” means “ordinary university” and includes regular-course universities with 4–5-year-long course term, specialized colleges with 2–3-year-long course term, and occupational technique institutes with 2–3-year-long course term.

Table 1: Number of Senior High School Graduates, Enrollment Ratio of Senior High Schools, and Number of Newly Enrolled Students at Higher Education Institutes in Shaanxi Province

Unit: 1,000 persons and %)

	2002	2003	2004	2005	2006	2007	2008	2009
Number of senior high school graduates	139.1	178.3	220.0	259.6	277.4	277.4	330.5	325.4
Enrollment ratio of senior high schools	57.2%	58.6%	69.9%	69.8%	70.0%	68.9%	69.3%	69.7%
Number of newly enrolled students at higher education institutes	147.0	168.4	199.8	208.9	212.6	248.3	276.4	273.0

Source: Shaanxi Province Education Department

It is appropriate that Shaanxi Province, an education-minded province that serves as base for the Western Development project and attains a high level of education, was included in the first target group in the JICA-supported higher education project for several provinces in inland China. As a result, there was a positive impact that Shaanxi Province smoothly worked on this project and provided advices for other provinces that subsequently joined this project. According to Shaanxi Province Education Department, when selecting 16 target universities, the agency aimed to narrow gaps between the urban and rural areas in the province, included universities in Xi'an or periphery cities such as Yanan, Xianyang, Baoji, Yulin, and Weinan, and selected the targets from various types of universities, including science and technology (S&T) universities, international studies universities, teachers training institutes, and occupational technique institutes. In this context, target selection is relevant in this project.

3.1.3 Relevance with Japan's ODA Policy

At the time of appraisal, Japan's Official Development Assistance (ODA) Charter put emphasis on Asian regional support and human resources development support. Additionally, the Country Assistance Program for China and the Medium-term Strategy for Overseas Economic Cooperation Operations and Country Assistance Strategy put priorities on human resources development from the viewpoint of support for openness and reform and post-WTO economic reform, and on assistance in Mid-Western Region in China from the aspect of narrowing the gaps. The project objectives were consistent with Japan's aid policies.

This project has been highly relevant to China's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

To enhance educational/research capabilities at the 16 target universities, this project had three components: construction of teaching and research buildings, enhancement of educational and research equipment, and providing training for university staff, mainly at universities in Japan. Each component has yielded the outputs described in Table 2.

Table 2: Comparison of Outputs (Planned and Actual)

Items	Planned Output	Actual Output (Achievement Rate)
Building	15 target universities* total: 256,841 m ²	15 universities total: 288,499 m ² (112.3%)
Equipment	16 target universities total: 40,809 items	16 universities total: 41,648 (102.1%)
Training	16 target universities, total: 247 staff members	16 universities total: 245 staff members (96.0%)

Sources: JICA appraisal documents, Responses to the questionnaire

Note: * Among the 16 target universities, Xi'an University of Arts and Science's university buildings are not included in this project from the planning phase.

The actual output has exceeded the planned output in terms of “constructing university buildings” and “enhancing educational equipment,” while it slightly falls short of the planned output for “providing training for university staff.” Table 3 outlines the major changes, their reasons, and the actual actions taken for each component.

Table 3: Overview of Changes in Outputs and Their Reasons

Project Component	Changes in Outputs and Their Reasons
Constructing university buildings	<p>Changes in outputs, and their reasons:</p> <ul style="list-style-type: none"> At 2 universities, there was no change in the planned output and the actual output. At 9 universities, actual output was better than planned. <ul style="list-style-type: none"> As it was necessary to expand floor space in line with educational/research needs, Chinese authorities expanded floor space within this project's total budget or with their own budget for this project, after obtaining the consent of the Education Department and Japan International Cooperation Agency (JICA). In the case of the latter, the project cost (on the Chinese side) would increase. At 3 universities, actual output fell short of the planned output. <ul style="list-style-type: none"> The initial construction plan for a 9-story education wing No.10 of the Northwest University was found to fall behind the standard adopted by the management organization for construction projects since it would obstruct the light for the existing school building. As a result, the construction plan was changed into that for an 8-story building with JICA's consent, thus the floor space has decreased. Actual output fell short of the planned output at the other 2 universities because there was a gap between design drawings at the planning phase and the actual design drawings. One university spent the project budget on purchasing materials/equipment. <ul style="list-style-type: none"> As it was necessary to quickly construct the university buildings as scheduled in this project, one of the universities constructed its building with funds on the Chinese side and spent this project's budget on purchasing wood materials, building materials, and steel products for constructing other buildings with the consent of the Education Department and JICA.
Enhancing educational facilities	<p>Changes in outputs, and their reasons:</p> <ul style="list-style-type: none"> At 10 universities, there was no change in the planned output and the actual output. At 3 universities, actual output was better than planned. <ul style="list-style-type: none"> As it would take a longer time to procure equipment in this project, 2 universities have decided to procure such equipment with Chinese funds and increased the number of equipment procured. The remaining 1 university could not obtain the

	<p>export permit from Japanese relevant authorities for an infrared thermography that the university was planning to import from Japan, therefore, had to cancel the procurement.</p> <ul style="list-style-type: none"> • At 3 universities, actual output fell short of the planned output. As it takes a longer time to procure one or two pieces of the equipment as scheduled in this project, 3 universities gave up procuring the equipment.
Providing training sessions for university staff	<ul style="list-style-type: none"> • At 6 universities, actual output is better than planned. • At 5 universities, actual output is better than planned. As all of these 5 universities had stronger needs than what was planned and successfully found appropriate training session providers, they increased the training sessions within this project's budget. • At 5 universities, actual output falls short of the planned output These 5 universities could not find appropriate training session providers in relation with their needs; they have decreased the number of their missions dispatched to Japan and invited Japanese experts (for Japanese language proficiency training sessions, etc.).

Sources: JICA appraisal documents, Responses to the questionnaire

Note: * Among the 16 target universities, Xi'an University of Arts and Science's university buildings are not included in this project from the planning phase.

As university buildings were constructed in this project, the total floor space in the 15 target universities has increased to 288,499 m², expanding stronger than the planned level by 31,658 m², up 12.3% from the planned floor space. Out of the 15 universities that have constructed their university buildings, only 2 universities have not altered their building construction projects from their initial plan. 9 universities faced the necessity of expanding their floor spaces in line with their educational/research needs and actually expanded their floor space within the total budget or with the budget on the Chinese side. At some target universities, actual floor space fell short of the planned floor space: 2 universities saw a slightly smaller floor space than the planned level, while, at the Northwest University, the initial construction plan for a 9-story education wing No. 10 was changed into that for an 8-story building since the initial plan would fall behind the standard set by the management organization for construction projects. However, there is no problem in terms of efficiency in any case.

As for the enhancement of educational facilities, 10 universities had no gap between planned output and actual output, out of the 16 target universities in total. Actual output has exceeded the planned output at 3 universities, while actual output fell short of the planned output at 3 universities. This is because it would take a longer time to procure the equipment in line with this project. To address this problem, some universities decided to spend the Chinese budget, rather than the yen loan, on purchasing the intended equipment for quicker procurement purposes and also decided to slightly increase the number of equipment procured. On the other hand, another university gave up procuring the equipment because it could not procure the equipment within this project period. Even though some universities decreased the number of equipment procured, they only decreased one or two pieces of the equipment purchased. For this reason, it did not pose significant impacts on the efficiency of the entire project.

As for the training for university staff, since Chinese universities were not so accustomed to training-related procedures at the onset of this project, some of the universities cancelled the 3-month-long short-term training sessions, which dragged down the project process. However, the situation improved after they paid attention to the advices of SAPI (Special Assistance for Project Implementation) mission sent by JICA in July 2004, and participated in the university staff workshops held in Xi'an in December 2004 in accordance with the SAPI advices. Finally, 245 university staff members were sent to Japanese universities, which is mostly as planned, because 247 staff members were scheduled to be sent in the initial plan.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The estimated project cost stood at 10,636 million yen (out of this total, the planned loan amounted to 6,021 million yen), and the actual project cost amounted to 12,714 million yen (6,020 million yen from yen loan and 6,694 million yen financed by the Shaanxi Province Government), exceeding the planned cost by 20%. The actual cost was higher than planned, but it is because the target universities saw a sharp rise in their educational/research needs and expanded their university building construction programs by obtaining the consent of Shaanxi Province Finance Department, Education Department, and JICA. For this reason, since such increase in project cost has led to increased outputs, it is relevant.

3.2.2.2 Project Period⁵

The planned project period as of appraisal was 36 months long starting in March 2002 and ending in March 2005. The actual project period was 81 months long from March 2002 to January 2009, significantly longer than planned, by 225%. The project period was extended for the first time in July 2007, extending the loan period for an additional 1 year and 6 months.

Some delays are seen in each component, but they are mainly attributable to longer construction schedules resulting from increased outputs. As for the enhancement of educational equipment, the project period was extended mainly because a longer time was necessary for their procurement procedures. This project required involvement of multiple organizations to carry out including procurement agency firms which were in charge of going through procurement procedures and the export and import bank which handled applications to JICA for payment. Thus, for the Shaanxi Province Government, which was in charge of implementing this project, or the end-using universities, this project was characteristically difficult compared to other projects in controlling schedules regarding procurement and expenditures. In fact, they needed to take complicated procedures which involved multiple organizations, taking a longer time than expected when performing procurement procedures or fine-tuning their procurement program.

As for the training component, since both Japan and China were not so accustomed to yen-loan-financed trainee dispatch programs at the onset of this project, the universities in Shaanxi Province had some trouble in finding out the appropriate Japanese universities that would accept their trainees as well as in making arrangements or taking suitable steps when sending their trainees.

From the viewpoints stated above, the project cost in this project was higher than planned, but it is mainly attributable to justifiable reasons, such as increased output (i.e., expansion of university building construction projects). On the other hand, the project period was significantly longer than planned. Therefore, efficiency of the project was fair.

3.3 Effectiveness (Rating: ③)

At the time of appraisal, province-level high education indicators were recognized as operation/effect indicators. This project covered 16 universities (approximately 20%) of 77 higher education institutes in Shaanxi Province (as of 2009). This project would contribute to province-level indicators to a high degree, but a variety of factors would have impacts on the improvement in higher education indicators. For this reason, it would be inappropriate to evaluate the effectiveness of this project exclusively based on how much do the province-level high education indicators get improved. In this context, the ex-post evaluation has analyzed the effectiveness of this project by checking out how much are the education/research activities in

⁵ The completion of the project was defined as completion of three components: teaching and/or research buildings, educational and/or research equipment, and personnel training at the time of appraisal. But at the time of ex-post evaluation, the completion is defined as final disbursement.

the 16 target universities changing quantitatively and qualitatively.

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

(1) Increase in students at the 16 target universities

Table 4 shows changes in the number of students at the 16 target universities as well as the reference and target values. The number of students at the 16 universities was targeted at 189,606 in total in 2005, but the 16 target universities had 267,795 students in total as of 2009, up approximately 40% from the target level. Northwest University and Xi'an University of Architecture & Technology had a smaller number of students than the target value in 2009, but it is because the Education Department adjusted the number of students in order to maintain the education quality at these important universities.

Shaanxi Province Education Department's decisions have posed significant impacts on the increased number of students at these universities. In addition, the Education Department's policies to merge higher education institutes or upgrade specialized colleges to regular-course universities may have had some impacts on the increased number of students. Even after considering these factors, students at the 16 target universities occupied 30.0% of the total number of university students in Shaanxi Province in 2009, increasing from 25.5% in 2000. Comparing with other universities in Shaanxi Province, the 16 target universities have effectively increased the number of their students through this project.

Table 4: Changes in the Number of Students at Target Universities

Unit: person

	Baseline (in 2000)	Target (in 2005)	Total number of students (in 2009)	Comparison with baseline, target, and growth rate		
				% of baseline	% of target	% of growth rate
Northwest University	11,578	26,243	20,771	179.4%	79.1%	79.4%
Xi'an University of Architecture & Technology	11,956	20,034	13,319	111.4%	66.5%	11.4%
Xi'an University of Technology	11,889	18,480	22,559	189.7%	122.1%	89.7%
Xi'an University of Engineering Science & Technology	7,423	14,400	19,831	267.2%	137.7%	167.2%
Xi'an University of Science & Technology	7,354	12,454	20,719	281.7%	166.4%	181.7%
Xi'an International Studies University	7,940	11,230	21,061	265.3%	187.5%	165.3%
Northwest University of Political Science and Law	8,940	17,000	17,203	192.4%	101.2%	92.4%
Baoji University of Arts and Sciences	5,709	11,782	18,070	316.5%	153.4%	216.5%
Xi'an Institute of Technology	7,002	12,500	16,433	234.7%	131.5%	134.7%
Weinan Teachers College	4,100	8,000	15,835	386.2%	197.9%	286.2%
Yulin College	3,160	5,785	10,784	341.3%	186.4%	241.3%
Yanan University	6,252	11,500	13,310	212.9%	115.7%	112.9%
Shaanxi University of Technology	5,458	10,208	18,848	345.3%	184.6%	245.3%
Xianyang Normal College	3,289	6,000	12,904	392.3%	215.1%	292.3%
Shaanxi Polytechnic Institute	4,145	8,000	15,838	382.1%	198.0%	282.1%
Xi'an University of Arts and Science	3,832	6,000	10,310	269.1%	171.8%	169.1%
16 target universities, total	110,027	189,606	267,795	243.4%	141.2%	143.4%
Higher education institutes in Shaanxi Province, total	431,400	700,000	893,700	207.2%	127.7%	107.2%
Entire China	5,561,000	—	21,447,000	385.7%	—	285.7%

Sources: JICA appraisal documents, responses to the questionnaire, and the website of National Bureau of Statistics of China, People's Republic of China (<http://www.stats.gov.cn/english/>, as of July 1, 2011).

(2) University Building Floor Space per Student

Table 5 describes the changes in university building floor space per student before and after the project.

As the number of students would increase rapidly through this project as well as Shaanxi Province's higher education reforms, the evaluator was afraid that this kind of data could deteriorate. However, the university building floor space per student stood at 31 m² in 2009 on average for the 16 target universities, getting improved from the reference data of 24 m² in 2000 and the target value of 28 m². This value also exceeds the reference value of the national standard⁶ (30 m²).

As for the university-specific data, the university building floor space per student (in 2009) was larger than the target value (in 2005) at 12 universities (75%), out of the 16 target universities. On the other hand, Xi'an University of Arts and Science sees a smaller value (19 m²) than the target value because the university did not construct any building in this project. In addition, as the number of students increased at a quicker pace than facility construction did at Northwest University of Political Science and Law, Yanan University, and Shaanxi Polytechnic Institute, their data on university building floor space per student (in 2009) fell short of the target value (in 2005) and the national standard.

As stated above, some universities need enhancement of their facilities, but this project has contributed to maintaining or improving the educational environment at the target universities in response to a sharp increase in their students.

Table 5: University Building Floor Space per Student

Unit: m²/student

Name of university	Baseline (in 2000)	Planned (in 2005)	Actual (in 2009)
Northwest University	18	25	39
Xi'an University of Architecture & Technology	25	32	35
Xi'an University of Technology	27	26	32
Xi'an University of Engineering Science & Technology	24	28	34
Xi'an University of Science & Technology	13	26	33
Xi'an International Studies University	21	25	32
Northwest University of Political Science and Law	23	28	24
Baoji University of Arts and Sciences	29	28	31
Xi'an Institute of Technology	24	32	30
Weinan Teachers College	32	31	32
Yulin College	20	29	42
Yanan University	28	29	21
Shaanxi University of Technology	25	16	29
Xianyang Normal College	24	29	31
Shaanxi Polytechnic Institute	29	31	24
Xi'an University of Arts and Science	37	33	19
16 target universities, average	24	28	31

Sources: JICA appraisal documents, Responses to the questionnaire

⁶ The State Council of People's Republic of China indicates the national standard (as revised in 2006) that the university floor space per student should be 30 m². This national standard was revised in 2006, but the document materials submitted for JICA's appraisal describe "30 m² as national standard," suggesting the same standards as the materials for ex-post evaluation. In this case, facility floor space includes classroom buildings, research buildings, and adjunct facilities such as libraries, gymnastic halls, and student dormitories. As of this moment, this national standard is not legally binding.

(3) Educational Equipment's Monetary Value per Student

In China, if a university wishes to get designated as *National Excellent University*, it is required to have educational facilities/equipment worth 8,000 yuan per student. For example, according to Northwest University's response to the questionnaire survey, the university had educational facilities/equipment worth 6,000 yuan per student before this project and needed additional 2,000 yuan in order to satisfy the standard. The ex-post evaluation this time could not identify specific data changes before and after this project, but this project provides educational facilities/equipment worth 10 million to 40 million yuan for each university and is estimated to additionally send up the value of educational facilities/equipment per student by 1,000–2,000 yuan. For this reason, this project works effectively to enhance educational facilities/equipment at the target universities.

(4) Sending Teacher Training Course Students to Rural Areas

Rural area development was included in the objectives of this project, while the number of teachers trained for rural areas was also included as one of the operational/effect indicators. As it is difficult for the target universities to forcibly send their graduates as teachers in rural areas, Shaanxi Province recommended the target universities to adopt a program that would send their teacher training course students to rural area primary schools for a certain time span as a part of their teacher training course program, which would be beneficial to both rural area schools and the students. Table 6 describes the number of teacher training course students sent by the target universities. Target universities have their own purposes, durations, and dispatch methods different from each other. Xi'an University of Architecture & Technology, Xi'an University of Science & Technology, and Northwest University of Political Science and Law did not send their students, but the other 13 universities have sent more students than planned.

In addition, 4 teacher-training universities (Yanan University, Baoji University of Arts and Sciences, Xianyang Normal College, and Weinan Teachers College) are included in the target universities. These universities provide re-training sessions to rural area teachers by using their educational facilities provided with this project, and they are playing an important role in promoting education in rural areas.

Table 6: Number of Teacher Training Course Students Sent to Rural Areas

Name of university	Baseline (in 2000)	Target value (in 2005)		Actual data (in 2009)		
		No. of students sent	Increase from baseline	No. of students sent	Increase from target value	Rate of increase from baseline (%)
Northwest University	80	120	40	130	10	63%
Xi'an University of Architecture & Technology	120	480	360	0	-480	-100%
Xi'an University of Technology	0	0	0	0	0	0%
Xi'an University of Engineering Science & Technology	10	30	20	55	25	450%
Xi'an University of Science & Technology	5	20	15	0	-20	-100%
Xi'an International Studies University	20	100	80	180	80	800%
Northwest University of Political Science and Law	0	0	0	0	0	0%
Baoji University of Arts and Sciences	248	1,600	1,352	1,900	300	666%
Xi'an Institute of Technology	130	200	70	230	30	77%
Weinan Teachers College	410	1,890	1,480	1,990	100	385%
Yulin College	425	850	425	1,360	510	220%
Yanan University	458	1,400	942	1,520	120	232%
Shaanxi University of Technology	732	1,302	570	1,750	448	139%
Xianyang Normal College	637	1,200	563	2,326	1,126	265%
Shaanxi Polytechnic Institute	49	195	146	692	497	1312%
Xi'an University of Arts and Science	448	462	14	470	8	5%
16 target universities, total	3,772	9,849	6,077	12,603	2,754	234%

Sources: JICA appraisal documents, Responses to the questionnaire

3.3.1.2 Internal Rates of Return (IRRs)

Due to the fact that data needed for quantitative analysis was not available, analysis for the internal rate of return was not possible.

3.3.2 Qualitative Effects

3.3.2.1 Improvements in Educational/Research Environment

According to responses to this ex-post evaluation submitted by the Education Department and target universities, their equipment purchased with yen loan has been playing an important role in human resources development at all the universities.

Main outcomes include the following: (1) As for education for undergraduate students, target universities have set up new experimental classes and expanded experimental projects by using advanced equipment, which has significantly improved the quality of basic experiment education. (2) They have fostered students having a good command of large analytical equipment, leading to enhancing research activities by instructors and graduate students. (3) The equipment plays an important role when filing an application on a research theme to the National Natural Science Foundation or the province authorities. (4) Universities are able to further improve their analytical/inspection capabilities and research capabilities by using facilities/equipment in their specialty/competitive major fields of study.

3.3.2.2 Getting Designated as National Key Faculty⁷ or Key Laboratory⁸

In this ex-post evaluation, the evaluator could not collect systematic data on key faculties and key laboratories from all the target universities. However, from the responses to the questionnaire survey submitted by the Education Department and the target universities, the evaluator picked up some examples in which this project has contributed to the enhancement of key faculties or key laboratories.

Among the 16 target universities, Northwest University is the only university approved as a national key university. Northwest University currently has 1 first-class national key faculty, 4 second-class national key faculty, 1 national key faculty, 1 national key laboratory, and 25 province-/ministry-level key faculties. It is unclear how much these figures have increased or decreased before and after this ex-post evaluation.

This project has posed the impacts as follows: Since equipment is enhanced at the Geological Engineering Department, research programs on loess avalanches, ground sinking, and liquefaction series are available; they are designated as the S&T key project of National Natural Science Foundation or Education Ministry or the S&T project of China Earthquake Administration; and their research outcomes have led to the winning of province-/ministry-level S&T progress awards, and they are widely spread out or utilized nationwide.

Through this project, Xi'an University of Engineering Science & Technology has enhanced the environmental science equipment and information control equipment with focus on textile and apparel sectors. By doing so, the university acquired province-level key laboratory and key discipline status. By using a rock mechanics tester purchased as part of this project, Xi'an University of Science & Technology has reportedly enhanced its experiment programs and

⁷ Key national faculties have been established by Ministry of Education since 1988 in order to invest intensively to universities and /or faculties suitable for the center of innovation human development and scientific research. Key national faculties have been selected three times until now. In the third selection in 2007, 967 faculties were certified or re-certified across the country. Key faculties certified by provincial education departments or ministries other than Ministry of Education (e.g. Ministry of Agriculture) are called provincial key faculties and ministry-level key faculties, respectively.

⁸ The Chinese government, especially Ministry of Science and Technology, Ministry of Education and Chinese Academy of Sciences, began Key National Laboratories Project in 1984 in order to improve basic research and catch-up to the world level. Affected by key national laboratories, ministries' or provincial key laboratories including Ministry of Education key laboratories and Chinese Academy of Sciences key laboratories have been established one after another. Today, there are 220 key national laboratories and six national laboratories including planned laboratories. Japan Science and Technology Agency China Research Center Webpage (as of July 22, 2011): http://www.spc.jst.go.jp/science_policy/chapt3/3_01/3_1_2/3_1_2_3/3123_5.html

research activities on mining-related safety technologies, has a designated province-level key faculties and national key faculty, and has an accredited key laboratory by the Education Ministry.

According to other target universities, enhancement of their educational facilities with this project would be advantageous in getting approvals for a key faculty or key laboratory.

As the provincial government is supposed to provide subsidies of 6 million yuan a year for national key faculty and 350,000 to 2 million yuan a year for province-level key faculty, universities are able to further expand their educational/research environments.

3.3.2.3 Improving the Abilities of University Staff

According to university's responses to this ex-post evaluation questionnaire, trainees from target universities are reportedly learning university's educational philosophies and research instruction/education approaches at Japanese universities through university staff training programs at universities in Japan and they achieve successful outcomes by using them for their educational/research activities after returning to China.

Target universities attach a high value to staff training programs at Japanese universities. They worked on detailed preparatory research before sending their trainees, and also conducted a monitoring program. When a university staff member returns to China after the training program, the Education Department is supposed to hold managerial-level staff training sessions twice to make them understand Japan's school education/operation philosophies and education thoughts and encourage human interactions between universities and international cooperation.

A lot of university staff members who have completed the training programs are recommended to take intra-university exams and are promoted or obtain academic degrees. According to the Education Department's response to our questionnaire, such university staff members account for a larger percentage than those who have not participated in training programs in Japan. University staff training programs at Japanese universities are helpful in improving educational/research capabilities of the target universities.

Table 7 shows the number of university staff who acquired a higher academic degree or a higher job title after training sessions in a Japanese university.

Table 7: Number of University Staff who Acquired a Higher Academic Degree or a Higher Job Title after Training in Japan

Academic Degree Acquired	Number of University Staff	Higher Job Title	Number of University Staff
Master's degree	14	Associate professor → lecturer	11
Doctor's degree	28	Lecturer → Vice professor	38

Source: Target university's responses to the beneficiary survey

Note: If the same faculty member falls under several categories (e.g., a faculty member with bachelor's degree acquires master's degree and then doctor's degree.), he/she is counted as two persons.

3.3.2.4 Contribution to Merger or Upgrade of Target Universities

As 5 universities out of 77 universities satisfy the applicable criteria through Shaanxi Province's higher education reform in parallel with this project, some higher education institutes have changed their names as shown in Table 8. All of these 5 universities are the target universities of this project.

Five specialized schools are promoted to an institute. Among these 5 specialized schools, 2 schools are the target universities of this project.

As for university merger, Hanzhong Teacher's College, a target university of this project at the planning phase, has merged with Shaanxi Institute of Technology, creating Shaanxi University of Technology while Xi'an Allied University and Xi'an Education University have merged and become Xi'an University of Arts and Science. Yanan University has also expanded its size because it merged with Yan'an College of Medicine.

Among the 14 universities (after status change) that have changed their status, 10

universities (71.4%) are covered within this project. As a higher education institute needs to satisfy certain criteria to change its status, this project has contributed to improvements required for their status change.

Table 8: Universities that Have Changed their Name, Have Been Promoted, or Have Merged during the Higher Education Reform Process

Before change	After change
(1) Higher education institutes changing their name from “institute” to “college/university”	
<u>Xi’an Foreign Languages University</u>	<u>Xi’an International Studies University</u>
<u>Xi’an University of Engineering Science and Technology</u>	<u>Xi’an University of Engineering Science & Technology</u>
<u>Xi’an Institute of Technology</u>	<u>Xi’an Institute of Technology</u>
<u>Xi’an Institute of Science and Technology</u>	<u>Xi’an University of Science & Technology</u>
<u>Xi’an Institute of Politics & Law</u>	<u>Northwest University of Political Science and Law</u>
(2) Higher education institutes promoted from “3-year-course specialized school” to “institute”	
<u>Xi’an Medical College</u>	<u>Xian Medical University</u>
<u>Ankang Teacher’s College</u>	<u>Ankang University</u>
<u>Shangluo Teachers College</u>	<u>Shangluo University</u>
<u>Xianyang Teachers College</u>	<u>Xianyang Normal College</u>
<u>Yulin College</u>	<u>Yulin College</u>
(3) Higher education institutes that have merged	
<u>Shaanxi Institute of Technology</u>	<u>Shaanxi University of Technology</u>
<u>Hanzhong Teacher’s College</u>	
<u>Yanan University</u>	<u>Yanan University</u>
<u>Yan’an College of Medicine</u>	
<u>Xi’an Institute of Statistics</u>	<u>Xi’an University of Finance and Economics</u>
<u>Shaanxi Business College</u>	
<u>Xi’an Allied University</u>	
<u>Xi’an Education University</u>	<u>Xi’an University of Arts and Science</u>

Source: Responses to the questionnaire

Note: Higher education institute with underline in the “before change” or “after change” column represent a target university of this project.

3.3.2.5 Quality of Successful Applicants in University Entrance Exam

This project has quantitatively expanded education at the 16 target universities, but it is also important to check whether a sharp rise in enrolled students has deteriorated student quality or not. For the purpose of this ex-post evaluation, the evaluator has referred to the points that the students have earned in the National Higher Education Entrance Examination.⁹ Table 8 shows the average points and lowest points for successful applicants of the National Higher Entrance Exam in 2002, 2005, and 2010.

⁹ The examination subjects are basically composed of three compulsory subjects “ Mathematics, Chinese and a foreign language”, with 150 scores for each subject and “Comprehensive Ability Test” which is categorized into science tests and liberal arts tests and chosen in either sciences or liberal arts , according to the students’ interest, with 300 scores (750 scores in total). Students turn in an application based on their self-grading, referring to the acceptable marks of each university announced by Education Department. The Education Department also publishes the lowest mark of the first group, which is a top group of applicants.

Table 8: Trend of the average point and lowest point for successful applicants of the National Higher Education Entrance Examination

Unit: Point

University name	Average point of successful applicants						Lowest point of successful applicants					
	2002		2005		2010		2002		2005		2010	
	Arts	Science	Arts	Science	Arts	Science	Arts	Science	Arts	Science	Arts	Science
Northwest University	541	545	607	589	591	588	522	520	550	585	581	578
Xi'an University of Architecture & Technology		521	570	599	567	580		500	561	580	562	568
Xi'an University of Technology	512		583		573		494		560		554	
Xi'an University of Engineering Science & Technology	467		536		536		445		518		530	
Xi'an University of Science & Technology	469	466	537	557	540	549	450	445	524	545	523	544
Xi'an International Studies University	576		586		579		540		560		559	
Northwest University of Political Science and Law	560		554		557		535		540		541	
Baoji University of Arts and Sciences	460		540		534		445		500		500	
Xi'an Institute of Technology	456		540		543		445		524		537	
Weinan Teachers College	511		506		501		510		500		500	
Yulin College	435		528		543		420		510		520	
Yanan University	448		521		534		435		500		525	
Shaanxi University of Technology	501		516		519		480		498		498	
Xianyang Normal College	461		513		518		450		500		514	
Shaanxi Polytechnic Institute	337		383		385		280		287		305	
Xi'an University of Arts and Science	488		516		529		455		500		522	

Source: Responses to the questionnaire

As point allocation between mandatory subjects and the comprehensive subject is different from 2002 to 2005, we cannot simply compare the data. As test questions are different each year and have different difficulty levels, a simple comparison is not possible. However, when comparing the average and lowest points of successful applicants for the 16 target universities in

2005 and 2010, these points stay almost at the same level without significant positive or negative changes, despite some gaps among universities. Appraisers were afraid that an increase in enrolled students at university would deteriorate the quality of enrolled students, but there is no significant change from the points of university exam's successful applicants.

However, at the hearing with target universities for this ex-post evaluation, some universities said "a sharp rise in enrolled students has sent down the academic achievements of some students. The university is making all-out efforts to improve such a situation." Each university is taking its own actions to address this problem.

This project has largely achieved its objectives; therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

3.4.1.1 Contribution to Human Resource Development/Industrial Development in Shaanxi Province

According to Shaanxi Province Education Department, higher education institutes in the province are in charge of 13,000 national/provincial research projects and more than 12,000 corporate projects and technical grant projects since 2006 and have earned 6.84 billion yuan for their technical development and technical grant projects. Job opportunities for university graduates are getting improved, with 81.47% of the higher education institute graduates in Shaanxi Province on average finding their job in 2009.

Among the 16 target universities, Baoji University of Arts and Sciences, Yanan University, Xi'an Institute of Technology, Shaanxi University of Technology, and Xi'an University of Arts and Science have set up lifelong education institutes by using the equipment acquired with this project and providing occupational training programs for jobless people who get laid off due to state-owned enterprise reform programs. For example, Shaanxi University of Technology has provided training for approximately 1,500 people a year.

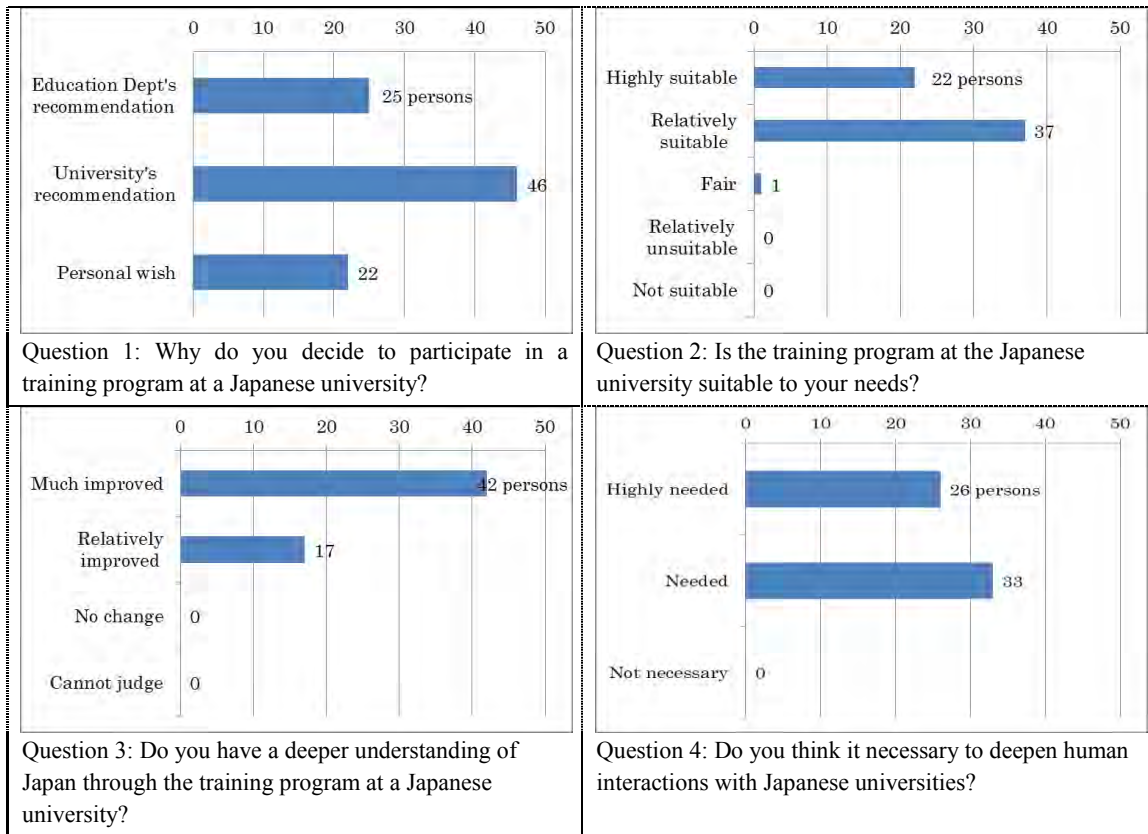
3.4.1.2 Encouraging mutual Understanding between Japan and China

Among Japanese universities, Ritsumeikan University has accepted the largest number of trainees (82 trainees, or 34% of the overall trainees) from the university staff in Shaanxi Province, followed by Tohoku University (11 trainees) and Fukui University and Okayama University (11 trainees), Kyushu University (9 trainees), and Nara Women's University and Kagawa University (8 trainees). Ritsumeikan University provides training programs on school operation/management with focus on university management, while other universities provide Japanese language training programs as well as the trainee's specialty fields in most cases.

In the process of this ex-post evaluation, the evaluator conducted a beneficiary survey¹⁰ on 59 university staff members participating in training programs at Japanese universities. Figure 1 shows the results of the beneficiary survey (59 samples) on the university staff participating in training programs at Japanese universities.

Forty-two respondents (71.2%) said the training program in a Japanese university significantly deepens their understanding of Japan, and 17 respondents (28.8%) said they had come to have deeper understanding of Japan to some extent. Twenty-six respondents (44.1%) answered they should have deeper human interaction with Japanese universities, and 33 respondents (55.9%) said that it is desirable to enhance human interactions with Japanese universities. From this beneficiary survey, deeper understanding of Japan is one of the main impacts of the university staff training programs at Japanese university.

¹⁰ In this ex-post evaluation, the evaluator conducted beneficiary (questionnaire) survey on 52 students of the target universities to check any change in university facilities/equipment/experiments or understanding about Japan, but many students do not know about this project, and significant results are not yielded.



Source: Beneficiary survey for this ex-post evaluation

Figure 1: Results of Beneficiary Survey (59 samples) on the University Staff Participating in Training Programs at Japanese universities.

Shaanxi province has a lot of historic sites and has been working on human interactions with Japanese cities/universities for a long time. Northwest University has had relationships with Kyoto University, Doshisha University, Bukkyo University, etc., from the 1980s to the 1990s; has entered into inter-university agreements with 10 Japanese universities as of the ex-post evaluation; and has established cooperative relationships with Japanese firms, such as Cosmo Oil, and the Osaka Prefectural Government.

Xi'an International Studies University has inter-university agreements with 3 universities, while Xi'an University of Engineering Science & Technology, Yanan University, and Xi'an University of Arts and Science have also entered into a similar agreement with 1 university. The relationship with this project is not clear enough.

Relationship with this project is obvious in the case of Baoji University of Arts and Sciences and Kagawa University. Through this project, these two universities have deeper research interactions. Baoji University of Arts and Sciences sent two instructors and two students to Japan in order to engage in research activities or take Ph.D. and master's postgraduate courses.

3.4.1.3 Other Outcomes of Shaanxi Province Higher Education Project

Through this project, target universities have expanded their educational/research activities. They have improved lectures, experiments, or research activities for their students or graduate students, enhanced research activities by faculty staff, and released research papers. Educational facilities provided by this project are used not only for education/research activities but also for research/analysis projects requested by other universities, external research institutes, or

corporate clients. Some of them are clients in Shaanxi province, but others are spreading out in the entire China. The following column outlines the examples of spillover effects.

At the hearing to Education Department for the purpose of this ex-post evaluation, the department stated that it was not accustomed to yen loan project procedures in the initial phase, but it had come to understand the process gradually, improving abilities of the department and target university stakeholders to operate and manage the entire project through the yen loan program. As Shaanxi Province started working earlier on the higher education project, the province received several questions from education departments in other inland provinces when they worked on higher education projects in the subsequent packages. This has led to technical transfers and human interactions to other provinces as a spillover effect of this project.

Box 1: Good Practices Yielded from Shaanxi Province Higher Education Project

As the UK GDS three-axis testing equipment was introduced at Northwest University, the university released its research outcomes about loess microtexture and moisture-releasing mechanism in internationally well-known academic journals, such as “Engineering Geology,” “China Science,” “Geographic Science” and “Geotechnique.” They are cited by many scholars at home and abroad, bringing about significant repercussions. These research outcomes have led to the winning of National Natural Science Fourth-Degree Award and Gansu Province S&T Advancement Second-Degree Award.

Northwest University also procured 3D imaging/playback-related equipment for its Visualization Technology Laboratory. The laboratory is participating in the third-stage terracotta army (clay figurines found near the mausoleum of the first Qin emperor in China) excavation/restoration project, which is currently in progress, and brings this equipment on-site to record actual excavation works, and makes contributions to simulation tasks for computer-based restoration works. On the field site, Northwest University has exerted its strength in history and archaeological studies.



Left: 3D equipment used at terracotta army excavation/restoration work site (in the center of the photo).
Right: Computer-based image restoration work on clay soldier of terracotta army

The Shaanxi Polytechnic Institute constructed a Polytechnic Training Center, mainly consisting of equipment provided through this project in order to provide occupational training programs for working people. Training sections on digital control technologies, materials’ shape forming, and electric cars are accredited as province-level training base. Through fostering human resources in this way, the center has been making contributions to local economic development.

The Modern Analysis Test Center at Xi’an University of Technology provides services to external clients by using educational equipment procured through this project. As of June 2010, the Center has provided information on food quality more than 4,000 times to neighbouring universities, research institutes, or companies. Clients include Lanzhou University, Sichuan University, Northwest Nuclear Power Technical Laboratory, Lanzhou Chemistry and Physics Laboratory at the Chinese Academy of Sciences, China XD Electric group, and the US firm Applied Materials, Xi’an. The center was selected as Shaanxi Province Largest Equipment Net Advanced Organization for two consecutive years in 2007 and 2008.

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

In this project, environment impact assessment (EIA) was conducted beforehand in accordance with applicable laws in China. They took actions in line with “Three-stage Simultaneous” implementation (i.e. regulation that environmental protection facilities shall be designed, constructed and put into production simultaneously with main construction structures).”

According to target universities’ responses to this ex-post evaluation, 15 universities where school buildings were constructed following the “Three-stage Simultaneous” policy and implemented environment protection measures thoroughly including monitoring while taking actions to reduce noise, treat sewage, and dispose of waste, etc. in order to meet the standard set by the regional environmental protection agencies.

Among them, Xi'an Institute of Technology is worthy of special mention since its construction work resulted from this project was acknowledged as a provincial excellent construction site. According to Shaanxi Province Education Department, universities must construct their university buildings on a university site or a construction site that they acquire at a location for education institute use developed by Shaanxi Province. No negative impact on natural environment has been reported with regard to the construction of each facility,

3.4.2.2 Land Acquisition and Resettlement

As stated above, according to the hearing on Shaanxi Province Education Department and universities, when universities construct university buildings, they must build it on university premises or purchase a construction site that is already developed/leveled off by Shaanxi Province. For this reason, there is no need for resettlement, and this project has not posed specific negative impacts.

From the viewpoints mentioned above, the project has yielded impacts through enhanced educational/research activities at the 16 target universities. In addition, by fostering highly technical human resources, it is also serving for industrial development in Shaanxi Province. Through providing training programs for universities staff at Japanese universities, it is contributing to encouraging mutual understanding between Japan and China. Negative impact on environmental and social aspects is not observed.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

According to the interviews with the Education Department and target universities for this ex-post evaluation, the Education Department’s section responsible for yen loan programs has instructed the target universities to develop maintenance programs, provided information on best practice university’s knowhow to other universities, and gave instructions in follow-up meetings held once a year. After their experiences on this project, universities have enhanced their facilities as well as their facility management and maintenance framework.

Currently, universities have their own organization names and programs slightly different from each other, but all of the target universities have developed their framework to operate/maintain all of their facilities/equipment, including those procured through this project. Site visits on target universities this time have revealed that responsibilities for each section, facility/equipment, and staff in charge are defined clearly, and their operation/maintenance schemes are working properly.

According to the target university’s response to the questionnaire, they are required to fill in the management format for each facility, and universities have their maintenance program for each facility in case of regular/emergency actions for maintenance/inspection works and regular maintenance tasks.

3.5.2 Technical Aspects of Operation and Maintenance

According to the target university's response to the questionnaire, all of the target universities have and put into practice their own operation/maintenance manuals, and keep spare parts for main equipment. At the time of the on-site visit for this ex-post evaluation, the evaluator saw that they showed the terms of use and the equipment operation methods on the wall inside the classroom or near the equipment so that equipment users will be able to check the operation procedures.

They inspect their facilities at a regular interval, such as once in a year or in a semester, inspect large equipment once in a month/week, and check other equipment once in a month/week/day. If repair work is necessary, they will commission an external service provider to conduct repair works after predetermined procedures in the university.

All of the target universities provide training programs for maintenance staff at least once in a month. As instructed by the Education Department, they provide training programs on building management, summertime electricity usage/safety, firefighting works, wintertime electricity usage/safety, fire/crime prevention, and some other topics for approximately 10 staff members every year.

3.5.3 Financial Aspects of Operation and Maintenance

According to the target university's responses to the questionnaire, all universities have an operation/maintenance budget suitable to their facility/equipment size, and they have no problem. In this context, Xi'an University of Science & Technology has the largest budget that amounts to 17.5 million yuan a year. In addition to this university, Shaanxi Polytechnic Institute has the budget of 1.0–1.4 million yuan a year, while Northwest University's budget amounts to approximately 1.0 million yuan. In this sense, S&T universities and engineering universities with large-sized equipment have a larger budget.

The budget size for a teacher's college or language university amounts to 0.1–0.5 million yuan a year. All of these universities have budgets of almost the same size for the past 3 years (2008–2010). These budgets are mainly financed with university's own funds (tuition revenues, etc.), project cost consigned by provincial government, or subsidies from provincial government.

As the charge-free maintenance period will expire one after another for the exquisitely designed equipment purchased in this project, repair cost will probably increase in the future. Universities that are facing such a problem are developing their annual maintenance plans, planning to allocate sufficient budget from provincial government or a portion of tuition revenues, and enhancing external services that use the equipment, aiming to boost the maintenance budget.

3.5.4 Current Status of Operation and Maintenance

According to the target university's responses to the questionnaire, the capacity utilization rate for university buildings is very high, from 90% to 125%. Capacity utilization rate for equipment also stands at a high level of 95% on average for regular-use equipment and 79% for large-sized equipment. In some cases, large-sized equipment or advanced facility requires several days to a few weeks for preparatory tasks. Once they become operational, they sometimes need long-time operations for measurement purpose. For this reason, it is difficult to calculate the average capacity utilization rate for these facilities. However, once the utilization plan is prepared by facility operation/maintenance staff, these facilities are utilized for education to students (experiment), researchers' research activities, and services provided to external users or consigners. At the time of the on-site visit for this ex-post evaluation, the evaluator saw that students or faculty staff use these facilities and their installation environment is kept in an appropriate condition.

No major problems have been observed in the operation and maintenance system; therefore sustainability of the project effect is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed to improve higher education in Shaanxi Province quantitatively and qualitatively by supporting construction of buildings, procurement of equipment and teachers' training in the target universities. The purpose of this project has been highly relevant to the country's development plan, development needs as well as Japan's ODA policy; therefore, its relevance is high. The project has yielded the outcomes mostly as planned. The Chinese authorities have provided funds so that some target universities would expand their construction projects in line with their needs. Project cost and project period both exceed the initial plan. However, as increased project cost has resulted in expanded outcomes, the efficiency of this project is fair. This project is highly effective because the target universities are seeing increased students and larger school building dimension per student as well as improvement in their educational/research environments. The target universities utilize, operate, and maintain their facilities/equipment as their routine tasks from the viewpoint of their operational framework, technical capabilities, and financial capacities; therefore sustainability of the project effect is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Among the first target groups of the higher education projects financed with yen loan for several provinces in China, Shaanxi Province shows highly sustainable effects as expected, backed by the cooperation of the Finance Department and the Education Department and particularly appropriate, enthusiastic instructions and coordination works by the Education Department.

Fully recognizing that Shaanxi Province Education Department has successfully and smoothly managed a complex project of facility construction, equipment procurement, and human resource development, the Chinese government should make efforts to enhance project management abilities in the higher education sector by providing opportunities to share Shaanxi Province's insights and experiences with as many organizations as possible, including provinces currently working on their higher education projects.

4.2.2 Recommendations to JICA

Through this project, not only Shaanxi Province Education Department but also the target universities have successfully enhanced their project management abilities. This project has yielded the spillover effect related with this type of project management abilities, the spillover effect from facility construction or educational facility enhancement components (e.g., Northwest University's terracotta army restoration project as covered by the "column" section herein), and the spill-over impacts through the training programs for university staff in Japan, but they are dispersed among universities and are not shared with each other. Collecting and sorting out this project's spillover effects as best practices and sharing them with Shaanxi Province or other provinces will effectively call attentions to this project's contribution to the expansion of higher education.

4.3 Lessons Learned

"Higher Education Project Seminar" held in March 2011 with a total of 22 provinces working on JICA higher education project was highly beneficial to Shaanxi Province Education Department and other provinces' stakeholders because participants take a look back on projects in various provinces and share their experiences with other provinces. The seminar also served as a good opportunity for the participants to reconfirm how to utilize the outcomes of this project.

If such a project covers education organizations without experiences on yen loan programs, individual negotiations between JICA and provincial government stakeholders in terms of

purposes/outline of the project, management models, and organizational framework, the operational scheme and procedures will not improve the situation in many cases. In this sense, sharing other provinces' successful examples is highly beneficial. For this reason, information-sharing seminars for these stakeholders will work effectively if they are held at a regular interval at an early stage of the higher education project.

[End]

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs		
i. Constructing university buildings	15 target universities, * total: 256,841m ²	15 target universities, total: 288,499m ²
ii. Enhancing educational facilities	16 target universities, total: 40,809	16 target universities, total : 41,648
iii. Providing training sessions for university staff	16 target universities, total: 247 university staff members	16 target universities, total: 245 university staff members
2. Project Period	March 2002 – March 2005 (36 months)	March 2002 – January 2009 (81 months)
3. Project Cost		
Amount paid in Foreign currency	6,021 million yen	6,020 million yen
Amount paid in Local currency	4,615 million yen (307.6 million yuan)	6,694 million yen (495.8 million yuan)
Total	10,636 million yen	12,714 million yen
Japanese ODA loan portion	6,021 million yen	6,020 million yen
Exchange rate	1 yuan = 15 yen (As of September 2001)	1 yuan = 13.5 yen (As of December 2009)

China

Ex-Post Evaluation of Japanese ODA Loan “Hunan Higher Education Project”

External Evaluator: Naomi Murayama, OPMAC Corporation

0. Summary

The project objective was to improve higher education in Hunan Province quantitatively and qualitatively by supporting construction of buildings, procurement of equipment and teachers’ training in the target universities. This objective has been highly relevant to the country’s development plan, development needs, as well as Japan’s ODA policy; therefore its relevance is high. The outputs were essentially completed in line with the initial plans, but the project cost slightly exceeded the plan, while the project period significantly exceeded the plan; therefore efficiency of the project is low. Based on the information gathered during this evaluation work, although the indicators on educational environment are deteriorating in some universities due to the rapid increase of the students, its effectiveness is high because of improvement of all the indicators on academic performance and research level. No major problems have been observed in the operation and maintenance system; therefore sustainability of the project effect is high.

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

1. Project Description



Project Location



Library at Central South University of Forestry and Technology

1.1 Background

Hunan Provincial People’s Government had a plan to make further efforts toward market economy and economic growth, targeting a GDP growth rate of more than 9% in Hunan Province 10th Five-Year Plan (2001-2005) from the aspects of disparity rectification among regions. The provincial government recognized the necessity of expanding higher education in order to attain the objective, and announced the policy to raise higher education enrollment from about 450,000 in 2000 to 850,000 in 2005, including an increase in regular institutions of higher education from 250,000 in 2000 to 420,000 in 2005. Furthermore, the government put priority on development and enforcement of higher education institutions in light of poverty alleviation in urban areas through providing vocational training to laid-off employees by state enterprises and educational promotion in rural areas through training program for teachers dispatched to the rural areas.

1.2 Project Outline

The objective of this project was to improve higher education in Hunan Province quantitatively and qualitatively by developing educational infrastructures such as school buildings and equipment and enhancing human resources through teachers' training in 11 universities which play an important role in disparity rectification between coastal areas and inland areas through market-oriented economic reform and economic growth in Hunan Province, rural development and state enterprise reform, thereby contributing to the market-oriented economic reform and disparity rectification in China.

Loan Approved Amount/ Disbursed Amount	4,682 million yen / 4,486 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March, 2002 / March, 2002
Terms and Conditions	Interest Rate: 0.75 % Repayment Period: 40 years (Grace Period: 10 years) Conditions for Procurement: Bilateral tied
Borrower / Executing Agency	The Government of the People's Republic of China / Hunan Provincial People's Government
Final Disbursement Date	January, 2009
Feasibility Studies, etc.	1. F/S: "Feasibility Report on Hunan „Central West Qualified Personnel Training Project“ with Loans from the International Xieli Bank of Japan" (Hunan Province Investment Consulting Company, March 2001) 2. JBIC report: ① "FY 2001 Special Assistance for Project Implementation (SAPI) for Higher Education Project in China" (August 2003) ② "SAPI for Higher Education Project in the People's Republic of China" (March 2004) ③ "SAPI for Higher Education Project in China" (May 2005)

2. Outline of the Evaluation Study

2.1 External Evaluator

Naomi Murayama, OPMAC Corporation

2.2 Duration of Evaluation Study

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

Duration of the Field Study: February 27 – March 19, 2011, June 11- June 18, 2011

2.3 Constraints during the Evaluation Study

No particular problem.

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

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Plan of China

China was admitted to the World Trade Organization (hereinafter referred to as WTO) in December 2001 and was aiming at high rates of economic growth, openness and reform through industrial structural adjustment. Disparities between coastal and inland areas, and urban and rural areas were challenges in China.

This project sought 1) to tackle industrial structural adjustment through development of highly-skilled human resources in high technology, biotechnology, manufacturing technology and so on, 2) to respond flexibly to market needs and international competition after becoming a WTO member state through development of high-quality human resources in the fields of law, finance and trade, and 3) to rectify the disparities between coastal and inland areas, and urban and rural areas through these human resource developments. These project objectives were in line with “10th Five-Year Plan for National Economic and Social Development (2001-2005)”, “10th Five-Year Plan for Education” and “Hunan Province 10th Five-Year Plan”.

At the time of appraisal, the “National Mid- and Long-Term Reform and Development Plan for Education Sector (2010-2020)” has been formulated in addition to the “12th Five-Year Plan for National Economic and Social Development (2011-2015)”, “12th Five-Year Plan for Education” and “Hunan Province 11th Five-Year Plan”³ and China has been promoting human resource development and regional disparity rectification for further economic growth, openness and reform. These five-year plans stay the course of 10th Five-Year Plans respectively. The project objectives are consistent with these development policies in China.

3.1.2 Relevance with the Development Needs of China

At the time of appraisal, the quantitative demand for higher education was growing along with the increase in postsecondary students. However, the lack of facilities and teaching staff of universities was a challenge. It was necessary to strengthen facilities, human resources and financial aspects in order to address the challenge. The project supported strengthening of the facilities and human resources; therefore it was consistent with the development needs of China.

Table 1: Number of Postsecondary Students and Tertiary Enrollments in Hunan Province

Unit: person

Year	2005 (forecast at appraisal)	2005 (actual)	2009 (actual)
Postsecondary students	254,000	340,207	415,666
Tertiary enrollments	240,000	250,844	324,737

Source: JICA appraisal documents, Hunan Province Education Department

At the time of ex-post evaluation, the numbers of graduates from high schools⁴ and enrollments of higher education have been increasing more than estimated. This indicates growing needs for higher education (Table 1). Moreover, the project was implemented at the same time as higher education reform in China which required intensive improvement of facilities and quality of lecturers. The reform is still continuing. The project objectives are consistent with the development needs of universities, too.

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

² ③: High, ② Fair, ① Low

³ According to Hunan Provincial Education Department, “Hunan Province 12th Five-Year Plan” was not developed yet. Therefore, it couldn’t be confirmed at the time of ex-post evaluation.

⁴ It corresponds to a high school in Japan.

3.1.3 Relevance with Japan's ODA Policy

Japan's ODA Charter at the time of appraisal put importance on assistance in the Asian region and assistance in human resource development; therefore the project objectives were consistent with Japan's ODA policy.

Furthermore, Country Assistance Program for China, Medium-Term Strategy for Overseas Economic Cooperation Operations and Country Assistance Strategy at the time of appraisal put priority on human resource development from the viewpoint of support for openness and reform and post-WTO economic reform, and on assistance in Mid-Western Region in China from the aspect of disparity rectification. The project objectives were consistent with Japan's aid policies.

This project has been highly relevant to China's development plan, development needs, as well as Japan's ODA policy; therefore its relevance is high.

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

The project is composed of construction of teaching and research buildings, enhancement of educational and research equipment, and training of higher education personnel. The outputs of each component are as shown in Table 2.

Table 2: Comparison of Outputs (planned and actual)

Items	Planned	Actual (achievement rate)
Building	11 universities total: 238,208m ²	9 universities total: 257,141m ² (107.9%)
Equipment	10 universities: 2,970	9 universities: 2,923 (98.4%)
Training	11 universities total: 318	9 universities total: 239 (75.2%)

Source: JICA appraisal documents, Responses to the questionnaire

The target universities were 11⁵ at the time of appraisal. During project implementation, Xiangtan Polytechnical University merged with Xiangtan Normal University so that the target universities became 10 in total. There was a plan to construct Multipurpose Teaching Building in Nanhua University under the Project, but the building was constructed under own funds. The unused ODA fund for the building of Nanhua University was allocated to the construction of Electric Information Building in Central-South University of Forestry and Technology and to the construction of Science and Technology Building in Hunan University of Technology. Nanhua University which cancelled ODA Loan for building construction decided to cancel ODA Loan for training component, too. Then Nanhua University was excluded from target universities and the target universities became nine in the end. The fund of the training portion for Nanhua University was allocated to Xiangtan University, Changsha University of Science Technology and Hunan Agricultural University.

Regarding construction of buildings, there were some minor changes such as increase of floor area, design changes, and specification changes. The main reason for the change was to

⁵ Initial target universities were as follows: Nanhua University, Xiangtan University, Hunan Normal University, Changsha Communication University, Xiangtan Polytechnical University, Hunan Agricultural University, Central-South Forestry University, Zhuzhou Institute of Technology, Hunan Institute of Traditional Chinese Medicine, Xiangtan Normal University, and Central-South University. Of this, Changsha Communication University was merged with Changsha Institute of Electric Power Engineering so that became Changsha University of Science Technology. Hunan University of Science and Technology was created by merging Xiangtan Polytechnical University with Xiangtan Normal University. The name was changed due to upgrade from institute to university in the following universities: Central-South Forestry University, Zhuzhou Institute of Technology and Hunan Institute of Traditional Chinese Medicine. Those universities became Central-South University of Forestry and Technology, Hunan University of Technology and Hunan University of Chinese Medicine, respectively.

cope with the increasing demand; therefore there were not any particular problems with these changes.

The teaching and research equipment in seven universities out of nine target universities was slightly changed, but it was basically completed as planned. The reasons why some equipment could not be procured as planned were that some equipment was changed or cancelled due to the outdated technology by the delay of procurement and was cancelled due to price increase by exchange rate fluctuations.

At the beginning of the project, the progress of training component did not go well. After two extensions of the project implementation period, dispatch of lecturers in the target universities except for Hunan University of Science and Technology was almost completed as planned. Hunan University of Science and Technology had a plan to send 70 trainees to Japan. However, it resulted in 18 because the candidates could not easily find the universities accepting them. In the project, trainees had to find Japanese institutions accepting them, make contact with the institutions and take the necessary procedures to study in Japan by themselves. Any agencies which took care of these procedures were not planned. The main reason for the delay in the training component at the beginning was that it is difficult for trainees to find the institutions and make contact with them because most of the target universities had few connections with universities in Japan or abroad. After the implementation of the project, this component gradually progressed due to JICA seminars to introduce Japanese universities, special courses established in some Japanese universities, commencement of consultation service for the training program and revision of the training program regulation in Hunan Province⁶.

Box 1: Efforts to Promote Training Program — Hunan Normal University —

Hunan Normal University put priority on the training of staff in charge of the training program. At first, the university sent six administration staff to the University of Shiga Prefecture which had connections with Hunan Normal University before the project. The staff studied the office functions of International Exchange Center as well as Japanese culture in the University of Shiga Prefecture. After they acquired the know-how on the student exchange, they established the contact point in Hunan Normal University for candidate lecturers and dispatch them to Japan. As a result, they could dispatch many trainees.

Hunan Normal University could establish such system and dispatch the trainees to Japan successfully since some lecturers specializing in Japanese took initiative. However, there were a lot of difficulties from first contact with Japanese professors to acceptance if the candidate trainees did not have any connection with Japanese side. The matching often did not go well in other universities. These circumstances could be avoided if the lack of connections were perceived at the time of appraisal and such an intermediation role, which Provincial Education Department or administration office in each university had, was incorporated in the project implementation structure from the beginning of the project. Moreover, the training component would be smoothly implemented if good practices like Hunan Normal University were shared and became common to other universities in Hunan Province and other provinces.

3.2.2 Project Inputs

3.2.2.1 Project Cost

Actual project costs amounted to 8,784 million yen (of this, the actual loan disbursement amounted to 4,388 million yen) against the estimated costs of 7,118 million yen (of this, the planned loan amounted to 4,682 million yen), and was slightly higher than planned (123%). The

⁶ The trainees were decided in advance according to the budget in Hunan Province. However, the institutes where they studied were decided at a sluggish pace at the beginning of the project. After JICA's seminar, Hunan Provincial Education Department revised the regulation on a first-come-first-served basis regardless of the plan.

reasons for the higher project cost were attributable to the greater-than-expected inflation and the increase in universities' own expenses. Especially the account settlement exceeded the plan in the building construction component due to the greater-than-expected inflation, and regarding the equipment component, appreciation of Japanese yen created price increase of imported equipment so that each university paid 50% of the excess.

3.2.2.2 Project Period⁷

The project period planned at the time of appraisal was 36 months, or from March 2002 to March 2005. The actual project period was 81 months, or from March 2002 to January 2009, which was equivalent to 225% of the original plan, and was significantly longer than planned.

The loan period was extended for 18 months by two extensions of project implementation period. The delays were shown in each component. The main reasons for the delays were to take more time for the procurement procedures than expected regarding equipment, and to have difficulties to find institutes accepting the trainees as to the training component. The construction of buildings was completed in January 2009. It was because the procedures for the Electric Information Building in Central-South University of Forestry and Technology and Science and Technology Building in Hunan University of Technology started after the cancellation of Nanhua University. Other buildings were constructed as scheduled.

The project is characterized by more difficult control by the executing agency (Hunan provincial government) and the end-users (target universities) than other projects because many organizations are involved in the project implementation such as procurement agency and the Export and Import Bank in request for disbursement to JICA. The procurement packages were composed not by university but by kind of equipment, because it was expected that such procurement packages by kind of equipment reduced costs at the time of appraisal. However, this caused cross-universities coordination during the procurement procedure. The change of equipment and troubles occurred in one university affected other universities in the same package of equipment so that the procedure and coordination took more time than expected. As a result, it harmed the efficiency. In addition, some unavoidable matters, such as bankruptcy of the supplier of equipment included in the first package and six-month stoppage of the project due to SARS in 2003, affected the project.

The project cost slightly exceeded the plan, while the project period significantly exceeded the plan; therefore efficiency of the project was low.

3.3 Effectiveness (Rating: ③)

This project aimed at quantitative and qualitative improvement of higher education in Hunan Province by supporting construction of buildings, procurement of equipment and teachers' training in the target universities. There are 100 universities in Hunan Province as of 2008. The target universities are only nine out of these 100 universities. It is difficult for the project to contribute to quantitative and qualitative improvement of entire higher education institutions in Hunan Province directly. Therefore, quantitative and qualitative improvement of only the target universities was analyzed in this section.

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

The number of students was utilized as an indicator for quantitative improvement of education in this evaluation. In order to confirm whether the quality of education and research was improved and whether the quality was not deteriorated by increase in students, the lecturer

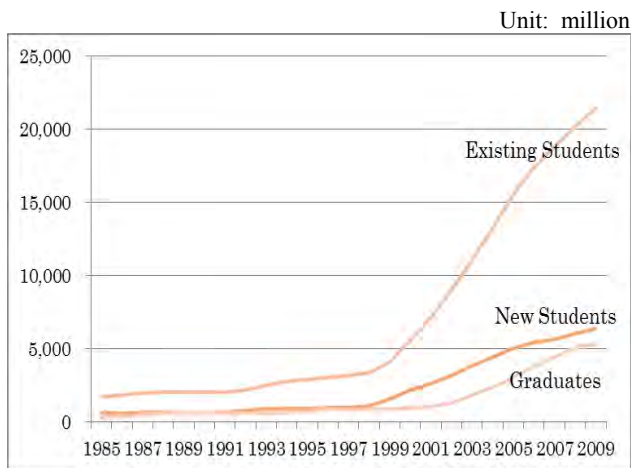
⁷ The completion of the project was defined as completion of three components: teaching and/or research buildings, educational and/or research equipment, and personnel training at the time of appraisal. But at the time of ex-post evaluation, the completion is defined as final disbursement.

to student ratio, the floorage per student, the successful applicant's pass mark of university entrance exams, the graduate school enrollment rate, the university graduation rate, the employment rate and the designation of key faculties and laboratories were utilized as indicators and the before-after differences or recent transition of these indicators were analyzed.

(1) Change in the Number of Students

In China, the number of university students has sharply increased since 1999 (Figure 1). The Chinese Government aimed to increase the university enrollment rate from 9.8% in 1998 to 15% in 2010 in "Action Plan for Educational Vitalization Facing the 21st Century". The universities expanded the quota in respond to this plan. For China as a whole, the growth rates of university students from 2000 to 2009 reached 286% (Table 3).

In the meantime, universities in Hunan Province increased from 83 to 100. The number of students doubled in Hunan Province although it was not as many as national growth rate. A glance at Table 3 will reveal the increase of more than the target figures set at the time of appraisal. The objective of quantitative increase of higher education was accomplished from the aspect of the number of students.



Source: Webpage of National Bureau of Statistics of China (<http://www.stats.gov.cn/english/> as of July 1)

Figure 1: Transitions in Number of University Students

Table 3: Changes in the Number of Students in the Target Universities

	Baseline (2000)	Target (2005)	Total number of students (2009)	% of baseline	% of target	Growth rate
Nanhua University	10,384	20,000	24,795	239%	124%	139%
Xiantan University	12,925	25,000	26,196	203%	105%	103%
Hunan Normal University	15,379	18,500	26,515	172%	143%	72%
Changsha University of Science Technology	6,485	17,000	22,826	352%	134%	252%
Hunan University of Science and Technology	14,058	25,411	32,453	231%	128%	131%
Hunan Agricultural University	5,016	13,200	21,012	419%	159%	319%
Central-South University of Forestry and Technology	8,730	18,500	23,532	270%	127%	170%
Hunan University of Technology	6,272	12,400	34,795	555%	281%	455%
Hunan University of Chinese Medicine	4,432	10,560	21,917	495%	208%	395%
(reference)						
Hunan Province Total	454,300	850,000	952,330	210%	112%	110%
National Total	5,561,000	—	21,447,000	386%	—	286%

Source: JICA appraisal documents, Responses to the questionnaire, Webpage of National Bureau of Statistics of China (<http://www.stats.gov.cn/english/> as of July 1)

Note: The baseline and the target for Changsha University of Science Technology are those for Changsha Communication University. The baseline and the target for Hunan University of Science and Technology are the totals of Xiangtan Polytechnical University and Xiangtan Normal University.

(2) Lecturer to Student Ratio

The Undergraduate University Establishment Standards of China⁸ require that the number of students per full-time lecturer is equal to or less than 18. At the time of appraisal, eight target universities excluding Central-South University of Forestry and Technology passed the standard. On the other hand, since the number of students increased by 226% on average at the target universities from appraisal to ex-post evaluation as studied in the previous section, the number of students per full-time lecturer in four target universities exceeded the standard. The deterioration in the quality of education is a slight concern. Despite the exponential increase in the students, it can be appreciated that more than half of target universities can stay within the standard.

In Central-South University of Forestry and Technology, the number of students per full-time lecturer was forecasted to increase by 23.13 in 2005 in prospect of increase of the students. However, it resulted in slight increase (from 19.19 to 19.71) due to the efforts to increase full-time lecturers. In Hunan University of Technology and Hunan University of Chinese Medicine where students have increased significantly, the addition of full-time lecturers cannot keep up with the rapid increase of the students so that the number of students per full-time lecturer is around 30. It has been deteriorating in significant excess of the expectancy. It is necessary to ensure the increase of new high quality lecturers in addition to the development of buildings and equipment and training for existing lecturers in order to enhance and/or maintain the effectiveness of the project.

Table 4: The Number of Students per Full-time Lecturer

Unit: student/full-time lecturer

	Baseline (2000)	Target/ prediction (2005)	Actual (2009)
Nanhua University	13.18	14.81	17.98
Xiantan University	14.39	15.01	11.32
Hunan Normal University	9.76	9.49	15.74
Changsha University of Science Technology	13.43	21.25	13.33
Hunan University of Science and Technology	12.42	14.69	20.70
Hunan Agricultural University	7.37	9.26	18.15
Central-South University of Forestry and Technology	19.19	23.13	19.71
Hunan University of Technology	16.91	15.90	27.27
Hunan University of Chinese Medicine	7.29	11.60	33.98

Source: JICA appraisal documents, Responses to the questionnaire

Note: The baseline and the target for Changsha University of Science Technology are those for Changsha Communication University. The baseline and the target for Hunan University of Science and Technology are the totals of Xiangtan Polytechnical University and Xiangtan Normal University.

(3) Floorage per Student

The Undergraduate University Establishment Standards of China⁹ require that the floorage per student is more than 30m². The actual average of the target universities in 2009 was 31.91m², which was better than 28.3m², the average in 2000. Although the buildings constructed under the project account for only a small percentage of total floorage in each university, the project might have contributed to improvement of the floorage per student to some extent.

⁸ Japan Science and Technology Agency China Research Center, 2011, "2010 Current Situation and Trend of Higher Education in China" (「平成 22 年版 中国の高等教育の現状と動向本文編」), p.77 Table 3-1-1

⁹ Japan Science and Technology Agency China Research Center, 2011, "2010 Current Situation and Trend of Higher Education in China" (「平成 22 年版 中国の高等教育の現状と動向本文編」), p.77 Table 3-1-1

Table 5: Floorage per Student

Unit: m²/student

	Baseline (2000)	Planned (2005)	Actual (2009)
Nanhua University	31.36	29.28	37.42
Xiantan University	23.09	14.50	31.91
Hunan Normal University	17.69	16.76	33.63
Changsha University of Science Technology	30.19	34.41	38.87
Hunan University of Science and Technology	31.25	32.32	25.88
Hunan Agricultural University	37.09	15.99	51.05
Central-South University of Forestry and Technology	20.51	18.31	35.03
Hunan University of Technology	25.51	32.26	17.11
Hunan University of Chinese Medicine	37.97	28.76	16.33

Source: JICA appraisal documents, Responses to the questionnaire

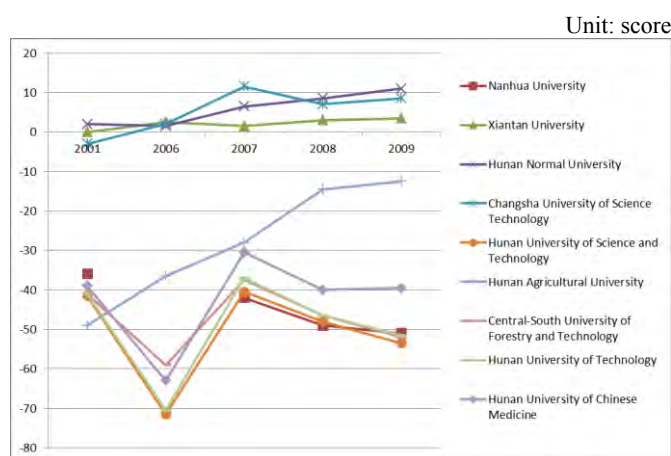
Note: The baseline and the target for Changsha University of Science Technology are those for Changsha Communication University. The baseline and the target for Hunan University of Science and Technology are the totals of Xiangtan Polytechnical University and Xiangtan Normal University.

Considering individual universities, the floorage per student improved in six out of nine universities. All the improved universities pass the standard. The floorage per student in Hunan University of Technology and Hunan University of Chinese Medicine with significant increase of students deteriorated by about 33% and about 57%, respectively, as with the case of the number of students per full-time lecturer. Any of these universities have invested their own funds in buildings in addition to the ODA Loan. Nevertheless, they cannot keep up with the rapid increase of the students. More investments in building construction are needed.

(4) Successful Applicant's Pass Mark of University Entrance Exam

The Transition of the successful applicant's pass mark of "the National Higher Education Entrance Examination", or commonly known as "Gao Kao",¹⁰ was studied in order to confirm whether the quality was deteriorated by increase of students. The difficulty of Gao Kao varies year by year so that it is difficult to compare the level of enrollees by simple comparison of the pass mark. Therefore, the difference between the pass mark of the first group of applicants and the pass mark of each target university was analyzed (Figure 2).

Considering the average of target universities, the level of successful applicants generally continues to be flat. Hunan Normal University, which is the only designated university of



Source: JICA appraisal documents, Responses to the questionnaire

Note: The baseline and the target for Changsha University of Science Technology are those for Changsha Communication University.

Figure 2: Transition of the Successful Applicant's Pass Mark of Gao Kao in Target Universities

¹⁰ The examination subjects are basically composed of three compulsory subjects " Mathematics, Chinese and a foreign language", with 150 scores for each subject and "Comprehensive Ability Test" which is categorized into science tests and liberal arts tests and chosen in either sciences or liberal arts , according to the students' interest, with 300 scores (750 scores in total). Students turn in an application based on their self-grading, referring to the acceptable marks of each university announced by Education Department. The Education Department also publishes the lowest mark of the first group, which is a top group of applicants.

“Project 211¹¹” in the target universities, is variously supported by the Central government so that the level of enrollees has steadily improved. The difficulty of Changsha University of Science and Technology has been rising to the level that it can accept first group applicants, and becomes as competitive as Hunan Normal University, although the pass mark of Changsha University of Science and Technology did not reach the lowest mark of the first group applicants at the time of appraisal. The growth rate of students in Hunan Agricultural University was 319% during the project period. Despite the drastic increase of the students, the difference of the pass marks, has been improving year by year. It was reduced by 36.5% from 2001 to 2009. On the other hand, the differences of the pass marks in not only Hunan University of Technology, where students are rapidly increasing, but also Nanhua University and Hunan University of Science and Technology, where growth rates are at around 130%, have shown a consistent downward trend for several years compared to their performances in 2001. From these, it can be said that the number of enrollments does not necessarily have an effect on the difficulty to enter universities. And judging from overall trend of the target universities, the negative effects of the increase in enrollments on the level, which have been concerned at the time of appraisal, are not such an important issue.

(5) Graduate School Enrollment Rate, University Graduation Rate and Employment Rate

From the viewpoint of educational outcomes after entering universities, the quality of education was analyzed by using the indicators such as the graduate school enrollment rate, the university graduation rate and the employment rate¹².

Any of the target universities aims to be a high-level education and research institution and focuses on graduate education. Therefore, the graduate school enrollment rate is progressively increasing.

The national enrollment rate of graduate schools is 10% in Project 211 universities, and 7 % in other universities (both figures in 2008)¹³. Thus the rate in the target universities is at a higher level than the national average.

Table 6: Graduate School Enrollment Rate of the Target Universities

Year	Unit: %			
	2006	2007	2008	2009
Nanhua University	7.8	8.0	10.0	12.4
Xiantan University	47.0	50.0	54.0	60.0
Hunan Normal University	15.5	16.5	19.9	20.4
Changsha University of Science Technology	14.6	14.8	15.5	15.8
Hunan University of Science and Technology	12.8	13.6	14.4	15.0
Hunan Agricultural University	14.5	14.8	15.2	15.7
Central-South University of Forestry and Technology	14.5	14.8	15.5	15.9
Hunan University of Technology	13.7	13.9	14.3	14.8
Hunan University of Chinese Medicine	14.3	14.9	15.0	15.2

Source: Responses to the questionnaire

¹¹ Project 211 is a national project, named from the abbreviation of “the 21st century and approximately 100 universities respectively”. It began in 1993 and now is implementing in the third stage (from 2007 to 2011). In the third stage, 112 universities are designated as key universities. The Chinese government has intensively invested national finance in the key universities in order to cultivate world-class leading-edge education and research institutions. In Hunan Province, there are four designated universities; Hunan University, Central South University, and National University of Defense Technology other than Hunan Normal University. (Source: Japan Science and Technology Agency China Research Center, 2011, “2010 Current Situation and Trend of Higher Education in China”, pp.30-36)

¹² Employment rate = (the number of university graduates who have found work+ the number of students going on to graduate school) / the number of graduates

¹³ Japan Science and Technology Agency China Research Center, 2011, “2010 Current Situation and Trend of Higher Education in China” (「平成 22 年版 中国の高等教育の現状と動向本文編」), p.175

The graduation rates are extremely high, or from 97% to 100%, at all the target universities. Almost all of the students enrolled in universities can graduate. This situation has been unchanged for a long time. Table 7 shows that the drop-outs or students who cannot graduate do not increase even if the enrolments increase.

Table 7: Graduation Rate of the Target Universities

Year	Unit: %			
	2006	2007	2008	2009
Nanhua University	100.0	100.0	100.0	100.0
Xiantan University	99.2	99.1	99.3	99.5
Hunan Normal University	98.8	98.1	98.0	98.8
Changsha University of Science Technology	97.8	98.1	97.5	97.5
Hunan University of Science and Technology	97.5	98.2	98.4	98.5
Hunan Agricultural University	98.9	96.9	97.8	98.5
Central-South University of Forestry and Technology	98.8	98.5	97.4	98.0
Hunan University of Technology	98.0	98.2	97.5	98.6
Hunan University of Chinese Medicine	98.0	98.2	97.3	98.5

Source: Responses to the questionnaire

Although the employment rate recently suffers from the global economic slowdown, it holds steady at around 90% in all the target universities. However, note that this employment rate includes students going on to graduate school and does not illustrate job finders against job seekers or against entire graduates. Nonetheless, according to Hunan Provincial Education Department, since those who plan to continue their education do not go on to graduate schools on the grounds of unemployment, it can be appreciated that almost all the students who want to have a job or go on to a graduate school can get their desire.

Table 8: Employment Rate of the Target Universities

Year	Unit: %					
	Baseline (2000)	Target (2005)	2006	2007	2008	2009
Nanhua University	95.5	95.0	93.9	92.8	92.5	93.1
Xiantan University	90.7	99.0	94.9	94.1	92.2	91.5
Hunan Normal University	93.3	98.0	93.0	93.0	93.0	95.0
Changsha University of Science Technology	98.2	99.0	95.8	94.9	96.3	94.7
Hunan University of Science and Technology	99.6 (94.4)	99.0 (98.0)	91.5	91.4	92.0	93.2
Hunan Agricultural University	93.3	95.0	90.5	93.6	91.2	92.3
Central-South University of Forestry and Technology	99.3	99.0	91.4	92.0	91.8	92.2
Hunan University of Technology	84.3	88.0	97.0	97.0	93.0	87.0
Hunan University of Chinese Medicine	78.7	85.0	95.3	95.6	93.9	95.2

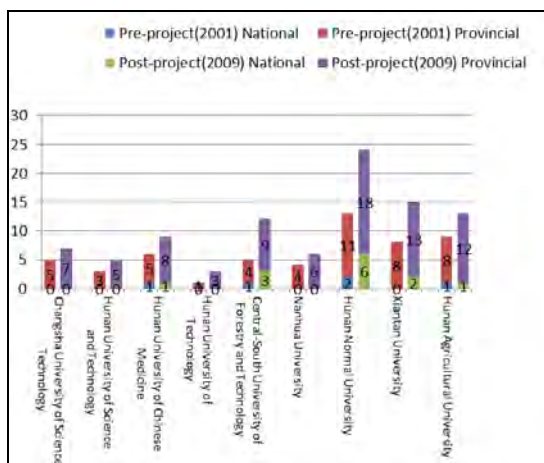
Source: JICA appraisal documents, Responses to the questionnaire

Note: The figures in baseline and target of Hunan University of Science and Technology are ones of Xiangtan Polytechnical University. The figures in parenthesis are from Xiangtan Normal University.

(6) Designation of Key Faculties¹⁴ and Key Laboratories¹⁵

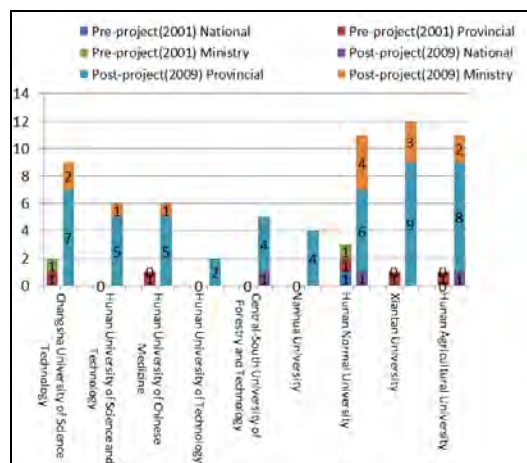
The number of faculties or laboratories designated as key faculties and key laboratories in all the target universities increased compared to the figures at the time of appraisal. Regarding key national faculties, Project 211 universities account for 94% of the first level key faculties and 79% of the second level key faculties¹⁶. However, each two faculties in Central-South University of Forestry and Technology and Xiantan University, which are not designated as Project 211 universities, are newly designated as the key national faculties. This is because these universities deserve to raise their research and education to the national highest level. As to key laboratories, Central-South University of Forestry and Technology and Xiantan University were also newly designated as national level key laboratories.

The number of key provincial faculties and laboratories has drastically increased in all the target universities. It should not be surprising that the number of designation increases, because Hunan Provincial Education Department chosen the target universities from the excellent universities to which Education Department intensively provides support. As seen above, the research and education in the target universities has been improved by designation of key faculties and key laboratories.



Source: Responses to the questionnaire

Figure 3: Number of Key Faculties



Source: Responses to the questionnaire

Figure 4: Number of Key Laboratories

Although the indicators on educational environment such as the lecturer to student ratio and the floorage per student are deteriorating in some universities due to the rapid increase of the students at the time of ex-post evaluation, according to the level of enrollees, the graduate school enrollment rate, university graduation rate and employment rate, the deterioration does

¹⁴ Key national faculties have been established by Ministry of Education since 1988 in order to invest intensively to universities and /or faculties suitable for the center of innovation human development and scientific research. Key national faculties have been selected three times until now. In the third selection in 2007, 967 faculties were certified or re-certified across the country. Key faculties certified by provincial education departments or ministries other than Ministry of Education (e.g. Ministry of Agriculture) are called provincial key faculties and ministry-level key faculties, respectively.

¹⁵ The Chinese government, especially Ministry of Science and Technology, Ministry of Education and Chinese Academy of Sciences, began Key National Laboratories Project in 1984 in order to improve basic research and catch-up to the world level. Affected by key national laboratories, ministries' or provincial key laboratories including Ministry of Education key laboratories and Chinese Academy of Sciences key laboratories have been established one after another. Today, there are 220 key national laboratories and six national laboratories including planned laboratories. Japan Science and Technology Agency China Research Center Webpage (as of July 22, 2011): http://www.spc.jst.go.jp/science_policy/chapt3/3_01/3_1_2/3_1_2_3/3123_5.html

¹⁶ Japan Science and Technology Agency China Research Center, 2011, "2010 Current Situation and Trend of Higher Education in China" (「平成 22 年版 中国の高等教育の現状と動向本文編」), p.43 Table 2-1-8

not have serious negative impacts on academic performance. The indicator illustrating the students' level continues to be high or has improved. From the number of key faculties and laboratories, the research level is improving. The university buildings and equipment are assessed in designating key faculties and laboratories so that the project strongly contributes to the increase in the number of designation. The quality of education and research has also improved; therefore the project contributes to improvement to a certain degree.

3.3.1.2 Results of Calculations of Internal Rates of Return (IRR)

Due to the fact that data needed for quantitative analysis was not available, analysis for the internal rate of return was not possible.

3.3.2 Qualitative Effects

According to responses to the questionnaire, many target universities provide the opinion that they have perceived some changes in education and research and/or students' job hunting as a qualitative effect of the project, although it cannot be quantitatively indicated.

3.3.2.1 Changes in Education and Research

A representative opinion on the changes in education and research is that the level of education and research has been improved since the preconditions for the education and research were improved by development of buildings and equipment under the project. The similar opinion is that scientific experiment classes have increased.

It has been generally pointed out that the quality of education has been deteriorating in China because lecturers cannot keep personal attention to their students due to the increase of students and classroom lectures are mainly conducted instead of experiments and laboratory work¹⁷. However, the level of education and research has been improving due to the increase of experiments by development of buildings and equipment under the project. This point can be appreciated.

3.3.2.2 Changes in Students' Job Hunting

Regarding the students' job hunting, the employment rate has stayed at a high level, as mentioned above. In addition, the project effect is highly admired from the aspect of capacity building of the students. For example, work-ready graduates can be developed by strengthening students' practical abilities through experiments and laboratory work. Or the increase of experiments contributes to developing the students' practical abilities so that the competitiveness of students' job hunting is augmented. From these, it is assumed that human resources that meet social demands have been fostered by utilizing buildings and equipment developed under the project.

This project has largely achieved its objectives; therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

The project aimed to give an impact on market-oriented economic reform and improvement of disparities. In addition, one of the objectives of the training program was to promote mutual understanding between Japan and China although it was not clearly mentioned in the project objectives.

3.4.1.1 Impact on Market-oriented Economic Reform and Improvement of Disparities

In the appraisal documents, the number of graduates who studied accounting, law, and finance was suggested as an indicator for the impact on market-oriented economic reform.

¹⁷ "Pacific-rim Business Information" (「環太平洋ビジネス情報 RIM」), 2008 Vol.8 No.28, p.57

During the site survey, the number was confirmed, but it fluctuated from year to year and did not increase equally. In addition, the careers of students after graduation were unknown. Therefore, it was difficult to evaluate the impact, or how their knowledge benefits the society.

As regards improvement of disparities, there were some opinions that the project contributed to disparity adjustment of universities between the coastal areas and the inland areas, however there is not any concrete indicators to show how much the disparities have been corrected.

Box 2: Approaches to Rural Development

—Central-South University of Forestry and Technology—

Central-South University of Forestry and Technology concluded the agreement on industry-academia-government collaboration with Shuangpai County, Yongzhou City, Zhuzhou County, Zhuzhou City, Zixing, Chenzhou City and Yiyang etc. in Hunan Province. The university dispatches engineers to these counties every year and supports the increase in production and income of forestry labors.

The university also provides assistances to other provinces: e.g. it has continuously dispatched six vice governors in charge of science and technology to Luanchuan County, Henan Province, since 1993. In Luanchuan County, the university intensively supports economic forestry development, bamboo processing/ furniture manufacturing, forest ecosystem development and ecotourism. Approximately 1,167 hectares of low fertility forestry were improved from 2008 to 2010, and excellent camellia oleiferas were extended to around 33,300 hectares in Hunan Province, Jiangxi Province and Fujian Province. These projects have notable socioeconomic impacts. In October 2010, the cooperation agreement was concluded between the university and People's Government of Luanchuan County. It is expected that the project will contribute to rural development by utilizing the advantages of both parties and sustaining the project effects more through regular opinion exchanges and personnel exchanges.



Engineer who gives instruction for planting camellia oleiferas in Shuangpai County
(Photo: Central-South University of Forestry and Technology)

3.4.1.2 Mutual Understanding between Japan and China

There are some distinguished examples of utilizing the fruits of training in Japan as follows: 1) academic publication of research results as academic papers or books, 2) acquisition of patent for collaboration research results in Japanese enterprise, 3) the first success of transplantation in China after the clinical training in Japan, 4) promotion to a core professor in Japanese course, and 5) receiving domestic and foreign/ provincial awards by the research results. Generally speaking, however, most of the lecturers regard it as their fruits that they absorb the research methods and attitudes during their stay in Japan and put them into practice after they return.

The training program might have limited effectiveness in terms of research results. Nevertheless, it is assumed that the program has produced the results in a broad sense. The project made a substantial contribution to deepening the understanding toward Japan and the understanding of receiving universities in Japan toward China. The training program has strengthened the exchanges between Japanese universities and Chinese universities. For instance, Hunan University of Technology and Nanhua University invited Japanese professors for academic lectures even after the project. Hunan University of Science and Technology enhances cordial relationships with Seisen University. In 2008, Xiantan University concluded the framework agreement with Doshisha University with which the project activated the exchange. Central-South University of Forestry and Technology also concluded the faculty-level academic agreement with University of Toyama.

3.4.2 Other Impacts

(1) Impacts on the natural environment

The Environmental Impact Assessment (hereinafter referred to as EIA) was conducted prior to the project implementation in accordance with the Chinese regulations. "Three-Stage Simultaneous" implementation (i.e. regulation that environmental protection facilities shall be designed, constructed and put into production simultaneously with main construction structures)" was envisioned.

Based on this regulation, noise-abatement measures, appropriate sewage treatment and waste disposal were conducted by each university during the implementation period. Environmental facilities such as a waste water treatment plant were constructed until the project completion, as necessary, and the environmental facilities were operated at the same time as the beginning of use of buildings and equipment. All the target universities took necessary environmental protection measures including environmental monitoring at each stage, namely design, construction and operation. Like this, "Three-Stage Simultaneous" was smoothly implemented. At the time of ex-post evaluation, the negative impact on environment is not observed, according to the universities' responses to the questionnaire, interviews with the persons in charge, and visual confirmation at the sites.

(2) Land Acquisition and Resettlement

The project will be carried out on existing university properties, so there was no land acquisition or relocation of residents.

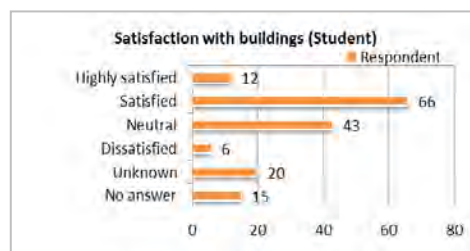
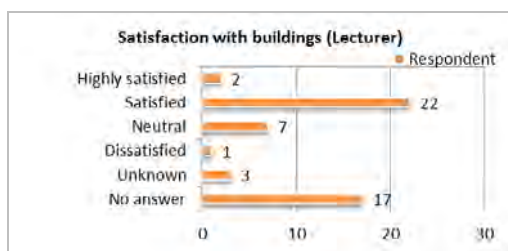
Although the impact on market-oriented economic reform is unclear, it is assumed that the project has a certain contribution to disparity adjustment between the coastal areas and the inland areas. The project has a major impact on mutual understanding between Japan and China. The negative impact on environmental and social aspects is not observed.

Box 3: Beneficiary Survey

The questionnaire survey targeted 52 lecturers and 164 students in nine target universities was conducted in order to confirm their satisfaction with each component of the project and their demands for future academic exchanges between Japan and China. The lecturers were limited to participants in the training program in Japan.

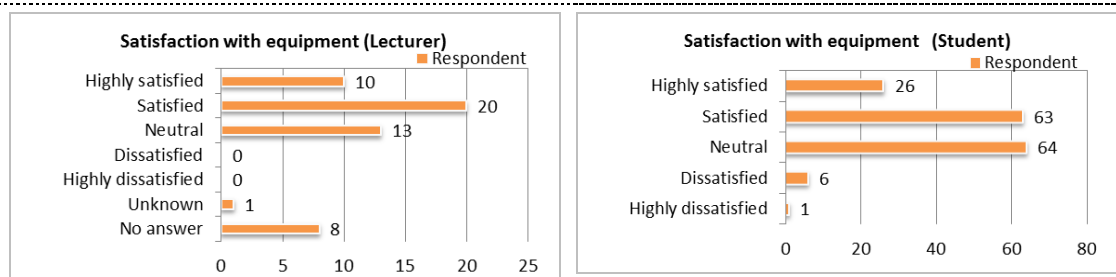
(1) Construction of Buildings

According to the responses, many of both lecturers and students are satisfied with constructed buildings.

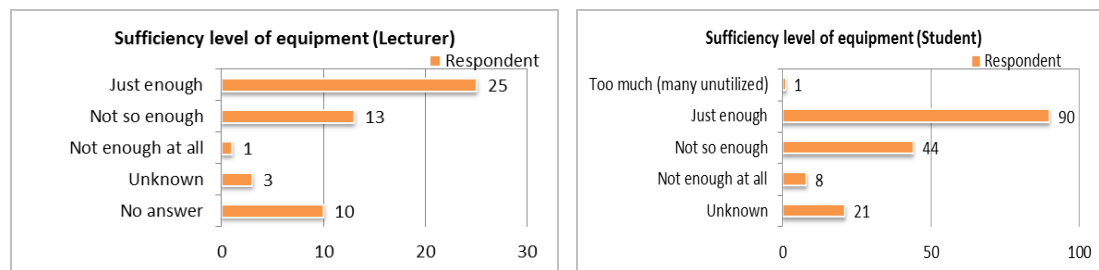


(2) Education and Research Equipment

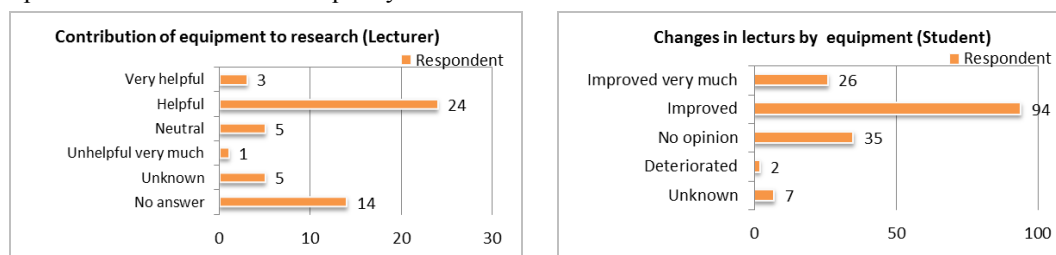
Equipment is not a key determinant of enrollment for students. However, 55 percent are satisfied with the equipment. 58 % of the lecturers are also satisfied with them.



Half of the students and lecturers answered “just enough” to the question of the equipment sufficiency.

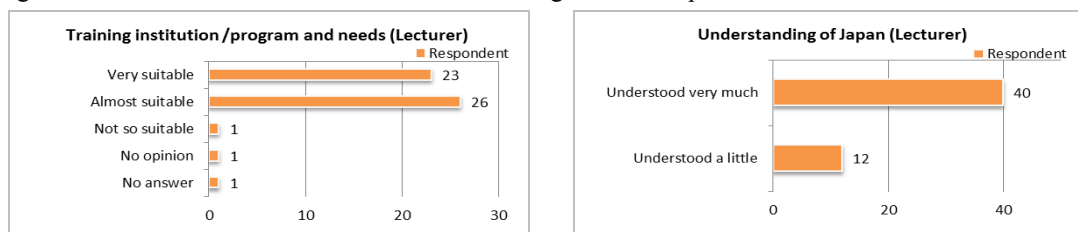


Students who feel the improvement in the quality of classes by the procured equipment account for 73% (including “improved” and “significantly improved”). It is assumed that the project contributes to the improvement of the quality of education to some extent. Regarding the question on contribution of the procured equipment to their research, 52% of the lecturers answered “very helpful” and “helpful”. So it can be said that the project also has made a certain contribution to the improvement of their research quality.



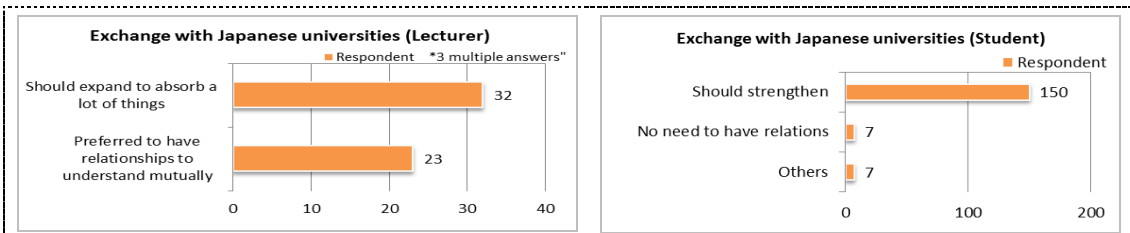
(3) Training

It was asked to lecturers whether the training institutions and training program met with their demands. 92 % of the respondents said “very suitable” and “almost suitable”. It shows high level of satisfaction with the training. And all the respondents answered “deepened” to the question on the changes in the understanding toward Japan after participating in the training. The project resulted in significant contributions to the mutual understanding between Japan and China.



(4) Academic Exchange with Japanese Universities

101 students out of 164 (61.6%) responded as “interested” to the question on their interest in Japan. It greatly exceeded 51 responses of “uninterested” (31.1%). Their interests in Japan are varied: education system and circumstances in Japan (responses: 66), economic policy and Japanese private sector (ditto: 54), fashion and lifestyle of the young Japanese (ditto: 53), acceptance of international students in Japanese universities (ditto: 44), political climate and diplomatic policy (ditto: 42) etc.



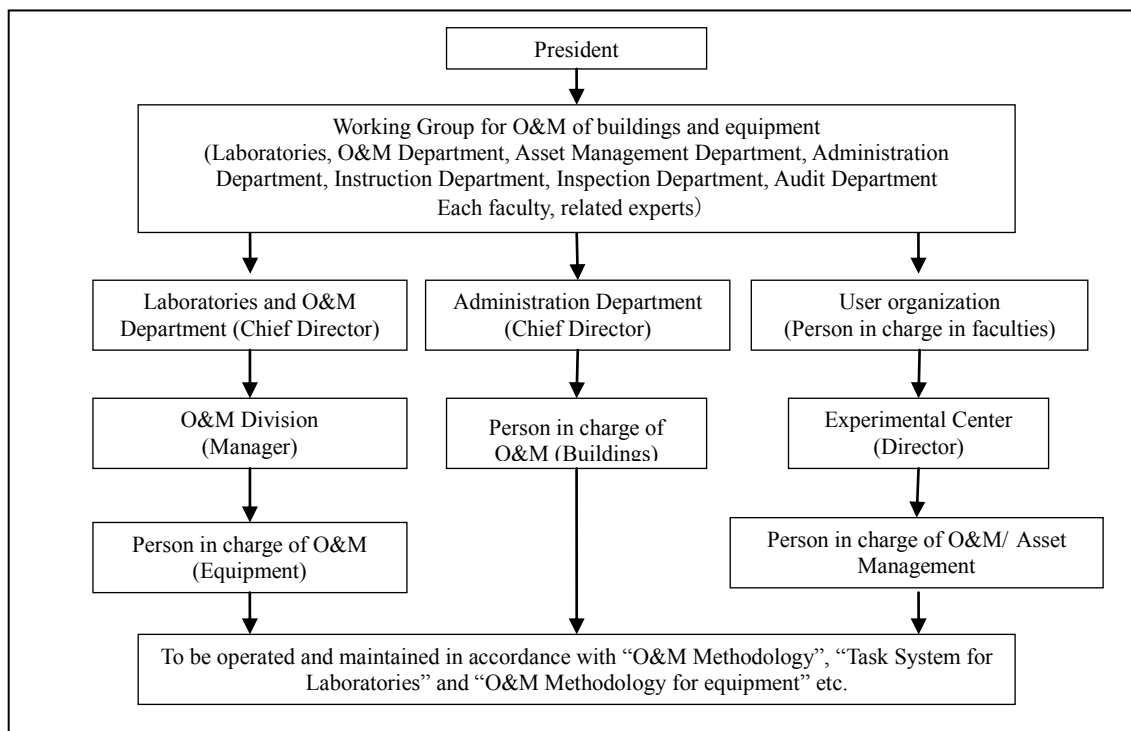
It was asked whether the academic exchange with Japanese universities should be expanded. Most of the lecturers and students recognized that they should expand. The opportunities to exchange with Japanese universities are expected to expand deeper exchange in the future.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

There are already the operation and maintenance (hereinafter referred to as O&M) systems in every university, although there are some differences in their organization name and department.

Figure 5 is an example of Xiantan University. Other universities also have the similar O&M structure. The responsibilities are clearly shared by departments or persons in charge, in each university. The O&M methods are also systematized and the inspections and maintenance are regularly implemented.



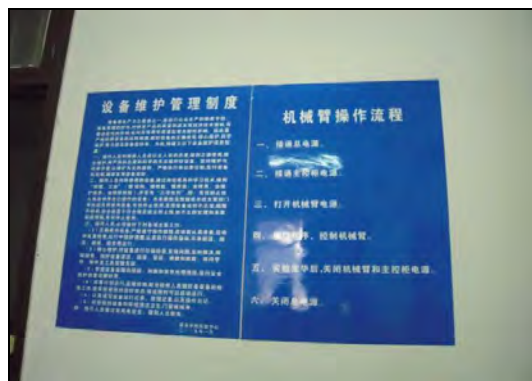
Source: Responses to the questionnaire

Figure 5: Representative O&M Structure

3.5.2 Technical Aspects of Operation and Maintenance

The O&M training has been conducted in six out of nine target universities. It continuously maintains the technical level of their staff. When needed, the repair works are outsourced.

The O&M manuals are prepared in seven out of nine universities. Lecturers and students are familiarized with the user policies and operation procedures due to the posters which are put on the walls by equipment for everybody (photo).



Poster on user policies and operation procedures

3.5.3 Financial Aspects of Operation and Maintenance

According to the self-evaluation of each university, the O&M budget is sufficiently allocated. There is no opinion that they have difficulties due to the insufficient O&M budget in the interviews with university staff¹⁸.

Table 9: O&M Budget of the Target Universities

Year	Unit: yuan		
	2008	2009	2010
Nanhua University	1,126,000	1,071,000	1,379,600
Xiantan University	1,900,000	1,900,000	1,900,000
Hunan Normal University	300,000	300,000	300,000
Changsha University of Science Technology	1,050,000	1,650,000	2,100,000
Hunan University of Science and Technology	2,200,000	2,320,000	2,500,000
Hunan Agricultural University	1,000,000	1,000,000	1,000,000
Central-South University of Forestry and Technology	2,283,455	2,303,178	2,484,394
Hunan University of Technology	3,845,000	3,420,000	1,650,000
Hunan University of Chinese Medicine	500,500	650,000	720,000

Source: Responses to the questionnaire

The increase in the O&M expense is expected after the warrantee expiration of sophisticated equipment procured under the project. According to the target universities and provincial education department, it is not a problem since the budget will be allocated by provincial government or as a part of academic fees in accordance with their maintenance plans.

3.5.4 Current Status of Operation and Maintenance

The utilization ratios of buildings are very high, from 90% to 100%.

The operation rates of equipment are also very high with 82.2% for regular equipment on average and 75.2% for large-scale facilities on average. Generally, there is much special equipment for particular fields in universities so that the operation rate for large-scale facilities tends to be low. However, Hunan Province established common platform on campus LAN and makes an effort to raise the operation rate by open register for all of the equipment in order to avoid low rate of operation. So far, the common platform is established in each university. However, it is now restructured to share the platform over the province. If it is completed, the operation rate will make further improvement.

¹⁸ The budgets are executed as planned. For instance, the average budget execution rate in Hunan University of Science and Technology over the last 3 years is 93.2% and 100% in Hunan Agricultural University, Central-South University of Forestry and Technology and Hunan University of Chinese Medicine. According to these universities, the O&M problems have never been caused by budgetary deficit.

No major problems have been observed in the operation and maintenance system, therefore sustainability of the project effect is high.

Table 10: Operation Rate of Equipment

Unit: %

University	Large-scale equipment	Regular equipment
Nanhua University	85	100
Xiantan University	87	92
Hunan Normal University	86	75
Changsha University of Science Technology	75	80
Hunan University of Science and Technology	62.5	67.5
Hunan Agricultural University	70	80
Central-South University of Forestry and Technology	78.5	Not procured
Hunan University of Technology	62	75
Hunan University of Chinese Medicine	71.5	88

Source: Responses to the questionnaire

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The project objective was to improve higher education in Hunan Province quantitatively and qualitatively by supporting construction of buildings, procurement of equipment and teachers' training in the target universities. This objective has been highly relevant to the country's development plan, development needs, as well as Japan's ODA policy; therefore its relevance is high. The outputs were essentially completed in line with the initial plans, but the project cost slightly exceeded the plan, while the project period significantly exceeded the plan; therefore efficiency of the project is low. Based on the information gathered during this evaluation work, although the indicators on educational environment are deteriorating in some universities due to the rapid increase in the number of the students, its effectiveness is high because of improvement of all the indicators on academic performance and research level. No major problems have been observed in the operation and maintenance system; therefore sustainability of the project effect is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Necessary measures for the universities which cannot keep up with increase of the students in terms of development of buildings and equipment and increase of lecturers should be considered in order to maintain the project effect.

4.2.2 Recommendations to JICA

The sustainability is very high in terms of building construction and equipment development because of the proper O&M structure in the executing agency and the target universities and no particular problem with technical and financial aspects. With regard to the training component, however, most of the trainees often cannot maintain the relationships with Japanese researchers, which were built under the project, although there are some cases where the cooperation agreements have been concluded and some trainees have occasional contact with the academic supervisors in Japan. It is advisable to provide support to establish the

framework for enhancement of academic exchange through restructuring of the existing webpage on the Higher Education Development Project for China into the site for information exchange among researchers and organization related to the project.

4.3 Lessons Learned

The training component did not progress as expected at the beginning of the project due to the difficulty of matching between trainees and trainers. It is necessary to incorporate the matching organization into the project structures, if the training is one of the components of a project and if it is necessary.

This project targeted only nine universities (the target universities were 11 at the beginning, but it became nine due to mergers, etc.) out of a total of 100 universities in Hunan Province. Nevertheless, many indicators for effectiveness were set beyond the outcomes of the project at the time of appraisal. In order to measure the primary effectiveness of the project, the indicators should be set properly within the project outcomes. Furthermore, it is necessary to share common perceptions on the indicators with executing agencies and implementing agencies. The monitoring system for the effective indicators should be established during the project implementation.

Generally, there is much special equipment for particular fields in universities so that the operation rate for large-scale facilities tends to be low. However, Hunan Province established common platform on campus LAN and made an effort to increase the operation rate by open register for all the equipment in order to avoid low rate of operation. In the project that the equipment procurement is planned, it is recommended to introduce the similar online reservation system for equipment to the Hunan campus LAN system in order to increase the operation rate.

end

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs		
(1) Building Construction	11 universities: 238,208m ²	9 universities: 257,141m ²
(2) Equipment procurement	10 universities: 2,970 items	9 universities: 2,923 items
(3) Training	11 universities: 318 staff	9 universities: 239 staff
2. Project Period	March 2002 – March 2005 (36 months)	March 2002 – Jan 2009 (81 months)
3. Project Cost		
Amount paid in foreign currency	4,682 million yen	4,361 million yen
Amount paid in local currency	2,436 million yen (162.4 million RMB)	4,478 million yen (331.7 million RMB)
Total	7,118 million yen	8,784 million yen
Japanese ODA loan portion	4,682 million yen	4,361 million yen
Exchange rate	1 RMB = 15 yen (As of Sep. 2001)	1 RMB = 13.5 yen (As of Dec. 2009)

Box: Greater Mutual Understanding between Japan and China
— Training in Japanese Universities —

The projects on higher education targeted at 22 provinces, cities and autonomous regions including Shaanxi and Hunan have been implemented with ODA Loan although only sixteen universities in Shaanxi province and nine universities in Hunan province, which had already passed two years since the project completions, were evaluated in this year.

Cooperation from institutions such as universities and municipalities is essential in training in Japan. Training has been conducted in 311¹ national, public and private universities and research institutions. With the cooperation of such institutions, the projects make great contributions to mutual understanding between Japan and China.

1. Questionnaire Survey of Japanese Universities

The questionnaire was sent to a total of 259 universities, all the national universities and the member universities of Japan Association of Municipal and Prefectural Colleges and Universities and Association of Private Universities of Japan Information, excluding universities located in disaster-affected areas (Iwate, Miyagi, Ibaraki, and Fukushima), and 89 responses (collection rate: 34%) were received.

Of these, 27 universities have accepted trainees from China under the Project. To accept the trainees under the Project is different from the acceptance of international students or visiting researchers under the existing system for many Japanese universities. Therefore, 12 out of 27 universities have established new systems for the Project such as preparation of “Regulations for Higher Education Project for China”

Most responses to the question on difficulties concerned trainees’ language abilities. There were a number of answers like “if the trainee had an ability of Japanese or English, the training would be more fruitful”, in the open-response. There were also many responses that the training was not very fruitful due to the research level. It is because the target universities were chosen from the universities located in inland areas in accordance with the project objectives of the disparity improvement between the economically-advanced coastal area and the inland area. On the other hand, the results of the interviews with Chinese lecturers who participated in the training program showed their satisfaction with their experiences of studying both mental side such as research attitudes and technical side such as research methods from Japanese researchers.

Unit: Respondent (multiple-choice/ multiple answers were allowed)

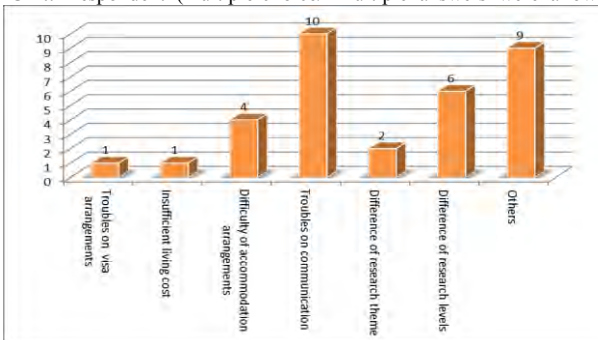


Figure 1: Difficulties in Accepting Trainees

Unit: Respondent (multiple-choice/ multiple answers were allowed)

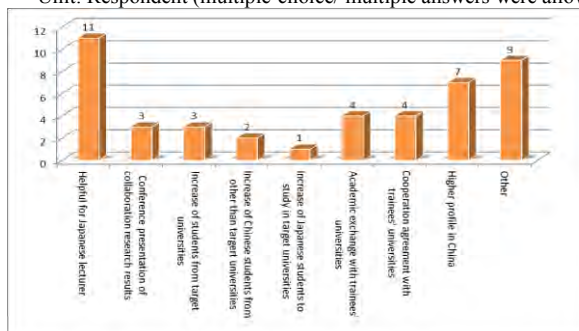


Figure 2: Advantages of Acceptance

To the question about universities’ advantages of trainee acceptance, the answer, “it was helpful for the professors in charge of the acceptances”, was the majority, followed by

¹ As of September, 2010. JICA documents.

“the university became more popular in China”. There are 86,173 Chinese students, or 60% of all international students studying in Japan as of May 1, 2010². Recently, China overtook Germany and was ranked second internationally in terms of the number of publicized science research papers³. Under these circumstances, it is assumed that the importance of collaboration with Chinese universities has been growing in Japanese universities. 37 out of 47 universities which answered “they did not know the Project” said that they were interested in accepting trainees under the Project. It demonstrates the high level of interest in China among Japanese universities.

27 universities accepting the trainees under the Project were asked whether the Project contributed to mutual understanding between Japan and China. Of these, 20 universities answered “yes” and 7 universities answered “yes and no”. From this, it is considered that the Project has made a certain contribution to mutual understanding between Japan and China”.

There are 32 universities which know the Project out of all respondents. It is still only 42 even if the universities which know only the project name are included and is less than 47 universities which answered “they did not know the Project at all”. It shows that the Project is not known commonly. There are some opinions like “although the Project has profound significance in cultural exchange, the problem is that it is not popularly recognized. It needs more publicity activities”. Ten years have passed since commencement of the first higher education project for China. During this time, personnel changes in Japanese universities were made so that the administration staff who answered the questionnaire might not be familiar with the Project. The survey result may be affected by this. However, the Project is still implemented in some provinces. Moreover, the mutual understanding and exchange between Japan and China are major impacts of the Project. Therefore, it is very important to make more people recognize the Project itself and its outputs. In the conduct of the exchange program, public relations play an important role. It is recommended that more effective public relations will be implemented in future similar projects by leveraging this experience.

2. Training Programs in Japanese universities ⁴

4,434 Chinese lecturers and administration staff have participated in training programs in about 300 Japanese institutions ⁵. Around one third of these trainees took special courses⁶, established in some Japanese universities for the Project, and the others took tutorials at universities or research institutions.

910 trainees attended at the University Management Special Program for executives in Chinese universities, established in Ritsumeikan University (as of the end of March, 2010). It is considered that the program met the Chinese needs to learn how to manage universities under the higher



Ritsumeikan University: Management Special Program

² Japan Student Services Organization http://www.jasso.go.jp/statistics/intl_student/data10.html (As of July 14, 2011)

³ Thomson Reuters, 2009, “Global Research Report China”.

⁴ The cooperation of Kyoto Prefectural University, Chuo University, Tokyo Keizai University and Ritsumeikan University could be gained for the ex-post evaluation.

⁵ As of September, 2010. JICA documents.

⁶ JICA accepted the proposals on the preparation of special courses for Higher Education Project for China as a part of promotion of project implementation. As a result, the special courses were established in Kyushu University, Kyoto Prefectural University, Kobe University, Chuo University, Teikyo University, Tokyo Keizai University, University of Toyama, Hokkaido University, Ritsumeikan University, Yamaguchi University and so on.

education reform, which has been promoted since the late 90s in China. The program consists of lectures and fieldwork in Japanese enterprises as well as active exchanges with the university staff such as welcome party where the staff and the trainees sing famous songs from both countries. Chuo University and Tokyo Keizai University also conducted training programs on university management for executive staff such as chancellors and deans with consideration of Chinese demands. Chuo University has accepted 8 groups, or a total of 167 trainees from Yunnan Province and Xinjiang Uyghur Autonomous Region. And Tokyo Keizai University has accepted 15 groups, or a total of 378 trainees from Guizhou Province, Yunnan Province and Jiangxi Province.

Kyoto Prefectural University developed the special course on regional development. Unfortunately, the university could not continue to open the course because the administration cost for the preparation of the program was bigger than the capacity of the implementation structure in the university. After that, however, Kyoto Prefectural University concluded the exchange agreement with universities in Yunnan Province, in the wake of the relationships established through the Project, and accepts two students from Yunnan every year while sending Japanese students to Yunnan. Like this, the exchange between Japan and China has been deepened in Kyoto Prefectural University. It was a common problem among universities, which developed courses for specific themes, that they often could not continue the courses because they had difficulties recruiting trainees who wanted to study in the same theme.

A lot of time and cost are needed for the preparation of the training course. Under this circumstance, there is a homelike example that Tokyo Keizai University invited the trainees to the home party so that the trainees could stay more comfortably in Japan and go back home with sweet memories. Many universities mobilized students as assistants of the training course. It promoted deeper exchange between Japan and China and provided good experiences for Japanese lecturers and students.

The Project has made positive impacts on strengthening structure and internationalization in Japanese universities through revision of decision making process and enhancement of international exchange departments for special causes. Furthermore, universities located in Tama area including Chuo University and universities in Yunnan province have begun to discuss wide-area collaboration. They are considering the experimental student exchange at the moment.

Although the Higher Education Project in China will be finished in a few years, there are some self-sustaining examples such as Ritsumeikan University, which has started to accept trainees attending the program at their own expense in response to Chinese demands. It is expected that the relationships between Japanese universities and Chinese universities established by the Project will expand and deepen in such a self-sustaining manner from now on.

People's Republic of China

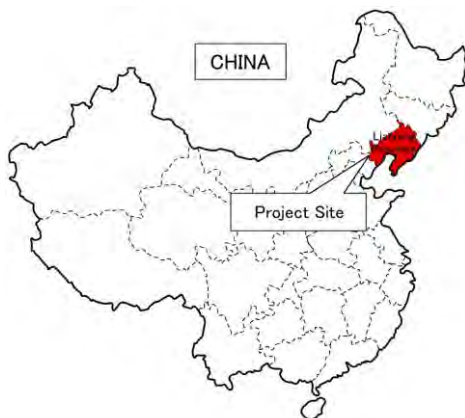
Ex-Post Evaluation of Japanese ODA Loan Project “Liaoning Television and Radio Infrastructure Improvement Project”

External Evaluator: Toshihiro Nishino, International Development Center of Japan Inc.

0. Summary

The objective of this project was to upgrade the programme making equipment and systems and to improve the programme transmission systems for television and radio broadcasters in Liaoning province, thereby improving the quality and quantity of independently produced programmes and facilitating the inter-city transmission of information in the province. As this objective of the project matched the development policies of the country and province at the time of both appraisal and ex-post evaluation, the relevance of the project was high. While the intended outputs have generally been achieved as planned, the lengthy extension of the project period has made the project efficiency fair. The introduction of the latest equipment and subsequent effective use of such equipment have led to a noticeable improvement in the quality and quantity of independently produced programmes as well as information provided in the province. The newly broadcast programmes and information have not only had a significant impact on the lives of the audience in the province but have also had the effect of making enterprises aware of and use television and radio broadcasting as very important advertising media. As such, the project has achieved a high level of effectiveness. No problems have been observed in terms of the structural, technical and financial aspects of the project, illustrating its high level of sustainability. In light of the above, this project is evaluated to be highly satisfactory.

1. Project Description



Project Location



New Equipments Provided
Under the Project

1.1 Background

TV broadcasting services in China have taken great strides forward nationwide following the introduction of the policy of reform and opening doors in 1979 to the point that more than 90% of households owned a television set by 2001, illustrating the progress made in terms of service coverage and the development of broadcasters from the technical and other aspects. However, there are areas which are unable to receive disaster information as well as political, economic and social information in a timely manner due to insufficient broadcasting equipment and systems. This situation demands both the production of programmes which meet the needs of viewers and a reliable information service.

In Liaoning Province, i.e. the target region of the project, the Liaoning Broadcasting and Television Bureau (at the time of project implementation) has considerable influence in the region with three television channels and five radio channels. However, as its programme production technologies were not only insufficient but also out-dated, the quality of its programmes had room for improvement. Moreover, given the fact that the link between the regional broadcasting stations operated by the Bureau was insufficient, there was a pressing need for information sharing through the development of a network to allow regional broadcasters to efficiently and effectively use the programmes and other useful information possessed by individual broadcasters.

1.2 Project Outline

The objectives of the project were (1) to improve both the quality and quantity of independently produced programmes and (2) to facilitate the inter-city transmission of information by upgrading the programme making equipment of television broadcasters (Liaoning Television (LTV) and Liaoning Educational Television (LETV)), rebuilding the deteriorated radio station building, upgrading the programme making equipment of Radio Liaoning (RL) and improving the programme transmission systems, thereby contributing to (1) increased use of various types of information by local people, (2) improvement of the education standard in remote areas through the broadcasting of educational programmes, (3) rectification of the information gap through the strengthening of information access in deep inland areas and (4) improvement of the cultural (and economic) standard of local people.

Loan Approved Amount/Disbursed Amount	3,210 million JPY/3,205 million JPY
Exchange of Notes Date/Loan Agreement Signing Date	March, 2001/March, 2001
Terms and Conditions	Interest rate: 1.8%/year Repayment period: 30 years (Grace period: 10 years) Procurement conditions: general untied
Borrower/Executing Agency	Government of the People's Republic of China/Liaoning Provincial Administration of Radio, Film and Television (LPARFT)
Final Disbursement Date	July, 2008
Main Contractor (over 1 billion JPY)	None
Main Consultant (over 100 million JPY)	None
Feasibility Studies, etc.	Feasibility Study for the Liaoning Television and Radio

	<p>Infrastructure Improvement Project: Completed in May, 1999 International Engineering Consulting Corporation (approved by the Liaoning Planning Bureau in September, 1999)</p> <p>Contents: Implementation of the Liaoning Television and Radio Infrastructure Improvement Project to improve the quality and quantity of regional broadcasting to contribute to the socioeconomic development of the region. Total investment amount of RMB 543 million (RMB 40 million by the regional government and 40 million yen Japanese loan).</p> <p>Environmental Impact Assessment for the Liaoning Television and Radio Infrastructure Improvement Project: Completed in June, 2000 by the Liaoning Research Institute of Environmental Protection (approved by the Liaoning Environmental Protection Bureau in July, 2000)</p>
Related Projects	None

2. Outline of the Evaluation Study

2.1 External Evaluator

Toshihiro Nishino, International Development Center of Japan Inc.

2.2 Duration of Evaluation Study

Duration of the study : December, 2010 ~ November, 2011

Duration of the field study : 3 ~ 19 March, 2011, 12 ~ 18 June, 2011

2.3 Constraints during the Evaluation Study

No special constraints were found for the implementation of the Study.

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

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with Development Plans of China

(1) Development Plans at the Time of Appraisal

The 10th Five Year Plan (2001 ~ 2005) of the State Administration of Radio, Film and Television emphasised improvement of the capacity to produce contents, increase of the ratio of the population receiving broadcasting services, increase of the number of subscribers to cable television, enhancement of the transmission network and promotion of digitalisation.

Meanwhile, the 9th Five Year Plan (1996 ~ 2000) of Liaoning Province considered the securing of a means of producing information of a highly public nature, which is essential for the daily lives of local residents, while trying to rectify the information gap to be an important task. The following 10th Five Year Plan (2001 ~ 2005) identified the improvement of

¹ A: Highly Satisfactory; B: Satisfactory; C: Partially Satisfactory; D: Unsatisfactory

² ③: High; ②: Fair; ①: Low

equipment to locally produce high quality programmes and the development of a network of trunk broadcasting transmission lines as priority tasks. The subject project of the present evaluation was designated an important provincial project under this 10th Five Year Plan.

(2) Development Plans at the Time of Ex-Post Evaluation

The 11th Five Year Plan (2006 ~ 2010) of the State Administration of Radio, Film and Television emphasised such issues as acceleration of technological innovation in television and radio broadcasting, expansion of the service areas (geographical coverage), improvement of the reliability of broadcasting, and establishment of a system to distribute/exchange contents to achieve high quality, high efficiency broadcasting.

Meanwhile, the 11th Five Year Plan (2006 ~ 2010) of Liaoning Province maintained the policy of promoting the development of information infrastructure in new areas, capitalising on the past achievements. Provincial assistance for television and radio broadcasters continued or was even strengthened from the viewpoint of widely disseminating the social development results to the public and the viewpoint of strengthening the preparedness as well as capacity to respond to various disasters in order to contain damage. At present, the details of the 12th Five Year Plan (2011 ~ 2015) are still in preparation but the basic policies are expected to be maintained according to the Liaoning Provincial Administration of Radio, Film and Television.

3.1.2 Relevance with Development Needs of China

(1) Importance of Television and Radio Broadcasting as Sources of Information

China has been witnessing the expansion of information sources in terms of both coverage and numbers with a steady increase of the total number of television and radio broadcasting hours in Liaoning Province as in the case of the rest of China.

Table 1 Number of Television and Radio Broadcasting Hours in China and Liaoning Province (2009)

	Nationwide		Liaoning Province	
	Television	Radio	Television	Radio
Broadcasting Hours	15.777 million hours	12.266 million hours	670,000 hours	699,000 hours
Year-on-Year	+ 5.5%	+ 5.5%	+ 0.5%	+ 2.8%

Source: 2009 Report on Development of China's Radio, Film and Television

The user survey³ conducted as part of the study found that television and radio rank first and second on the list of media and information sources frequently used in daily life and their usage is increasing, confirming the importance of these two types of media even when compared to new information sources, including the Internet.

³ This user survey was conducted by the evaluator with 100 television viewers in Liaoning Province.

Table 2 Usage of Information Sources

Category	Television	Radio	Internet
Frequently Used	99% (1 st)	83% (2 nd)	60% (3 rd)
Mostly Used	45% (1 st)	18% (3 rd)	32% (2 nd)
Increasingly Used	94% (1 st)	68% (2 nd)	49% (3 rd)

Source: User survey conducted by the evaluator.

The size of the television and radio advertising market has been rapidly growing in China as well as Liaoning Province, indicating the growing need for television and radio advertisements from the viewpoint of promoting the national and local economy and industries.

Table 3 Television and Radio Advertising Market in China and Liaoning Province

	Nationwide		Liaoning Province	
	Television	Radio	Television	Radio
Advertising Revenue	67,580 million RMB	8,140 million RMB	1,710 million RMB	510 million RMB
Year-on-Year	+ 10.9%	+ 12.8%	+ 9.5%	+ 12.2%

Source: 2010 China Radio and TV Yearbook

(2) Necessity for the Project

At the time of appraisal (2001), the available programme making equipment and systems were not only insufficient but were also out-dated at LTV, RL and LETV, all of which consequently suffered from a poor programme making capacity. As it was difficult for these broadcasters to make their own programmes to meet the needs of the local audience, the replacement of equipment and systems with more advanced equipment and systems was an urgent priority. Another pressing issue along with the qualitative and quantitative improvement of the programmes was the development of a programme distribution network in view of the fact that only approximately 50% (excluding those connected to the cable television network of each local station) of the provincial population could receive high quality broadcasting for all free terrestrial television channels.

Upgrading of the programme making equipment and systems and the development of socioeconomic infrastructure to contribute to the independent economic development of the province were highly relevant with the development needs of the province. In consideration of the strong need for television and radio broadcasting services, the renewal and expansion of broadcasting equipment and systems and of the distribution network continue to be very important today.

3.1.3 Relevance with Japan's ODA Policy

Japan's Medium-Term Strategy for Overseas Economic Cooperation Operations (JBIC) has identified the development of social and economic infrastructure contributing to the process of self-help economic development as one of the priority areas for cooperation. The country-specific ODA policy indicates the preferred assistance for both the hardware and software aspects of the IT revolution in the communication sector. Meanwhile, the IT Charter adopted at the Kyushu-Okinawa Summit in July, 2000 selected "the building of ICTs infrastructure and the provision of assistance for network establishment" and "promotion of the use of ICTs in development assistance" from Japan's Comprehensive Cooperation Package to Address the International Digital Divide as the main targets.

As the upgrading of equipment, etc. under the project played a vital role in fulfilling these policies, the relevance of the project with the aid policies at the time of appraisal is very high.⁴

Through the implementation of the project, the very high reliability of Japanese equipment and technologies in the broadcasting sector was illustrated by the fact that the project executing agency requested the procurement of equipment from specific Japanese manufacturers. The project was, therefore, highly relevant with Japan's ODA policy from the viewpoint of utilising the unique technologies developed by Japanese companies.

The project has been highly relevant with China's own development plan, development needs as well as Japan's ODA policy; therefore its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

The project aimed at improving the broadcasting equipment and system for local television and radio broadcasters and the network of trunk broadcasting transmission lines and its main outputs are described below.

- LTV: (1) outdoor broadcasting van system; (2) outdoor satellite van system; (3) digital video camera system; (4) editing equipment
- LETV: (1) digital video camera system; (2) editing equipment
- RL: (1) outdoor broadcasting van system and outdoor audio recording van system; (2) editing equipment; (3) construction materials
- LRTTBC (Liaoning Radio and TV Transmission and Broadcasting Center): (1) digital transmission system; (2) optical fibres

Compared to the original plan, several changes were made as listed in Table 4. The principal changes were (1) the addition of equipment for broadcasting transmission network improvement due to a policy change and (2) the change of equipment to be procured due to the progress of technological innovation. These changes were accepted and implemented after thorough discussions between the executing agency and the JICA.

⁴ There were some differences with the priority areas of the recommendation put forward by the Forum for Desirable Economic Cooperation for China Towards the 21st Century (basis for the Economic Cooperation Programme for China formulated in October, 2001) in May, 2000. The identified areas are assistance for reform and door-opening (integration to the world economy and strengthening of governance), assistance for the solving of global issues (environmental and other issues), promotion of mutual understanding, eradication of poverty, assistance for private sector initiatives and assistance for multilateral cooperation).

Table 4 Original Plan for Outputs and Subsequent Changes

Project Target	Original Plan	Changes	Reason for Changes
LTV (Production Equipment)	<ol style="list-style-type: none"> 1) Outdoor broadcasting van system 2) Outdoor satellite van system 3) Digital video camera system (for use in the new studio) 4) Editing equipment 5) Others (measuring instruments, etc.) 	<p>Equipment onboard vans (2003)</p> <p>Changes of the technical specifications, etc. for cameras and cancellation/addition of some equipment</p>	<p>It was necessary to change the equipment to match the objectives of the project due to the need to clarify the technical specifications of the equipment for tender following requests by prospective bidders and the changing needs with the passing of time.</p>
LETV	<ol style="list-style-type: none"> 1) Digital video camera system (for use in the new studio) 2) Editing equipment 3) Others (measuring instruments, etc.) 	No changes	
RL (Production Equipment; Construction Materials)	<ol style="list-style-type: none"> 1) Outdoor broadcasting van system and outdoor audio recording van system 2) Editing equipment 3) Construction materials (the civil engineering work for the construction of the RL building was paid by the Chinese side) 	<p>There were no changes to the systems and equipment to be procured under the project.</p> <p>However, part of the loan for the procurement of equipment was diverted to the procurement of construction materials and this shortfall for the procurement of production equipment was met by the executing agency's own funds.</p>	<p>This change was necessary to comply with the final disbursement date of the loan.</p>
LRTTBC (Transmission System)	<ol style="list-style-type: none"> 1) Digital transmission unit 2) Optical fibres 3) Others (emergency power supply system, air-conditioning units, measuring instruments and others) 	<p>Addition of broadcasting network improvement equipment (2005) (Package 14): optical transmission system, data coding and decoding equipment, emergency power supply system and transformer</p> <p>*The installation of the equipment after the change of the original plan (to include all countries) was not conducted in some countries due to geographical conditions and the equipment was installed at the LRTTBC instead.</p>	<p>In 2004, the central government introduced a policy of further promoting the expansion of the broadcasting service area and enhancement of the broadcasting quality as part of the measures designed to improve the living standard in rural areas. Consequently, it was decided to extend the scope of this ODA loan project and to increase the number of channels, necessitating an increase of the network capacity.</p>



Photograph 1
Newly installed equipment (LTV)



Photograph 2
Newly installed equipment (RL)



Photograph 3
Building for which construction materials were provided



Photograph 4
Newly installed equipment (LRTTBC)

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual total project cost amounted to 6,865.4 million JPY against the originally planned project cost (including additional equipment, etc.) of 6,955.7 million JPY, and was lower than planned (99% of the originally planned cost). Of this, the foreign currency portion was 3,205 million JPY which was equivalent to 92% of the originally planned amount (or 100% of the approved amount) while the domestic currency portion was 3,660.4 million JPY (255.97 million RMB).

Although there were slight changes of the cost items for the total project cost, foreign currency portion and domestic currency portion, the overall cost was within the budget, achieving an efficient procurement result. The results of the interviews with the executing agency and other stakeholders indicate that the most likely reasons why the total project cost did not exceed the originally planned cost were (1) proper functioning of the principle of

competition due to an international tender for the project components and (2) continued price decline of broadcasting equipment.

3.2.2.2 Project Period

The original plans and actual results regarding the project period are compared in Table 5. The actual periods was significantly longer than planned. Although most of the causes of the delays of completion were difficult to anticipate at the project appraisal stage, the fact still remains that the overall project period was substantially extended to more than double the originally planned period.

Table 5 Planned and Actual Implementation Periods of the Project Components

	Planned Period	Actual Period
Overall Project Period	March, 2001 ~ June, 2004 (3 years 4 months)	September, 2001 ~ June, 2009 (7 years 10 months) (35% of the planned period)
LTV	September, 2001 ~ January, 2003	September, 2001 ~ September, 2007 (Commencement of full operation in September, 2007)
LETV	September, 2001 ~ May, 2002	January, 2002 ~ December, 2003 (Commencement of full operation in December, 2003)
RL	August, 2001 ~ June, 2004	July, 2002 ~ June, 2009 (Commencement of full operation in August, 2009)
LRTTBC	September, 2001 ~ April, 2003	September, 2001 ~ December, 2006 (Commencement of full operation in December, 2006)
Commencement of Operation	March, 2004	-

The principal reasons for the delayed completion of the project are listed below.

- Delay of the construction of the radio station building: (1) revision of the plan and detailed design of the radio station building due to restrictions imposed on the exterior appearance under the Urban Planning Master Plan and (2) difficulty of securing local funding (the building was completed in early 2008)
- Delay of the work due to changes of the locations of the operation rooms and others of the LTV

There were also other factors for the delay.

- Revision of the specifications for the broadcasting equipment to accommodate technological innovations (digitalisation of video and audio recording equipment, editing equipment and data transmission equipment, increase of the capacity of the data transmission network and addition of a digital communication system)
- Provision of additional broadcasting transmission line improvement equipment

Although the project cost was within the plan, the project period was exceeded; therefore efficiency of the project is fair.

3.3 Effectiveness (Rating: ③)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

(1) Improved Quality and Quantity of Independently Produced Programmes

In regard to the “increase of the quantity” of independently produced programmes, the equipment and systems provided under the ODA loan have been fully utilised to actively produce local television and radio programmes.⁵

Table 6 Targets and Results of Operation and Effect Indicators (Quantitative Expansion)
(Indicators for which the target is set)

Indicator (Unit)	Target (2010) (Target year for LTV and RL was changed to 2015)	Result (2010)
Number of Broadcasting Hours of Independently Produced Programmes per Day (hours)	LTV: 65 hours LETV: 18 hours Radio: 186 hours	LTV + LETV: 166 hours Radio: 147 hours
Ratio of Independently Produced Programmes (%)	LTV: 22% (of broadcasting hours) LETV: 70% (of number of programmes) Radio: 96% (of number of programmes)	TV: 90% (of broadcasting hours): 166 hours/184 hours Radio: 94% (of number of programmes) 77% (of broadcasting hours)
Number of Channels	LTV + LETV: 4 Radio: 9	TV: 8 Radio: 8

Source: LRTV

Completion of the project component of providing new equipment for television and radio broadcasters has been delayed and completion is now expected to be in 2015. Nevertheless, examination of the actual achievement of the targets set at the time of appraisal reveals that the number of television channels has substantially increased (from the targeted four channels to an actual eight channels), consequently resulting in a massive increase of the number of daily broadcasting hours of independently produced programmes above the target (from the targeted 83 hours to an actual 166 hours) (target achievement ratio: 200%). These hours represent an approximate four-fold increase compared to the actual 2001 result (42 hours). The ratio of independently produced programmes has also recorded a phenomenal increase beyond the target, illustrating a major improvement.

In regard to radio broadcasting, the target had not been reached by the time of the ex-post evaluation (2011), primarily because of (1) the insufficient increase of the number of channels to the target level (target of nine channels by 2015 and an actual eight channels in 2011) and (2) approximately half of the number of broadcasting hours being filled by purchased programmes due to insufficient external human resources to produce drama and

⁵ The project executing bodies, i.e. LTV, LETV and RL, were merged in 2009 to form Liaoning Radio and Television (LRTV).

entertainment programmes (target of 186 hours and an actual 147 hours). Nevertheless, the achieved figure so far represents an increase of the actual 2001 figure of 98 hours by approximately 1.5 times (; the target achievement ratio: 79%). Meanwhile, the ratio of independently produced programmes has remained unchanged since 2001 and is slightly slower than the target (target of 96% and actual 94%).

As the actual programmes have been selected taking the needs of the audience and economic viability of operation into consideration, the actual performance in relation to each target is expected to steadily improve in the coming years.

The user survey results (Table 7) clearly indicate that the audience highly appreciates the improvements made to programmes. More than 90% of the respondents agree that both television and radio programmes have improved and more than 80% agree that concrete improvements have been made in terms of the “programme variety”, “number of programmes” and “overall broadcasting hours”.

Table 7 Evaluation of Qualitative and Quantitative Improvement of Independently Produced Programmes by the Audience

(Programme Improvement)			
	Greatly Improved	Improved	Total
Television	12%	81%	93%
Radio	12%	79%	91%

(Concrete Improvement)			
Category	Concrete Improvement	Television	Radio
Quantitative Improvement	Increased number of channels and programmes	94%	92%
	Increased programme variety	88%	97%
	Increased number of broadcasting hours	81%	88%
Qualitative Improvement	Improved programme quality in general	87%	85%
	Programmes meeting the needs of the audience	86%	92%
	Provision of extremely urgent/important information	74%	83%
	Improved quality of educational programmes	57%	65%

Source: User Survey

In regard to the qualitative improvement of independently produced programmes, significant progress is judged to have been made due to the introduction of the latest equipment as illustrated by the increased quantitative indicator values in the technical field, findings of the user survey and winning of awards by several programmes.

- The total off-air suspended broadcasting time for television and radio services due to accidents used to be just below the upper limit set by the central government before the introduction of the new equipment but has substantially improved since the introduction of new equipment to the point of zero accident off-air time in the case of the radio broadcasting service.
- In recent years, the nationwide viewing rate of LRTV’s programmes has been in the top 10 with some annual fluctuations among programmes transmitted by broadcasters in 23 provinces, five autonomous regions and four municipalities and the contents of LRTV’s programmes are highly appraised by the public.

- Although it is difficult to ascertain an accurate picture of the award-winning trend of independently produced programmes because of the fact that the total number of awards has been increasing, the number of awards received by LRTV has shown an increasing trend with an increase of the number of top and second prizes awarded.

The user survey found that some 90% of the audience agreed with “improved programme quality in general”, “meeting of audience needs” and “plentiful local information”, illustrating the highly positive assessment result of the improved programme quality by the audience.⁶

Table 8 Characteristics of LRTV

	Television				Radio		
	LRTV	CCTV	Municipal TV	Other Provincial TV	LRTV	CNR	Other
Plentiful local information	92%	20%	44%	20%	100%	15%	62%
Meeting of audience needs	79%	34%	40%	40%	87%	37%	37%
Large number of independently produced programmes	73%	44%	36%	50%	90%	60%	46%
High programme quality	56%	64%	18%	18%	69%	75%	17%
Rich variety and contents of programmes	51%	72%	18%	25%	85%	79%	25%
High quality educational programmes	45%	73%	11%	14%	44%	96%	12%
Plentiful provision of very urgent and/or important information	40%	81%	16%	6%	62%	98%	15%
Reliable programme contents	40%	73%	9%	10%	38%	92%	85%

Table 9 Reference Values and Actual Results of Operation and Effect Indicators (Qualitative Improvement) (Indicators for which the target value is not set)

Indicator (Unit)	Reference Value (2001)	Actual Result (2010)
Suspended broadcasting time due to accident	Radio: 2 seconds/100 hours Television: 3 seconds/100 hours	Radio: 0 seconds/100 hours Television: 0.9 seconds/100 hours

Source: LRTV

Table 10 Ranking of Nationwide Viewing Rate of Satellite Channels of Provincial Television Broadcasters

		2001	2005	2006	2007	2008	2009	2010
National Average	Ranking	18 th	-	-	-	10 th	6 th	5 th
Short-Term Data	Ranking	-	17 th	4 th	3 rd	7 th	8 th	3 rd
	Viewing Rate	-	0.04%	0.18%	0.19%	0.13%	0.14%	0.25%

Source: LRTV

⁶ Compared to competitors, both the television and radio broadcasting services of LRTV enjoy a highly positive assessment by the audience in terms of “plentiful local information”, meeting of audience needs” and “large number of independently produced programmes”. When compared with nationwide CCTV and CNR broadcasting, the performance of LRTV is somewhat inferior in terms of “reliability”, “very urgent and/or important information” and “quality”. However, the conscious efforts of LRTV to produce independent programmes to meet the needs of people in the province are highly evaluated. In short, LRTV as a local broadcaster provides information required by local people to fill the information void which cannot be filled by CCTV.

Table 11 Awards for Technical Quality of Nationwide Television and Radio Programmes Received by LRTV

	Television Programme (Golden Sail Award)			Radio Programme (Golden Deer Award)		
	LRTV/Total Number			LRTV/Total Number		
	1 st	2 nd	3 rd	1 st	2 nd	3 rd
2005	0/7	2/32	3/58	1/18	1/49	0/93
2006	0/7	2/30	3/53	0/20	3/44	2/87
2007	0/9	1/49	6/79	0/23	3/48	3/93
2008	0/18	3/52	3/60	0/24	1/49	4/97
2009	1/21	2/54	3/71	0/21	4/55	2/75
2010	1/18	4/50	1/08	0/-	2/-	4/-

Source: State Administration of Radio, Film and Television (SARFT)

(2) Facilitation of Inter-City Transmission of Information

In regard to the “facilitation of the inter-city transmission of information”, the situation prior to the project was that people living in areas far from cities were only able to watch a limited number of channels (six or less) with poor picture quality due to weak signal strength. The state of TV signal reception has significantly improved with the development of a high capacity transmission network with a yen loan as well as own funding by the Chinese side. The viewing of cable television has also widely spread.

In regard to the qualitative indicator of the “ratio of households able to view all free channels” which was set at the time of appraisal, LRTV staff members interviewed estimate that more than 95% of the provincial population can now view all free channels with good quality, suggesting a significant improvement (actual ratio in 2001: 50%; target for 2010: 93%). Meanwhile, more than 90% of the provincial population can have access to cable television of which the number of channels offered (information volume) has greatly increased to more than 100 channels (digital broadcasting) today. The introduction of a high capacity transmission network has massively increased the amount of information which can be offered by both free broadcasting and fee-paying broadcasting (cable television) services.

Some 90% of the respondents in the user survey praised the improvement made in relation to the “number of programmes and channels” and “diversity of the programmes offered”. These two are the most improved areas from the viewpoint of the audience and are the direct achievement of the newly developed high capacity transmission network.

Table 12 Actual Results for Operation and Effect Indicators

(Indicators for which the target is set)

Indicator (Unit)	Target (2010)	Actual (2010)
Ratio of households able to view all free channels (%)	93% of the provincial population	More than 95% of the provincial population

(Indicators for which the target is not set)

Indicator (Unit)	Reference Value (2001)	Actual (2010)
Number of cable television channels	Approximately 10 ~ 20 channels	Approximately 100 channels
Ratio of population able to have access to cable television (%)	-	More than 90% of the provincial population

Source: Results of interviews at LRTV

Table 13 Changing Situation of Television Viewing Following the Development of a High Capacity Transmission Network

Type of Area	Implementation Stage of ODA Yen Loan Project (Development of Inter-County Trunk Optical Fibre Network)	Development Stage of Intra-County Optical Fibre Network (Present Situation)	Population Ratio	Prior to ODA Yen Loan	After ODA Yen Loan (2010)
Suburban area	Counties in which the project has been implemented	Completed development of intra-county optical fibre network	Approx . 20%	(Free Channels) 6 channels (2 x CCTV, 3 x LRTV and 1 x municipal TV) (Fee-Paying Cable TV) 10 ~ 20 channels (greatly varies from one area to another)	(Free Channels) 6 channels (3 x CCTV, 2 x LRTV and 1 x municipal TV) (Fee-Paying Cable TV) More than 100 digital channels (varies from one area to another)
			Approx . 30%	(Free Channels) 6 channels (2 x CCTV, 3 X LRTV and 1 x municipal TV) (Fee-Paying Cable TV) None	
			Approx . 40%	(Free Channels) 6 channels (2 x CCTV, 3 x LRTV and 1 x municipal TV) but difficult to view all 6 channels in some areas because of weak signal strength (Fee-Paying Cable TV) None	
Rural area	Counties in which the project has not been implemented	Intra-county optical fibre network not yet developed	Approx . 3%	(Free Channels) 6 channels (3 x CCTV, 2 x LRTV and 1 x municipal TV)* The signal quality has much improved because of transmission from the trunk network. (Fee-Paying Cable TV) Some 50 analogue channels* Cable television channels are available using the intra-county network after initial transmission from the trunk network.	(Free Channels) 6 channels (3 x CCTV, 2 x LRTV and 1 x municipal TV)* The signal quality has much improved because of transmission from the trunk network. (Fee-Paying Cable TV) None Difficult to receive any channels
			Approx . 2%	Difficult to receive any channels	
			1.2%	Difficult to receive any channels	
			1.4%	Difficult to receive any channels	

Source: Compiled by the evaluator based on the results of interviews with the relevant organizations.

3.3.1.2 Results of Calculation of Internal Rate of Return (IRR)

Due to the fact that data needed for quantitative analysis was not available, analysis for the internal rate of return was not possible.

There is clear evidence that the advertising revenue has considerably increased due to the rising value of the LRTV channels as advertising media, in turn resulting from the increasing size of the audience. The operating revenue increased by some 4.2 times (or some 3.5 times after adjustment for inflation) between 1999 and 2009 with an increase of 655 million RMB (541 million RMB after adjustment for inflation). As these figures substantially exceed the planned revenue in just two years since the completion of the project (188 million JPY) and planned revenue for 2009 (218 million JPY) at the F/S stage, the actual FIRR achieved is likely to have exceeded the planned figure.

Table 14 Changes in Operating Revenue
(Unit: million RM)

	LTV	LETV	RL	Total
1999	206	4	3	203
2009	817	20	21	858
Increase	609	16	18	655

Source: LRTV

3.3.2 Qualitative Effects

(1) Qualitative Improvement of Independently Produced Programmes

The interview with a major advertising agency in China has confirmed that the qualitative improvement of the programmes produced by LRTV are highly appraised as described below.

- LRTV has sufficient strength in terms of news coverage, editing and the purchase of programmes and commands a position of absolute superiority to secure a following audience within the province. Along with improvement of the level of both its hardware and software, LRTV has trained a number of highly capable reporters, editors and programme makers.
- Compared to CCTV, LRTV is producing and broadcasting programmes which are very appealing to the provincial audience based on the provincial characteristics and lifestyle of the local audience. The contents of its programmes are highly rated by the audience. Especially high viewing rates are recorded for local news and entertainment programmes.
- Compared to CNR, LRTV (Radio) accurately understands the characteristics of the local politics, economy and culture and provides timely and accurate information, capitalising on its interactive relationship with the audience. For example, the traffic information channel provides very detailed information to help people plan their journeys and is highly rated by local people.

According to a programme producer at LRTV (Radio), radio programmes prior to the arrival of the new equipment were rather sloppy in the sense that the audience could easily tell their edited nature. This problem has now been completely eliminated with the improved editing equipment as well as improved capability of the editors.

(2) Improved Access of Local People to Various Types of Information

Using the newly developed high capacity transmission network, various types of information, including that on economic and social activities, and essential information regarding daily life are now being provided for local people. One example is an information channel for rural communities on cable television. This channel is sponsored by the provincial government and provides information on agricultural techniques/technologies and better living. With the improved infrastructure and broadcasting services, it is now possible for broadcasters to daily transmit useful information on farming and better living in rural areas and for local people to receive such information. In addition, the speedy supply of local information throughout the province has become the reality.

Furthermore, as the municipal as well as county level news and programme contents can now be instantly sent to LRTV, it has become easier for LRTV to broadcast them on the same day.

This project has largely achieved its objectives; therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

The findings of the user survey on the intended impacts of the project are given in Table 15. These impacts are (1) increased use of various types of information by local people, (2) improvement of the education standard in remote areas through the broadcasting of educational programmes, (3) rectification of the information gap through the strengthening of information access in deep inland areas and (4) improvement of the cultural (and economic) standard of local people. The actual state of manifestation of each impact is described next.

Table 15 Evaluation of Various Impacts by the Audience

		Television		Radio	
		Improved	Most Improved	Improved	Most Improved
Increased use of various types of information by local people	Increased use of information on daily life	80%	23%	95%	6%
	Increased and speedy use of information in general	77%	10%	90%	6%
	Increased use of very urgent or important information, such as disaster information	73%	12%	87%	4%
	Increased use of information on the administration and policies	66%	7%	83%	6%
Improvement of the education standard in remote areas through educational programmes	Increased opportunities for education	44%	3%	62%	7%
	Capacity building and improvement	42%	0%	58%	2%
Rectification of the information gap through strengthening of information access in deep inland areas	Rectification of the information gap experienced in remote areas of the province	10%	2%	64%	2%
Improvement of the cultural (and economic) standard	Improvement of the cultural standard	56%	7%	58%	41%
	Vitalisation of the local economy	44%	2%	46%	0%
	Increased opportunities for employment	32%	4%	44%	2%
	Increase of household income	32%	1%	38%	0%
Other	Expansion and deepening of communication among family members	54%	1%	6%	3%
	Expansion and deepening of communication in the locality	47%	2%	48%	3%

Source: User survey

(1) Increased Use of Various Types of Information by Local People (Improved Access)

As a result of the project, the number of households with access to cable television (with approximately 100 channels) has rapidly increased and the ratio of 61.89% of these households is nearly 20% higher than the national average, illustrating the great impact of the project.

Although the viewing rate for independently produced programmes and the market share of LRTV have shown a declining trend due to the availability of many more channels following the spread of cable television, the high level of viewing of independently produced programmes is evident as their viewing rate is nearly 2% higher than the viewing rate for all programmes.

The user survey found that “the increased use of various types of information by local people” is the impact which is most highly rated by the audience as some 80% of the audience agree with the improvement in terms of the “increased use of information on daily life”, “increase and speed of information in general” and “increased use of very urgent or

important information”. The impacts of television and radio broadcasting are also strong on behaviour and the way of thinking, especially in relation to “disaster response”, “shopping”, “leisure activities” and “cultural and sporting activities”.

Moreover, the findings of interviews suggest that the upgraded information broadcasting capacity of LRTV has played a certain role in mitigating disaster damage by means of the smooth transmission of information of the wide area of Liaoning Province which is liable to disaster damage primarily associated with flooding in summer and cold weather damage in winter.

Table 16 Reference and Actual Values of Indicators

Indicator (Unit)	Reference Value (2001)	Actual Value (2010)
Ratio of households viewing (multi-channel) cable television	Approx. 20%	61.89% (national average: 43.99%) (45.79% in 2008)
Share of television market		(2009)
• LRTV	43.1%	29.0%
• CCTV	27.2%	35.7%
• Other	29.7%	35.3%
Viewing rate for independently produced programmes	-	2.21% (2009) (all programmes: 0.52%)

Source: LRTV

Table 17 Impacts of LRTV on Behaviour and Way of Thinking of the Audience

Area of Impact	Television		Ratio	
	Actual Impact	Strongest Impact	Actual Impact	Strongest Impact
Response to disasters or urgent matters	86%	11%	86%	11%
Leisure activities and travel	85%	11%	89%	11%
Shopping	81%	12%	95%	9%
Cultural and sporting activities	79%	15%	85%	9%
Transport	79%	4%	89%	8%
Business and employment	72%	1%	79%	2%
Study and skill improvement	59%	2%	71%	1%
Other aspects of life	62%	2%	83%	0%
Political and social issues in general	68%	4%	71%	0%

Source: User survey

(2) Improvement of the Education Standard in Remote Areas Through Educational Programmes

Both the size of the population and the geographical area with access to education channels have increased as a result of the development of the high capacity transmission network. It is certain that the educational opportunities have increased for those wanting to study voluntarily using education programmes. However, as it has not become a common practice for schools to use the education channels, statistical data is not yet available to clearly indicate the improvement of the local education standard while verifying the causal relationship between the education channels and improved education standards.

However, the user survey indicates that almost half of the audience highly rates “increased opportunities for education” and “capacity building and improvement”. One characteristic here is that the impact on improvement is felt more greatly by radio programmes compared to television programmes by approximately 15 – 20 points.

The qualitative impacts including the broadcasting of education programmes to classrooms at the time of a SARS outbreak and a television course on business management aimed at small and medium-size enterprises. The impact of the classroom broadcasting on SARS was highly rated in the user survey.

(3) Rectification of the Information Gap Through Strengthening of Information Access in Deep Inland Areas

The user survey found that improvement in terms of “rectification of the information gap in deep inland areas” was agreed by 40% of the television audience and 64% of the radio audience, illustrating a positive impact. The general opinion is that the improvement of radio broadcasting as well as radio programme has contributed to rectification of the information gap.

In regard to television broadcasting, free terrestrial channels (basically six channels) can now be viewed in high quality due to the development of the high capacity transmission network, suggesting that the level of information obtained through television broadcasting has much improved even in deep inland areas. Because of the parallel progress of cable television coverage, some 95% of the provincial population has access to cable television. Various sources of information are, therefore, available throughout almost the entire province.

At present, there is a large information gap between those receiving the subscription cable television service and those who do not but the number of subscribing households has been rapidly increasing, partly because of the low subscription fee (approximately 24 RMB a month; subscription rate: 46% in 2008 and 62% in 2009). If this trend continues, the information gap may well be eliminated with more subscribers throughout the province.

(4) Improvement of the Cultural (and Economic) Standard

According to the findings of the user survey, the increased use of information has led to “improvement of the cultural standard”⁷ and “vitalisation of the local economy” among others as these improvements are agreed by some half of the respondents to the survey. While further improvement has been made in terms of the “household income” and “employment”, this improvement is acknowledged by only a relatively small number of respondents compared to other impacts. As mentioned earlier, the impact on shopping has been very strong, indicating the increased value of television and radio broadcasting as advertising media. This has resulted in increased advertising revenue for LRTV and it is reasonable to judge that the improved television and radio broadcasting has had a positive impact on industrial activities and economy in the province.

⁷ When the ratio of household expenditure on education and entertainment in the overall expenditure is examined as an indicator for the cultural standard, hardly any change is observed between the time of appraisal and the present.

Table 18 Reference Value and Actual Value for Indicators

Indicator (Unit)	Reference Value (2001)	Actual Value (2010)
Advertising fee for satellite channel of LRTV (19:00 ~ 21:00) (RMB)	13,000 RMB/10 seconds	44,000 RMB/10 seconds
Ratio of expenditure on education and entertainment to total consumption expenditure per rural resident	10.6%; 189 RMB	10.3%; 410 RMB (2009)
Ratio of expenditure on education and entertainment to total consumption expenditure per urban resident	13.0%; 698 RMB	10.4%; 1,284 RMB (2009)

Source: HPA Shenyang Boshi Ads Media Co., Ltd., Liaoning Statistical Yearbook

The interview with a major advertising agency in China identified various impacts of the improved television and radio broadcasting by LRTV in various economic and industrial aspects as listed below.

- Because of the high level of recognition of the programmes produced by LRTV among the local audience, many enterprises are eager to advertise on LRTV channels.
- Particularly eager to advertise on LRTV channels are enterprises in such industrial sectors as daily necessities, food and beverages, medicines, telecommunications, finance and entertainment. Examples of enterprises include such foreign enterprises as Unilever, P & G, L'Oreal and Yam! brands and such leading domestic enterprises as Sanjing Pharm, China Mobile Ltd. And Jiangzhong Pharmaceutical Co., Ltd.
- Even small and medium-size enterprises are stepping up their advertising on LRTV channels. One example is Beijing ShuLan International Clothing Co., Ltd. which is a well-known apparel brand in northeast China. The company has placed increasing emphasis on advertising on LRTV channels as a major part of its marketing strategy and its spending on advertising on LRTV in 2010 was larger than the combined figure for the previous three years (2007 ~ 2009). As a result of this intensive campaign, the turnover of the company in Liaoning Province steadily increased by tenfold in 2010 from the 2005 level. Other enterprises reaping the benefits of advertising on LRTV channels in the provincial market are Bosideng International Holding Ltd. And Sunflower Pharmaceutical Industry Co., Ltd.

3.4.2 Other Impacts

No land acquisition or resettlement was necessary as a result of the project and no special positive or negative impacts have been observed.

The implementation of the project has generally achieved the intended impacts; therefore the overall impact of the project is high.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

LTV, LETV and RL which were the original project executing bodies were merged in 2009 to form LRTV. Although both LRTV and LRTTBC are supervised by LPARFT

(LPARFT has authority for personnel and financial matters), they are responsible for the operation and maintenance of the equipment they use.

Meanwhile, the Yen Loan Project Office of LPARFT plays a central role in the management of project-related matters in the post-project period and periodically checks the current status. The original project executing bodies (now LRTV) are properly operated under the supervision of LPARFT. Even since the merger, the production of television programmes is separately conducted from the production of radio programmes with both areas being sufficiently staffed. As such, there are no special problems in regard to the structural aspects of operation and maintenance.

3.5.2 Technical Aspects of Operation and Maintenance

At LRTV, internal and external training are actively and regularly conducted along with training provided by the equipment manufacturers. All of the equipment procured under the project and the equipment procured thereafter by the Chinese side have been effectively used and maintained without any problems.

The interview survey results suggest that the staffing level, including engineers, is sufficient for the proper maintenance of the equipment. Technical guidance and the supply of manuals for training at the time of equipment delivery were properly conducted. The necessary training has been provided and the operating rate of the equipment is high with sufficient maintenance work. As such, no special problems have been either detected or are foreseen regarding the technical aspects of operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

As LRTV is run as a provincial government body, its accounts are handled to balance the revenue with the expenditure. In 2009, while LRTV received a subsidy of 96.74 million RMB, it contributed 57.40 million RMB to the provincial coffers in addition to total expenditure of 86.93 million RMB for government events and other occasions. As such, the overall financial performance is in the black but the accounts are balanced with contributions to provincial events, etc. as a provincial government body. The operating revenue rapidly increased from 203 million RMB in 1999 to 858 million RMB in 2009, primarily because of the improved value of LRTV channels as advertising media and the general economic growth of north-eastern China. At the end of 2009, LRTV had net assets of approximately 590 million RMB.

Much of the broadcasting equipment procured under the project has reached the time of renewal because of its short service life in view of rapid technological innovation. As the operating revenue has been steadily increasing, LRTV has invested more than 100 million RMB a year in fixed assets, including the procurement of new equipment, in recent years. As such, no special problems have been either detected or are foreseen in regard to the setting aside of sufficient funds for the procurement of new equipment.

Table 19 Historical Changes of LRTV Investment in Fixed Assets (2006 ~ 2010)

(Unit: ,000 RMB)

	2006	2007	2008	2008	2010
Television	23,062	28,265	152,980	67,635	106,874
Radio	8,311	6,080	6,434	22,093	3,265

Note: The investment amount for radio in 2010 is for the first six months of the year.

Source: LRTV

In the case of LRTTBC, it is not expected to generate a profit and is maintained by a subsidy from the Liaoning Provincial Department of Finance (2010: 21.06 million RMB). LRTTBC does not charge for its broadcasting signal transmission service. In regard to the renewal of equipment approaching the end of its expected life span, there is a strong social need to at least maintain the current level of service. It is, therefore, anticipated that the necessary renewal of equipment will be conducted using a provincial government grant even though the timing of such renewal (and grant) is not clear at present. The actual revenue for the general account of Liaoning Province rapidly increased to as much as 159.1 billion RMB in 2009, registering a 4.3 times increase from 37 billion RMB in 2001 (3.6 times after adjustment for inflation). No problems are, therefore, anticipated in regard the provincial government's ability to finance the renewal of equipment at LRTTBC.

3.5.4 Current Status of Operation and Maintenance

At the time of ex-post evaluation, all of the equipment introduced at LRTV and LRTTBC under the project is properly maintained and the high operating rate indicates the effective use of such equipment. However, some of the equipment introduced to the former LTV, including the digital video camera system, is now beginning to exceed its service life and its renewal next year or the following year is highly likely. The equipment at LRTTBC is also aging as evidenced by the increased number of breakdowns, prompting a plan for its renewal. Such renewal will not pose any problems in view of the financial situation of the provincial government and LRTV.

When the former LETV was merged with LTV and LR in 2009 to form LRTV to be placed under the supervision of LPARFT, the production equipment provided for LETV under the project was transferred to the Liaoning Provincial Department of Education in view of the fact that it had passed its expected service life. All of the equipment, etc. transferred to the Department of Education will be further transferred to Shenyang Normal University. Some of the equipment has already been transferred and is being used as educational equipment and for university events. The remaining equipment (studio system, etc.) will be transferred to Shenyang Normal University as soon as the planned transfer has been approved (it was stored at the Department of Education at the time of ex-post evaluation). The equipment provided to LRTV is effectively used at present but will be transferred free of charge to broadcasting stations of lower level governments when it deteriorates in the coming years.

No major problems have been observed in the operation and maintenance system; therefore sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of this project was to upgrade the programme making equipment and systems and to improve the programme transmission systems for television and radio broadcasters in Liaoning province, thereby improving the quality and quantity of independently produced programmes and facilitating the inter-city transmission of information in the province. As this objective of the project matched the development policies of the country and province at the time of both appraisal and ex-post evaluation, the relevance of the project was high. While the intended outputs have generally been achieved as planned, the lengthy extension of the project period has made the project efficiency fair. The introduction of the latest equipment and subsequent effective use of such equipment have led to a noticeable improvement in the quality and quantity of independently produced programmes as well as information provided in the province. The newly broadcast programmes and information have not only had a significant impact on the lives of the audience in the province but have also had the effect of making enterprises aware of and use television and radio broadcasting as very important advertising media. As such, the project has achieved a high level of effectiveness. No problems have been observed in terms of the structural, technical and financial aspects of the project, illustrating its high level of sustainability. In light of the above, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

The equipment at LRTTBC is now approaching the time for its renewal. When any of the equipment at LRTTBC breaks down, the reception of TV signals for not only cable television in the province but also for free broadcasting channels in remote areas can be adversely affected. Because of the strong social need to maintain and improve the level of equipment at LRTTBC, it is highly likely that the Liaoning Provincial Department of Finance will approve any necessary funding for equipment renewal at LRTTBC. An early response is, however, preferable to ensure the necessary renewal and upgrading, making it essential for the provincial government to set aside sufficient funds for these purposes.

4.2.2 Recommendations to the JICA

None

4.3 Lessons Learned

(1) Necessity to Properly Respond to Projects Involving Equipment Subject to Rapid Technological Innovation

The project aimed at providing a range of broadcasting equipment of which the technological innovation is rapid. The provision of equipment was substantially delayed in the case of one of the executing agencies but the actual equipment which was eventually provided following consultations between the Japanese and Chinese sides was the latest

equipment as hoped for by the Chinese side, resulting in the improved effectiveness of and high level satisfaction with the project on the part of the executing agencies. Although it is essential to ensure the swift delivery of equipment in the case of a project in which the equipment involved is subject to rapid technological innovation to avoid any delay of the project completion, it is equally important to fully consult with the recipient country to take the technical trends of the equipment to be provided into full consideration. Careful consideration is particularly necessary once a project experiences a delay.

The project implementation period to upgrade broadcasting equipment and systems with a yen loan happened to overlap with a period of economic growth as well as an expanding demand for broadcasting services in the target province. As a result, fresh investment and the renewal of equipment proceeded very smoothly, resulting in highly positive outcomes. In other words, because of the high level sustainability of the project, the yen loan functioned as seed money. One important lesson learned from the project is the need to ensure “sustainability” which demands the appropriate renewal of equipment in due course at the initial planning stage of a project such as the present broadcasting equipment upgrading project which requires that the project executing agency and government of the recipient country renew the equipment at an early stage in the post-project period.

(2) Relationship Between Project Objectives and Higher Goals of a Broadcasting Equipment Upgrading Project

The project itself was implemented by a limited number of stakeholders, including provincial television and radio broadcasters, and its objective was of strong interest for the stakeholders. Meanwhile, the higher goals tend to be somewhat abstract with wide implications for society in general, typically embodied by such goals as “improvement of the economic and cultural standard” and “rectification of the regional information gap”. When the higher goals are set too far away from the immediate objective of a project, it may result in a loss of interest in the impacts among the stakeholders. In the context of the present project, this possibility is manifest in a more tangible manner if such functions as the production and distribution of the contents are conducted by different organizations.

A direct impact of a broadcasting improvement project is thought to be “its impact on the way of thinking, knowledge and behaviour of the public”. It is essential that the executing agency and other stakeholders set and share higher goals which can be easily recognised by all those involved and the project must be implemented with careful consideration of the set higher goals.

(3) Active Utilisation of Superior Japanese Technologies

In many countries, there is strong trust in Japanese broadcasting equipment, especially digital equipment, to the extent that the concept of “Japanese technologies being the front-runner” has been firmly established. In the case of the project which was an ODA loan project employing, in principle, general competitive bidding, the recipient country was eager to introduce Japanese equipment. As a result, Japanese products and technologies were smoothly introduced. As the expected improvement effects and merits are particularly large when the technological level of equipment prior to a project is low as in the case of the

present project, it is important to actively promote projects involving superior Japanese technologies and equipment using the STEP and other schemes.

(4) Competent Equipment Management in a Project Involving Equipment Subject to Rapid Technological Innovation

Most broadcasting equipment is subject to rapid technological innovation and some equipment may require renewal in less than 10 years after its initial installation due to it becoming obsolete. In the course of the ex-post evaluation, the evaluator discovered that after the expiry of its service life, equipment originally provided under the project for LETV was transferred to the Liaoning Department of Education instead of LRTV following the change of the supervisory agency. Although it is planned to further transfer this equipment to Liaoning Normal University, the executing agency (now LRTV) does not have a fully picture of what is going on.

In the case of a project which mainly involves the provision of equipment, it is desirable to develop a mechanism whereby any substantial change regarding the current status of the equipment provided, be it “a change of the management body” or “the abandonment or transfer of equipment”, is properly reported to the competent JICA office. In this context, it must be noted that the thorough management of every single piece of equipment, etc. is difficult and not so important from the viewpoint of achieving the development objective of the project. Instead, arrangements should be put in place which allow the JICA to establish a general picture of each equipment package and the current status (in operation, abandoned or transferred as well as any change of the management body) of the main equipment based on regular reports or other means.

Comparison between the Original Plan and Actual Results

Item	Original Plan	Actual Results
1. Outputs	<p>(LTV: Production Equipment)</p> <p>1) Outdoor broadcasting van system 2) Outdoor satellite van system 3) Digital video camera system 4) Editing equipment 5) Others (measuring instruments, etc.)</p> <p>(LETV: Production Equipment)</p> <p>1) Digital video camera system (for use in the new studio) 2) Editing equipment 3) Others (measuring instruments, etc.)</p> <p>(RL: Production Equipment and Construction Materials)</p> <p>1) Outdoor broadcasting van system and outdoor audio recording van system 2) Editing equipment 3) Construction materials</p> <p>(LRTTBC: Transmission System)</p> <p>1) Digital transmission unit 2) Optical fibres 3) Others (emergency power supply system, air-conditioning units, measuring instruments and others)</p>	<p>(LTV: Production Equipment)</p> <p>1) Outdoor broadcasting van system 2) Outdoor satellite van system 3) Digital video camera system 4) Editing equipment 5) Others (measuring instruments, etc.)</p> <p>(Changes Made)</p> <p>Equipment onboard vans (2003) Changes of the technical specifications, etc. for cameras and cancellation/addition of some equipment</p> <p>(LETV: Production Equipment)</p> <p>As planned</p> <p>(RL: Production Equipment and Construction Materials)</p> <p>As planned</p> <p>(LRTTBC: Transmission System)</p> <p>1) Digital transmission unit 2) Optical fibres 3) Others (emergency power supply system, air-conditioning units, measuring instruments and others)</p> <p>(Changes Made)</p> <p>Addition of broadcasting network improvement equipment due to widening of the target area (2005)</p>
2. Project Period	<p>March, 2001 to June, 2004 (3 years 4 months)</p>	<p>September, 2001 to June, 2009 (7 years 10 months)</p>
3. Project Cost	<p>(Inclusive of Additional Equipment)</p> <p>Foreign Currency 3,481 million JPY Local Currency 3,474.9 million JPY (267.3 million RMB)</p> <p>Total 6,955.9 million JPY Of which JICA Loan 3,210 million JPY Exchange Rate 1 RMB = 13.0 JPY (as of 2001)</p>	<p>3,205 million JPY 3,660.4 million JPY (255.97 million RMB)</p> <p>6,865.4 million JPY 3,205 million JPY 1 RMB = 14.3 JPY (average for 2001 through 2009)</p>

Nepal

Ex-Post Evaluation of Grant Aid Project

“The Project for Construction of Primary Schools in Support of Education for All in Nepal”

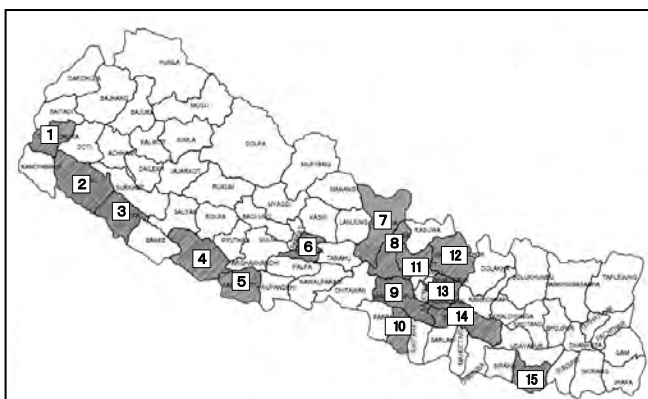
External Evaluator:

Yoko Ishida, International Development Center of Japan Inc.

0. Summary

The objectives of the project were to improve the quantitative and qualitative aspects of basic education in 15 districts in Nepal by improving classrooms, restrooms, water supply, and other facilities with the local community participation. The purpose of the project was to be consistent with the development policy given in the ex-ante and ex-post evaluations; and the project was highly relevant in terms of the stakeholders’ need. In light of the fact that project output, cost and project period was achieved according to plan; project implementation has been highly efficient. A total of 2,530 classrooms were constructed according to the project plan and the student capacity of the targeted schools rose showing effectiveness to a certain extent. However, because there are some issues observed regarding the purpose of the constructed facilities and the degree to which the classroom furniture is used, project effectiveness is fair. The management and maintenance of the classrooms and other school facilities were not adequately implemented in the structural, technical, and financial areas, and the existing framework was not sufficiently utilized. The sustainability of the project’s effect was seen as fair. In light of the above, this project has been evaluated to be satisfactory.

1. Project Description



Map of the Project Sites
(15 Districts in Nepal¹)



Classroom Constructed in the Project
(Makawanpur District)

¹ The targeted districts in numerical order from the left side (west) in the map above are: (1) Dadeldhura, (2) Kailali, (3) Bardiya, (4) Dang, (5) Kapilbastu, (6) Syangja, (7) Gorkha, (8) Dhading, (9) Makawanpur, (10) Bara, (11) Nuwakot, (12) Sindhupalchok, (13) Kabhrepalanchok, (14) Sindhuli, and (15) Saptari.

1.1 Background

The strategic focus of the Tenth National Five-year Plan (2002 to 2007) of the government of Nepal was i) economic and social development, ii) measures to assist the socially vulnerable, and iii) good governance; all aimed at reducing poverty. Development of human resources was vital to achieving these goals. Furthermore, improving basic education to achieve universal primary education that was the international objectives of the Educational for All (EFA) and the Millennium Development Goals (MDGs) was urgent. JICA provided continuous assistance in the form of materials procurement for 2,958 classrooms for four phases through its grant-aid program for Nepal's Basic and Primary Education Project I (BPEP-I) (1992 to 1998) to construct classrooms in Nepal's educational sector. This was followed by additional three phases of grant aid for BPEP-II (1999 to 2004) (materials procurement for 2,540 classrooms). But as of 2001, 17,700 classrooms still needed to be constructed; and the government of Nepal requested the government of Japan to implement a school-construction project in 15 districts.

1.2 Project Outline

The objective of this project is to achieve quantitative and qualitative improvements in basic education under the leadership of the School Management Committee² (SMC) of each school, by constructing classrooms, resource centers³ (RCs), restrooms, and water supply facility in 15 districts in Nepal.

Grant Limit/Actual Grant Amount	2,095 million yen/ 2,039 million yen
Exchange of Notes Date (Grant Agreement Date)	Phase 1 (FY2003) October 1, 2003 (January 9, 2004) Phase 2 (FY2004) December 3, 2004 (June 3, 2005) Phase 3 (FY2005) August 16, 2005 (January 27, 2006)
Implementing Agency	Ministry of Education (MoE)/Department of Education (DoE)
Project Completion Date	Phase 1 (FY2003) August 23, 2004 Phase 2 (FY2004) February 16, 2006 Phase 3 (FY2005) January 5, 2007
Main Contractor	Materials Procurement: Sanpo International Co. Classroom Construction: SMC of 1,265 schools
Main Consultant	Fukuwatari & Architectural Consultants, Ltd.
Basic Design	July 2003

² Under the BPEP-II, a School Management Committee (SMC) that promoted school management improvements through community participation was established at all public schools in Nepal, and this system continues to this day. Education law also stipulated the establishment of a SMC at all public schools and the SMC is in charge of preparing the School Improvement Plan (SIP), hiring teachers, implementing improvement activities, social audits, etc. It consists of a total of nine members including the chairperson, and the school principal serves as the Secretary. Other members are the district administrative officer, teacher representative, representatives of the contributors to establishing the school, representative of school guardians, local intellectuals, etc.

³ Public schools are divided into units of 10 to 20 schools that are managed by the RC. A resources person (RP) is assigned to each RC, who is responsible for interacting and coordinating with their DEO and the schools in their unit, as well as overseeing the monitoring of each school. RCs located in separate buildings are rare and the majority is located in the unused classrooms of focal schools in their district. Under the coordination of the RP, the RC holds meetings for school principals, meetings with local communities, teacher-training programs, and others.

Related Projects	<p>Follow up of this Project (November 20, 2004 to January 11, 2005)</p> <p>Long-term dispatch of expert, “School Administration Advisor,” proposal-based technical cooperation, “Community-based Alternative Schooling Project (CASP),” dispatch of Japan Overseas Cooperation Volunteers (JOCV)</p> <p>Grant aid, “Construction of Primary Schools under BPEP II” (FY2000 and FY2001), “Construction of Primary Schools under 2nd EFA Assistance” (FY2008)</p> <p>Government of Nepal School Sector Reform Plan</p>
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2. Outline of the Evaluation Study

2.1 External Evaluator

Yoko Ishida (International Development Center of Japan Inc.)

2.2 Duration of Evaluation Study

The ex-post evaluation was carried out as shown below:

Duration of the Study: December 2010 to October 2011

Duration of the Field Study: March 19 to April 6, 2011 and June 19 to June 26, 2011

2.3 Constraints during the Evaluation Study

The following three factors were constraints in the implementation of the ex-post evaluation.

- 1) Prior to and after this project was implemented, similar grant-aid classroom construction projects were carried out. Although JICA implemented this project under its grant-aid scheme, the Nepalese side regarded the project as a classroom construction component within its educational sector programme. As a result, it was difficult to collect specific information about the project from Ministry of Education (MoE), Department of Education (DoE), and District Education Office (DEO) on the Nepalese side.
- 2) There was unverified statistics on education from the years prior to the implementation of this project since the Education Management Information System (EMIS) was not well updated prior to 2005. Even after the advent of EMIS in 2006, data definition (repetition rate, dropout rate, etc.) according to fiscal year differed; which has been currently improved. The rapid increase in private schools in recent years makes it difficult to compare and determine the indicator, because EMIS does not include data for all of these schools. The most recent statistics on population that were available for 2001 and demographic shifts, the population of school-age children, and other statistics could not be confirmed (a population census is being implemented in 2011).
- 3) A total of 1,265 schools in 15 districts were targeted in this project, but since the majority of the schools were located in mountain or hill areas, the survey on

beneficiaries was based on sampling extracted from only 127 schools in 6 of the targeted districts⁴. In the field study, 9 schools in 3 districts were targeted in the school observation. The field study period during the ex-post evaluation (March 2011) was during the end-of-the-school-year national exams and the end-of-the-school-year holidays. Subsequently, it was not possible to observe pupils and students studying in their classrooms.

3. Results of the Evaluation (Overall Rating: B)⁵

3.1 Relevance (Rating ③⁶)

3.1.1 Relevance with the Development Plan of Nepal

During the ex-ante evaluation, the educational sector had been given priority status in the Tenth National Five-year Development Plan⁷ as a means of reducing poverty. Under BPEP-II, priority was placed on improving the enrollment rate in primary education and the aim was to improve school management by organizing a SMC at each school and to gain the participation of the local community. In the next educational sector program, the EFA, the goal was also to improve the enrollment rate and the quality of primary education; and the focal strategy was to construct schools with local community participation. The goal of this project with its community-participation approach to school construction was fully relevant with Nepal's development policies and measures.

The provisional national three-year plan during the ex-post evaluation period also prioritized the enhancement of basic services such as education and health as a means to promote employment and economic development. In the new fiscal year, national budget (July 2011 to July 2012) which is allocated according to sector, a maximum of 16.61% was allocated to education. The objective of the School Sector Reform Project (SSRP) was to improve the quality and enrollment rate in basic education, to promote the educational administration of the district and to delegate authority to the SMC, since improving the capacity of the SMC was one of the major strategies. During the ex-post evaluation, the objective and approach of the project was fully relevant with national policies and measures.

This project supports the effort to improve the enrollment rate in primary education by the Nepalese government; and during both the ex-ante and the ex-post evaluations, the project was fully relevant with the international objectives of the EFA and MDGs.

Donor coordination had already been carried out in BPEP-II mainly in conjunction with direct financial assistance provided during the ex-ante evaluation, but since there are many donors providing project-based assistance, there has been a tightening of controls against donors

⁴ The survey on beneficiaries was carried out in the six districts of Syangja, Dhading, Makawanpur, Kabhrepalanchok, Nuwakot, and Sindhupalchok and the field study was carried out in the three districts of Syangja, Makawanpur, and Kabhrepalanchok.

⁵ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁶ ③ : High, ②: Fair, ①: Low

⁷ It was ranked as Nepal's Poverty Reduction Strategy Paper (PRSP)

that are not providing direct financial assistance. During the ex-post evaluation and under the SSRP, the Nepalese government made it clear that it preferred direct financial assistance; and in the area of donor coordination, donors that provide direct financial assistance are fulfilling central roles in the decision-making process, etc.

Meanwhile, it might be needed for MoE/DoE to pay attention on how DEOs and schools could be benefited from the project-based assistance in not only quantitative increase but also qualitative improvement in construction and monitoring technology as well as school/classroom environment.

This project was implemented as a part of the classroom-construction component of the EFA educational sector programme, while it also substantiated the possibility of raising the classroom environment output: such as earthquake-resistant buildings, better natural lighting, ventilation, and easy-to-maintain structure in community-participation-based classroom construction projects. It makes the best use of the characteristics of project-based assistance while meeting the need for quantitative expansion of the classroom.

3.1.2 Relevance with the Development Needs of Nepal

According to the School Level Educational Statistics, version 2009, a report by DoE, in 2001/2002⁸ the net enrollment rate of first graders⁹ was 51% and 81% for pupils in grades 1 to 5. The net enrollment rate of first graders during the ex-ante evaluation period in 2003/2004 was a low 76.1%; and this project, which was implemented with the aim of improving the enrollment rate, was fully relevant with development needs.

Major improvement was seen in Nepal's enrollment rate in the next six-year period. The net enrollment rate for first graders in 2009/2010 was 86.4% and 93.4% for grades 1 to 5; and it was reported that the enrollment rate for primary education was just 6.6% away from achieving the 100% level (see Table 1 (next page)).

⁸ The school year under the Nepal's educational system begins in mid-April (around the 15th) and ends in mid-April (around the 14th) of the following year.

⁹The educational system in Nepal consists of primary level (first to fifth grade), lower secondary level (sixth to eighth grade), secondary level (ninth to tenth grades), higher secondary level (eleventh and twelfth grades), and higher education. Unlike Japan, public schools are not divided into primary and secondary schools, and grades one to twelve are usually combined into one school. However, depending on the location, the year the school was built, and other factors, the grades that a school will cover will differ, i.e. grades 1 to 5 (primary education), grades 1 to 8 (basic education), grades 1 to 10 (secondary education), grades 1 to 12 (higher secondary education). There are many schools that only consist of the lower grades from 1 to 5 and small primary schools in rural, remote areas will only consist of grades 1 to 3.

Table 1: Primary Education Indicator for Nepal (2001/2002 to 2008/2009)

Unit: %

Year Indicator	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Gross enrollment rate for first graders	122.9	101.3	117	125.9	148.1	148.1	145.2	147.7	144
Net enrollment rate for grade 1	51	74	76.1	NA	NA	NQ	NA	83.1	86.4
Gross enrollment rate for grades 1 to 5	124.7	118.4	126.7	130.7	145.4	138.8	138.5	142.8	141.4
Net enrollment rate for grades 1 to 5	81	82.3	83.5	84.2	86.8	87.4	89.1	91.9	93.4
Fifth grade completion rate	66	67.6	59.7	76.2	79.1	80.3	81.1	73.4	77.9

Source: Nepal's School Level Educational Statistics, version 2009, June 2010.

Although access to primary education has greatly improved, the completion rate of students up to the fifth grade has stayed at 77.9% and the need for qualitative improvement remains high. According to DoE's progress report on classroom construction, the number of public schools nationwide that provided primary education (grades 1 to 5) was 32,684 (November 2010, DoE) and 6,639 new classrooms were built for these schools in 2008/2009, in addition to 3,904 renovated classrooms. According to DoE, even during the ex-post evaluation period, there was still the need to construct about 5,000 new classrooms and to renovate 3,000 classrooms annually. Despite the increase in the number of enrolled students, many new classrooms still need to be constructed and depreciated classrooms still need to be renovated in order to improve the quality of education. Thus, the need for this project remained high even during the ex-post evaluation period.

When this project was implemented, Nepal was in a state of conflict; and based on the recommendation of the Nepalese government, the 15 districts¹⁰ targeted in the project were selected in line with the BPEP-II school construction project where the need for classroom construction was high and where safety was secured; therefore, the selection of the target districts was appropriate.

3.1.3 Relevance with Japan's ODA Policy

Japan's ODA policy for Nepal during the ex-ante evaluation period targeted social development and poverty reduction as priority areas. Although there is no direct written statement about the primary education sector, it is an important area in relation to social development and poverty reduction, and relevancy is high. Nepal and Japan have had a longstanding friendship; and as a least developed country with the lowest income in South Asia, Nepal's need for development assistance is high. Since the country's democratization movement

¹⁰ The districts in Nepal are equivalent to the prefectures in Japan. Nepal consists of 75 districts (as of August 2011).

in 1990, Nepal has pursued democracy and economic liberalization; and the need to assist primary education was very high in order to help build the foundation for human resources development.

In light of the above, this project was highly relevant with Nepal's development plan and development needs, as well as Japan's ODA policy; therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

In this project, classrooms, RC, restrooms, water supply facility, etc. were improved in 15 districts. In the construction of these facilities, Japan provided assistance to procure construction materials¹¹ and even delivered to a number of depots (storage for the materials)¹² that were installed in each district. Transporting the materials from the depot to each school was carried out by the SMC and participating local communities of each school targeted for classroom construction. The Japan side also provided assistance to procure classroom furniture, which included blackboards, desks and chairs for the classroom and blackboards and training table and chairs for the RC.

One building (with two classrooms) was constructed at each of the 1,265 schools in 15 districts as planned and a total of 2,530 classrooms were built. Although a few minor changes were made in the restrooms and water supply facilities, they were built mostly according to plan.

During Phase 3, a budget shortage occurred due to the exchange rate. DoE and the respective DEO held discussions regarding countermeasures that could be taken and it was decided to give classroom construction priority over RC construction in view of the project objective to provide quantitative improvements to basic education. As a result, it was agreed that the number of RCs to be constructed would be decreased by 40% to 31 locations and furniture for the RC would also be decreased by 40%.

Output according to construction and procurement (plan and performance) and the reasons for the changes that were made are shown in Table 2 (next page).

¹¹ As procurement in the community is difficult, production of materials such as brick, cement, reinforcing steel, iron and steel roof sets, wooden classroom doors, etc. that were important to improving the classroom environment was consigned and provided according to the design standards of this project. Sand, stone, and water for each school were procured by the participating community.

¹² The materials and equipment that will be provided for facility construction in this project will be kept in a storage facility (existing building will be used) set up in each district in order to temporarily procure and store them at the district level.

Table 2: Comparative Table on Output (Plan/Performance) and Reasons for the Changes

Item	Plan	Performance	Reasons for the Changes
Classroom construction	2,530 classrooms	2,530 classrooms (100% of the initial plan)	No changes. One building (with two classrooms) was built as planned for each of the 1,265 schools in the 15 districts targeted, for a total of 2,530 classrooms that were constructed with community participation under the leadership of the SMC.
RC construction	52 buildings	31 buildings (60.0% of the initial plan)	During Phase 1 and 2, 31 RC buildings were constructed at 31 sites as planned (8 buildings in Phase 1, 23 buildings in Phase 2). In Phase 3, a budget shortage occurred due to the fluctuating exchange rate, and it was agreed with the Nepalese side to prioritize classroom construction as planned and construction of RCs was stopped.
Construction of restrooms	733 buildings	730 buildings (99.6% of the initial plan)	730 buildings for restrooms including 13 buildings with restrooms for students with disabilities have been completed as planned. Three buildings were decreased due to the budget shortage that occurred in Phase 3.
Construction of water supply facilities	312 buildings	310 buildings (99.4% of the initial plan) (If schools that already had water supply facilities were selected during the detailed design period, the number of water supply facilities was adjusted with the other targeted districts and as a result, the number of facility sites decreased by two, for a total of 310 sites, which was more or less according to plan.
Procurement of classroom furniture	43,130 sets	42,080 sets (97.6% of the initial plan)	The sets were reduced by 1,050 sets to cope with the budget shortage in Phase 3. The Nepalese classroom installation guidelines for the number of sets was decreased from the initial 19 sets (57 students) to 18 sets per classroom of table and bench for three people in the Tarai area where there were 55 students in one classroom. In the mountain area, the original number of sets was 14 since there were 45 students in one classroom, but it was reduced to 13 sets (for 40 students) since the majority of the classrooms had only 40 students. Procurement was according to plan during Phases 1 to 3.
RC furniture	For 52 sites	For 31 sites (60.0% of the initial plan) (Due to the budget shortage in Phase 3, RCs were not constructed. But, furniture was procured for 31 buildings during Phases 1 and 2.

Source: JICA materials for plan and performance. Reasons for the changes were based on interviews of the consultant in charge of construction and the Department of Education.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The project cost (Japanese side) was the planned 2,279 million yen, performance was 2,039 million yen (97.0% of the official maximum amount) and fell within the plan.

According to the interview results, the project cost for the Nepalese side was about 378 million yen for performance in contrast to planned amount of 517 million yen at the time of the ex-ante evaluation.

Furthermore, since this was implemented as a community-participation project, according to the on-site interview during the ex-post evaluation, it was estimated the amount contributed by the community was 50,000 rupees per school for a total of 63 million NRs (Nepalese Rupees) for 1,265 schools (about 98 million yen). Thus, the project cost for the Nepal side was estimated

about 476 million NRs¹³.

Due to unknown factors regarding plan and performance on the Nepal side, only the plan and performance of the project cost for the Japanese side was evaluated.

3.2.2.2 Project Period

The project period¹⁴ planned at the time of the ex-ante evaluation was estimated to be about 12 months, which included ordering the equipment and materials for each phase and conducting the facility survey, and the projected period was 36 months for all three phases. Project performance from Phases 1 to 3 is shown in Table 3; and the procurement of construction materials and the follow-up survey by the Japanese side and the classroom and facility construction by the local community on the Nepalese side were implemented during the planned period.

The construction of the classrooms by the local community was monitored by the technical officer from DEO of the targeted district and the District Development Committee engineer; after Phase 1 was completed, a three-month follow-up study was implemented by the Japanese side to understand the progress that had been made. Based on the lessons learned in Phase 1, a term of works that included the follow-up from the beginning of the project was established in Phases 2 and 3.

Table 3: Performance by the Japanese and Nepalese Sides during the Project

	Japanese Side (until the completion of equipment and materials procurement)	Nepalese Side (until the completion of facility construction)
Phase 1	Exchange of Notes: October 2003 Order Placement of Materials: February 2004 Completion of Materials Procurement: August 2004 (7 months until order placement for materials was completed) Follow-up Study: November 2004 to January 2005 (3-month period) Follow-up Study ¹⁵ : November 2004 to January 2005 (3-month period)	Start of Construction: March 2004 Facility Construction Completed: March 2005 (12-month period from start of construction to completion. Including acquiring and grading the land)
Phase 2	Exchange of Notes: December 2004 Order Placement of Materials: July 2005 Completion of Materials Procurement: February 2006 (8 months until order placement for materials was completed) Follow-up Study: Implemented by the time the Phase 2 was completed.	Start of Construction: October 2005 Facility Construction Completed: March 2006 (6-month period from start of construction to completion. Including acquiring and grading the land)

¹³ The Nepal government provided 378 million NRs including subsidies to the targeted schools. Based on the data obtained from the on-site interview conducted during the ex-post evaluation, it is surmised that the community contributed about 50,000 NRs per school. The usual community burden for school construction in the Nepalese government budget is higher than 210,000 NRs (one-fourth the construction cost) and about one-fourth was provided by the community in this project. It is estimated that the total community contribution to the 1,265 schools was 63 million NRs (about ¥98 million).

¹⁴ The project period is from the time the work is started for each phase, which includes the procurement of equipment and materials by the Japanese side until facility construction of the targeted schools is completed by the Nepalese side.

¹⁵ To confirm the implementation of facility construction by the community after the equipment and materials have been turned over, field work at the site in the form of a follow-up study was implemented.

	Japanese Side (until the completion of equipment and materials procurement)	Nepalese Side (until the completion of facility construction)
Phase 3	Exchange of Notes: August 2005 Order Placement of Materials: July 2006 Completion of Materials Procurement: May 2007 (11 months until order placement for materials was completed) Follow-up Study: Implemented by the time the Phase 3 was completed.	Start of Construction: September 2006 Facility Construction Completed: February 2007 (6-month period from start of construction to completion. Including acquiring and grading the land)

Source: JICA documents for performance by the Japanese side. For the Nepalese side, based on the response of the Department of Education to a questionnaire distributed during the ex-post evaluation of the project

The project period for the Nepalese side is based on the response by DoE to the questionnaire distributed in the ex-post evaluation; and classroom construction at all 1,275 schools and construction of 31 RC buildings was completed mostly within the project period. However, according to JICA documents, construction of restrooms or water supply facilities were not completed at the end of the follow-up study period for 20 to 30% of the schools during each phase; and it is surmised that the project period was longer than the period advocated by the Nepalese side.

This may probably have been due to the fact that Phases 2 and 3 of the project were started at the end of July or during the rainy season in August, which made construction work and the transport of materials difficult. Phases 1 and 2 were originally scheduled to begin before the start of the wet season, but due to a delay in the processing by the Japanese side, the project again started during the rainy season.

Following the start of the project, the delay in construction and transport of materials was compounded by frequent general strikes due to the deterioration of public safety and political stability on the Nepalese side and despite the effort that was made to implement the construction of classrooms as planned, the construction of restrooms and water supply facilities may have fallen behind at some of the schools. DoE has confirmed that the construction of facilities have been completed as planned at the targeted schools.

As explained above, there are a few unknown factors regarding the completion period of restrooms and water supply facilities, but based on the estimated number of uncompleted restrooms and water supply facilities at the time the completion notice was submitted in the completion report for Phases 1 to 3, approximately 90% of the total number of constructions was completed as planned.

Thus, based on the above, both project cost and project period were within the plan, therefore efficiency of the project is high.

Box 1: Cost Effectiveness of School Construction with Community Participation

If an approximate calculation is made from the amount indicated in the list of procured construction materials shown in the documents submitted to JICA, the average cost of the materials per building with two classrooms (excluding furniture) was about ¥1.3 million. DoE provided a construction subsidy (to cover the cost of transporting materials, the cost of additional materials, personnel cost of workers, etc.) of about 100,000 NRs to each school.¹⁶ As explained earlier, it is believed that the community provided about 50,000 NRs based on the on-site interview conducted during the ex-post evaluation, and combined with the government subsidy, a total of 150,000 NRs (about ¥230,000) is estimated to have been paid to cover the construction cost of one classroom building. The construction cost for one classroom building in this project was about ¥1.53 million. This does not include the cost of the consultant in Japan and the equipment and materials supplier.

In contrast, the Nepalese government provided each school with 650,000 NRs (75% of the entire construction cost was borne by the government) for one classroom building as part of its classroom construction budget in FY2010/2011 at the time of the ex-post evaluation. It is expected that the community covered the shortage of 210,000 NRs (25%) or more per building. In total, the construction cost of one classroom building is estimated to be 860,000 NRs (about ¥1 million) or higher.

If the construction cost of one classroom building based on community participation in this project was about ¥1.53 million and the budget of the Nepalese government and the community construction cost of ¥1 million are compared, the construction cost borne by this project was 1.5 times higher. However, if a classroom constructed under this project in the same school compound is compared to a classroom constructed by the Nepalese government and the local community, the former has a good educational environment with light and ventilation, the floor space follows classroom installation guidelines, the bricks are sturdy due to its specifications, and the classroom has been designed for easy maintenance. At the time of the ex-post evaluation, classrooms constructed during Phase 1 are now in their seventh year and continue to provide good room conditions (see photo 1).

In contrast, classrooms constructed under the government budget and through community funding are narrower than classroom installation guidelines, cracks in the wall have begun to appear two years after construction, and the paint on the walls have begun to peel off (see photo 2). When classrooms require repair, a request is filed with the District Development Committee (DDC) or the Village Development Committee (VDC)¹⁷ and a budget of 100,000 NRs (about ¥120,000) or higher might be obtained depending on the situation, but a budget is not allocated to all schools that file an application.

¹⁶ If the school was located in a mountainous area, the government provided a larger subsidy in comparison to schools located in the hill or Tarai areas. Information about the subsidies provided at this time was not available during this evaluation.

¹⁷ A District Development Committee (DDC) was created as a rural administrative institution and the Village Development Committee (VDC) was created under DDC. VDC is responsible for implementing development projects that are in correlation with the village development plan using public grants.

Information could not be obtained about the Nepalese government's ideas about the depreciation period of the classrooms in view of its "use it for as long as possible" stance. The classrooms constructed in this project are expected to provide a good educational environment for its pupils for at least a period of seven years following its completion. Although a numerical value on cost effectiveness has not been given, the differences can be clearly seen as shown in photos 1 and 2. The benefits that exceed the difference of ¥500,000 in input amount per classroom building constructed in this project have been given to pupils studying in these classrooms.



Photo 1: Interior of a classroom constructed with community participation in this project



Photo 2: Interior of a classroom constructed with community participation and funded by the Nepalese government budget

In an interview with an international NGO that provides assistance for classroom construction in Nepal, it was found that its support of SSRP involved providing assistance to cover the personnel costs of engineers who are employed by DEO rather than classroom construction per se. If classroom construction is carried out using its own funds (or if a project is consigned by an outside source), the amount of assistance which is provided is based on the government classroom installation guidelines and implemented with community participation.

Local NGOs are also involved in classroom construction assistance (see photo 3). The construction cost is unknown. The classroom is smaller in area than the classroom installation standards of the government, but a certain degree of quality can be seen in the wall and floor surfaces, ceilings, etc.



Photo 3: The interior of a classroom constructed by the Nepalese NGO, Love Green Nepal, with private Japanese assistance

3.3 Effectiveness (Rating: ②)

An additional 2,530 classrooms in 15 districts were constructed under this project and the number of pupils and students that can be accommodated has increased. At the 127 schools that were sampled in the survey on beneficiaries¹⁸ (henceforth sample schools) quantitative improvement was seen in the number of classrooms, the number of pupils and students in grades 1 to 12, and the number of first graders. Although the quality of classrooms and restrooms provided by the project has been highly evaluated by its beneficiaries, the fact that more than a few of the constructed facilities were being used for purposes other than as classrooms and the fact that the classroom furniture that was procured are not fully used, project effectiveness has been rated as fair.

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

The number of permanent classrooms in the 15 target districts during the ex-ante evaluation rose from 19,177 classrooms (baseline) in 2003 to 21,707 classrooms (target value) in 2007 due to an increase of 2,530 classrooms that year (a 15% increase from the baseline). As a result, the number of students accommodated in the permanent classrooms rose from 709,410 (baseline) to 835,820 students in 2007 (an 18% increase) and this was the effect indicator.

Of the educational statistics (EMIS) of DoE, the statistics on permanent classrooms have not been made public and it was not possible to confirm the actual value for the number of permanent classrooms in 2007 and during the ex-post evaluation. But, as explained earlier, 2,530 classrooms were constructed in 15 targeted districts from 2004 to 2007; and in view of the fact that furniture was procured according to the classroom installation guidelines of DoE, these two effect indicators have been largely achieved.

3.3.1.2 Sample School Statistics in the Survey on Beneficiaries (survey findings)

Regarding the sample schools, Table 4 shows the number of schools according to the school year that was covered. There were 42 schools that consisted of grades 1 to 5, which were the most common, followed by 33 schools with grades 1 to 10.

¹⁸ In the ex-post evaluation, 127 schools in 5 districts were selected as sample schools in the survey on beneficiaries from among the 1,275 schools in the 15 targeted districts to study project changes before and after its implementation. The school principals from each target school and the chairman of the SMCs were the respondents in the survey on beneficiaries. Taking into account the implementation period of the ex-post evaluation, the 5 districts that were selected were relatively accessible from the capital, Kathmandu, and made it possible to grasp the conditions in the mountain area (altitude of 2,000m to 8,000m), the hill area (altitude of 500m to 2,000m) and the Tarai area (altitude of 80m to 500m). They were Sindhupalchok District (20 schools) and Dhading District (20 schools) with both mountain and hill area characteristics, and Kabhrepalanchok District (17 sample schools) and Syangja, District (30 schools) with hill area characteristics. It was not possible to visit Tarai area district due to public security concerns, but Makawanpur District (19 schools), which was relatively close to the Tarai area and Sindhuli District (21 schools) were visited.

Table 4: Number of Sample Schools in the Survey on Beneficiaries According to Grade

	Grades 1~3	Grades 1~4	Grades 1~5	Grades 1~6	Grades 1~7	Grades 1~8	Grades 1~9	Grades 1~10	Grades 1~11	Grades 1~12	Total
Number of Schools	1	5	42	10	6	12	4	33	1	13	127

Source: Survey on Beneficiaries in the ex-post evaluation

Of the 127 sample schools in the survey on beneficiaries, there were 122 schools (96.1%) that had School Improvement Plans (SIP) that schools are required to prepare by DoE and 88 schools with water supply facilities (69.3%). The education indicators obtained from the survey on beneficiaries are given in Table 5.

Table 5: Changes in the Education Indicator of the Sample Schools

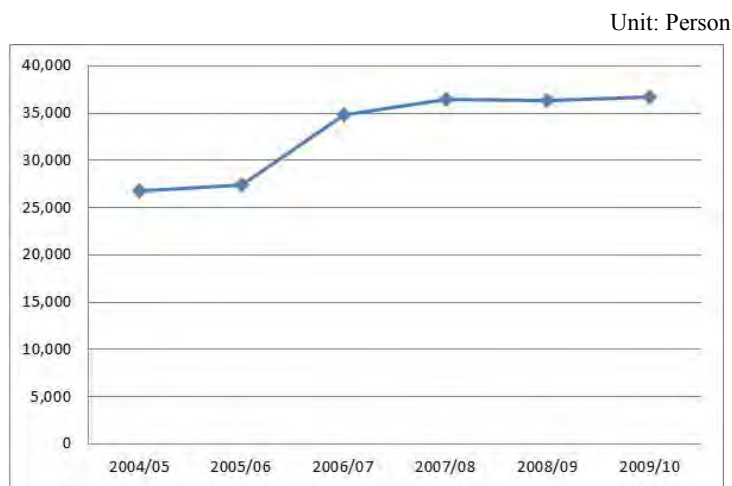
Indicator	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	Effective Response Number (schools)
Number of usable classrooms	785	786	953	1,001	1,038	1,149	108
Number of schools w/restrooms	Girl's	53	63	77	90	94	95
	Boy's	51	61	79	91	95	96
Students grades 1-12, # of students	26,710	27,344	34,847	36,449	36,366	36,675	124
Number of first graders enrolled	4,701	4,467	5,237	5,540	4,980	4,646	124
Number of first graders dropped out	720	536	723	809	708	609	124
Number of children in community not enrolled in school	1,561	519	992	859	582	788	38
Number of teachers	683	702	852	922	990	1,127	117

Source: Survey on Beneficiaries in this ex-post evaluation

When this project started in 2004/2005 and 2005/2006, the number of usable classrooms at the sample schools did not change, but rose to 953 schools in 2006/2007 (21.2% increase from the previous year) and a 3% to 10% increase from 2007/2008 to 2009/2010. The number of schools with restrooms increased by 10 to 15 schools up to 2007/2008, but after 2008/2009, the increase rate declined. The number of classrooms and restrooms increased in 2006/2007 is due to the effect of this project. Of the data given in Table 5, the change in the number of pupils and students in grades 1 to 12 in the sample schools are shown in Figure 1 (next page).

When the increase is seen according to year, the increase rate in the number of pupils and students was high from 2006/2006 to 2006/2007 showing a 27.4% increase over the previous year. Generally, when an increase in the number of classrooms are projected for schools in Nepal, the SMC will often hire an additional teacher using community contributions or the

government budget to cover the grade one year ahead rather than the current grade. Among the sample schools, since there were schools that increased the grades they covered by using the classrooms constructed under this project, it can be construed that the increase in the number of students and pupils in the sample schools was due to the classrooms that were constructed under this project.



Source: Survey on Beneficiaries in this ex-post evaluation

Figure 1: Changes in the Number of Pupils and Students in the Sample Schools

3.3.1.3 Use of the Classrooms (Findings of the Survey on Beneficiaries)

The classrooms constructed in this project were expected to be used primarily by pupils in the lower first and second grades with an extremely high dropout and holdover rate and classroom furniture was provided for the lower grades of the targeted schools.

In Nepal, the SMC at each school is responsible for deciding the use of the constructed classrooms. Although DoE issues guidelines on how to provide a good educational environment to improve the dropout rate of first and second-year pupils, as explained earlier, many SMCs will use the new, additional classrooms for the higher-grade students.

According to the findings of the Survey on Beneficiaries, 77 schools out of the 127 sample schools (60.6% of the total) used one or both of the two new classrooms for the lower grades (first or second grades), but 81 schools (63.8% of the total) used one or both of the two new classrooms for the third to fifth grade (see Table 6).

In addition, there were 23 schools (18.1% of the total) that were using the classrooms for other purposes (library, staff room, laboratory, storage). To improve the quantitative and qualitative situation at school, it is desirable that the classrooms be used at least for pupils and students.

Even if the new classrooms were used for the lower grades, cases were seen where they were divided in half by a concrete wall and used as two classrooms rather than as one if the number of first and second grade pupils was less than ten. The target schools in this project were supposedly selected based on the needs of the school, but in light of the decreasing population

in the mountain and hill areas and the rise in the number of students enrolling in private schools, school location in the district and the allocation of new classroom construction should be reviewed and there is a need to confirm the relevance of school needs.

Table 6: Use of the Two Constructed Classrooms in this Project by the 127 Sample Schools
(multiple answers possible)

Classroom Use	Pre-primary (ECD*)	First to Second Grade	Third to Fifth Grade	Sixth to Eighth Grade	Ninth to Tenth Grade	Eleventh to Twelfth Grade	Other
Number of Schools	21	77	81	22	7	0	23

Source: Survey on Beneficiaries in this ex-post evaluation

Note: * = ECD: Early Childhood Development

3.3.1.4 Number of Pupils and Students per Classroom at Sample Schools (Findings from Survey on Beneficiaries)

Table 7 (next page) shows the transitions (2002/2003 prior to project implementation, 2007/2008 after project completion, 2009/2010 during the ex-post evaluation) in the number of classes according to class size based on the number of students and pupils per classroom in the 127 sample schools in the Survey on Beneficiaries. During the ex-post evaluation, government guidelines on the number of students per classroom in basic education (grades 1 to 8) for the Tarai area was 40 students, 35 students in the hill area, and 30 students in the mountain area.

Table 7 shows the transitions in the number of classrooms according to class size (number of students and pupils per classroom) using as a standard the quota of 40 students for basic education in the Tarai area during the ex-post evaluation.

Excluding the fact that approximately half (50.5%) of all classes at the sample schools in Makawanpur District had less than 40 pupils, the number of classes with less than 40 pupils comprised more than 70% at the sample schools in the other 5 districts and had improved. The reason can be attributed to the additional classrooms, but other factors are surmised such as the trend toward a population decrease in the mountain and hill areas due to the demographic shift in the Tarai area, the advent of many private primary schools in both the urban and rural areas where education is taught in English, and the growing tendency for parents to enroll their children at these private schools, which has resulted in a decrease in the enrollment rate at public primary schools.

In the case of secondary education (grades 6 to 12), there are few public and private schools that provide education above the sixth grade and students tend to concentrate at the public schools that do. Despite these conditions, the overall ratio of classes with less than 40 students for grades 6 to 12 improved from 2002/2003 to 2007/2008 in five out of six sample districts (Syangja, Dhading, Makawanpur, Sindhupalchok).

Table 7: Transitions in the Number of Classes According to Class Size (number of pupils and students per classroom) in the Sample Schools in the Survey on Beneficiaries

Unit: Class

Number of students, pupils per classroom	Total of First to Fifth Graders			Total of Sixth to Twelfth Graders			Total of First to Twelfth Graders		
	2002/2003	2007/2008	2009/2010	2002/2003	2007/2008	2009/2010	2002/2003	2007/2008	2009/2010
Syangja District (30 sample schools)									
Classes w/less than 40 (overall ratio)	84 (64.1%)	111 (77.6%)	138 (95.2%)	17 (27.9%)	34 (40.0%)	39 (40.6%)	101 (52.6%)	145 (69.6%)	177 (73.4%)
41-70 students/class	36	29	7	43	49	57	79	78	64
71-100 students/class	7	3	0	1	2	0	8	5	0
More than 101 students	4	0	0	0	0	0	4	0	0
Total number of classes at sample school	131	143	145	61	85	96	192	228	241
Dhading District (20 sample schools)									
Classes w/less than 40 (overall ratio)	70 (75.3%)	73 (73.7%)	75 (76.5%)	9 (75.0%)	14 (56.0%)	26 (63.4%)	79 (75.2%)	87 (70.2%)	101 (72.7%)
41-70 students/class	21	24	22	3	11	14	24	35	36
71-100 students/class	2	2	1	0	0	1	2	2	2
More than 101 students	0	0	0	0	0	0	0	0	0
Total number of classes at sample school	93	99	98	12	25	41	105	124	139
Makawanpur District (19 sample schools)									
Classes w/less than 40 (overall ratio)	21 (45.7%)	30 (37.5%)	47 (50.5%)	0 (0%)	3 (12.0%)	12 (28.6%)	21 (38.9%)	33 (31.4%)	59 (43.7%)
41-70 students/class	20	44	43	3	16	27	28	66	73
71-100 students/class	2	4	3	2	4	3	2	4	3
More than 101 students	3	2	0	3	2	0	3	2	0
Total number of classes at sample school	46	80	93	8	25	42	54	105	135
Sindhupalchok District (20 sample schools)									
Classes w/less than 40 (overall ratio)	65 (76.5%)	66 (69.5%)	74 (79.6%)	20 (58.8%)	21 (41.2%)	29 (52.7%)	85 (71.4%)	87 (59.6%)	103 (69.6%)
41-70 students/class	18	25	18	12	26	25	32	55	44
71-100 students/class	2	4	1	2	4	1	2	4	1
More than 101 students	0	0	0	0	0	0	0	0	0
Total number of classes at sample school	85	95	93	34	51	55	119	146	148
Kabhrepalanchok District (17 sample schools)									
Classes w/less than 40 (overall ratio)	50 (72.5%)	59 (79.7%)	71 (83.5%)	9 (75.0%)	12 (66.7%)	16 (69.6%)	59 (72.8%)	71 (77.2%)	87 (80.6%)
41-70 students/class	19	15	13	3	6	5	22	21	18
71-100 students/class	0	0	1	0	0	1	0	0	2
More than 101 students	0	0	0	0	0	1	0	0	1
Total number of classes at sample school	69	74	85	12	18	23	81	92	108
Sindhuli District (21 sample schools)									
Classes w/less than 40 (overall ratio)	54 (76.1%)	57 (54.8%)	76 (73.1%)	9 (36.0%)	14 (26.4%)	30 (44.8%)	63 (65.6%)	71 (45.2%)	106 (62.0%)
41-70 students/class	11	43	19	14	36	34	31	83	62
71-100 students/class	5	2	7	2	1	2	2	1	2
More than 101 students	1	2	2	0	2	1	0	2	1
Total number of classes at sample school	71	104	104	25	53	67	96	157	171

Source: Survey on Beneficiaries in this ex-post evaluation



Photo 4: Students of the Targeted School Completed the School Leaving Certificate (SLC) Examination

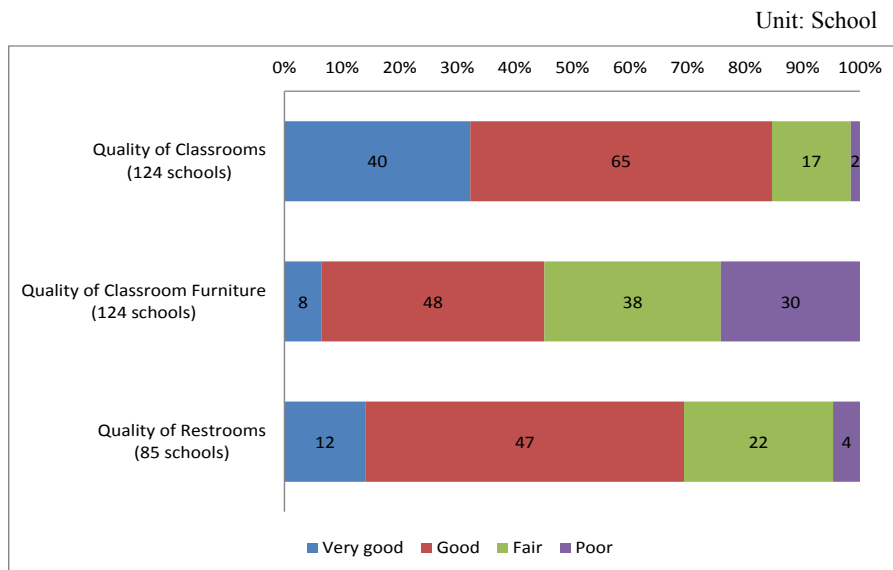


Photo 5: Classrooms Constructed by the Project on the Hilltop

3.3.2 Qualitative Effects

3.3.2.1 Evaluation of the Facilities and Furniture Provided by the Project (Findings of the Survey on Beneficiaries)

Figure 2 shows an evaluation of the quality of the classrooms, restrooms, classroom furniture provided by the project based on the findings obtained from the Survey on Beneficiaries (extremely good, good, average, poor).



Source: Survey on Beneficiaries in this ex-post evaluation

Figure 2: Evaluations of Facilities and Furniture by Sample Schools

Evaluations were received from 124 schools regarding the quality of the classrooms, of which 40 schools (32.3% of the total) rated classroom quality as extremely good and 65 schools (52.4%) rated classroom quality as good. There were 105 schools (84.6%) which responded that

the quality of the classrooms was extremely good or good. The two schools that rated the quality as poor responded that they “were unable to use the classroom due to rain erosion and poor maintenance.”

The 17 schools that rated the quality as average responded that “the quality of the cement, steel frame, and other materials used in the construction was poor,” “poorly applied lime plaster,” and comments about the need for repairs due to poor construction methods, procedures, and maintenance were received. Although the actual conditions at the schools were not observed and the details have not been clarified, the cause appears to be due to inexperienced construction work and inadequate maintenance after the facility was completed.

Regarding the restrooms, 69 schools out of 85 (81.2% of the total) responded that the quality of the restrooms was “extremely good” or “good.”

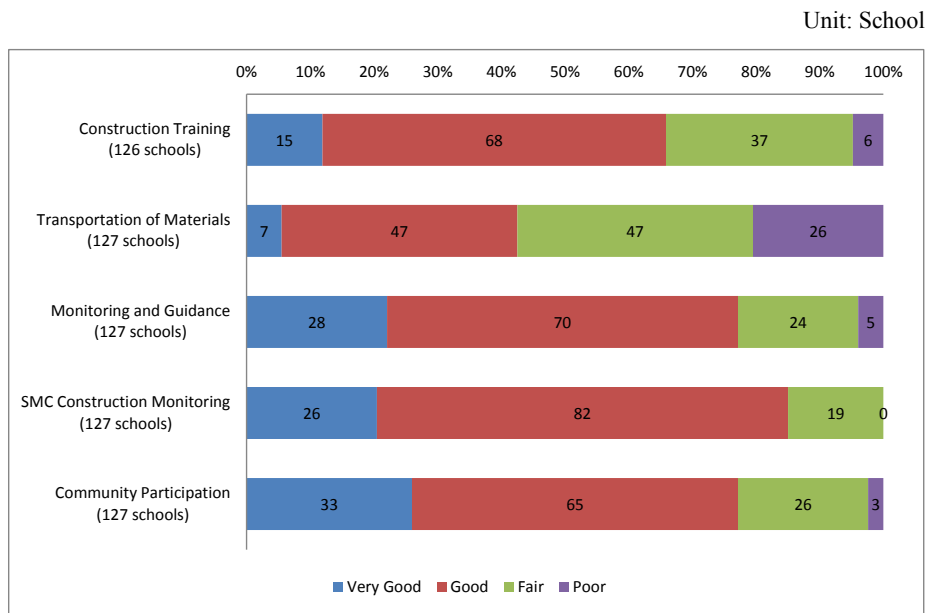
Regarding the furniture, 30 schools out of the 124 schools (24.2% of the total) that responded said that “the quality was poor,” and 38 schools (30.6% of the total) responded the furniture was “average.” Of the 2 sample schools from each district of Makawanpur, Kabhrepalanchok, and Syangja that were observed during the field study for a total of 12 classrooms at 6 schools, it was found that the furniture was used in only 3 classrooms at 2 schools in the Syangja District (25% of the total).

The reasons for their nonuse was they were too small to be used in upper secondary classrooms, there was the common practice to study by sitting directly on the floor using cushions in preschool classrooms, wooden furniture was the norm in Nepal and desks and chairs with steel legs had been supplied by the project.

Schools that were not using the procured furniture were using wooden furniture that was supplied by the schools themselves for their pupils and students. At some schools, the desks provided by the project were used as long seats by staff members or stored away. Schools that were using the desks and chairs supplied by the project said the legs were too thin to support children climbing over them and were breakable or the screws loosened too easily, or it was difficult for farming villages to obtain spare screws; and problems related to use and maintenance were pointed out.

3.3.2.2 Evaluation on the Quality of Each Process of the Project (Findings of the Survey on Beneficiaries)

Figure 3 shows the evaluations on the quality of each process of the project (construction training, transport from the depot to the school, monitoring instructions by DEO, project supervision by the SMC, community participation) obtained from Survey on Beneficiaries. Although the number of responses differs according to the process, 126 to 131 schools responded.



Source: Survey on Beneficiaries in this ex-post evaluation

Figure 3: Evaluations by Sample Schools on Each Process of the Project

Evaluations on each process of the project tended to be the highest for SMC project supervision perhaps because the SMCs were evaluating themselves, and 26 schools (20.5% of the total) responded “extremely good,” 82 schools (64.6% of the total) responded “good.”

The lowest rating of “poor” was given to the process of transporting materials from the depot to the school by 26 schools (20.5%) and 47 schools (37.0%) responded “average.” The ratio of schools that gave comparatively high ratings of “extremely good” or “good” for monitoring instructions by DEO and the community participation exceeded 75%.

Based on the above, this project has somewhat achieved its objectives; however, because there are some issues observed regarding the purpose of the constructed facilities and the degree to which the classroom furniture is used, project effectiveness is fair.

3.4 Impact

3.4.1 Intended Impact

3.4.1.1 Changes in the Enrollment Rate in the Targeted Districts

The number of schools constructed in each of the 15 districts targeted in the project and the enrollment rate for grades 1 to 5 for the entire district are shown in Table 8. Education statistics for 2006/2007 and 2005/2006 prior to the implementation of this project were not archived by DoE and could not be obtained in the ex-post evaluation implemented this time.

Table 8: Number of Classrooms Constructed under This Project in the Targeted 15 Districts and the Enrollment Rate in Grades 1 to 5

Targeted District	Number of Constructed Schools Due to This Project			Enrollment Rate in Grades 1 to 5 in the Targeted 15 Districts (students)			
	Phase 1	Phase 2	Phase 3	2006/2007	2007/2008	2008/2009	2009/2010
Bara District	/	142	160	104,684	106,311	123,458	155,088
Bardiya District	160	/	/	81,440	80,569	81,186	78,743
Dadeldhura District	/	70	70	31,317	30,512	30,561	30,148
Dang District	144	136	/	97,446	95,181	101,879	91,259
Dhading District	/	66	66	73,960	72,685	72,591	71,322
Gorkha District	/	44	44	57,200	56,823	54,508	51,882
Kailali District	140	140	/	132,277	129,679	130,230	135,314
Kapilbastu District	156	/	/	81,198	101,140	87,055	111,570
Kabherpalanchok District	/	74	74	78,087	78,606	77,973	76,885
Makawanpur District	/	56	56	91,757	94,193	91,385	89,018
Nuwakot District	54	/	/	59,897	56,146	57,575	49,613
Saptari District	/	122	160	43,310	63,552	66,842	58,604
Sindhupalchok District	78	78	/	49,707	60,604	43,057	63,555
Sindhuli District	/	50	50	67,428	77,144	88,009	87,171
Syangja District	/	70	70	52,794	56,848	55,907	53,602
Total of 15 Targeted Districts	/	/	/	1,102,502	1,159,993	1,162,216	1,203,774

Source: Survey on Beneficiaries in this ex-post evaluation

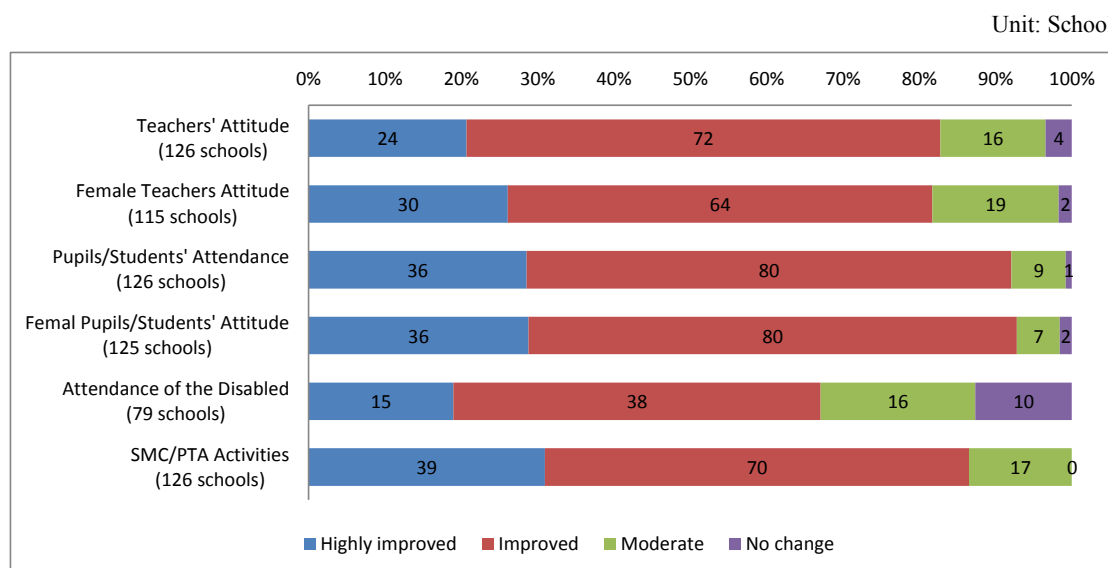
As shown in the four-year period in Table 8, an increase in the enrollment rate can be seen in the five districts of Kapilbastu, Bara, Sindhupalchok, Sindhuli, and Saptari, but have leveled off or slightly declined in the other ten districts. Private schools in Nepal have begun to gain prominence nationwide and the increase and decrease in the enrollment rate cannot be ascertained as being related to the number of schools constructed under this project. In addition, figures prior to 2005/2006 should be looked at regarding the impact of Phase 1 of this study. However, the enrollment rate in the districts of Bara, Sindhuli, and Saptari, where classroom construction phases 2 and 3 were implemented, rose greatly in comparison to other districts in 2006/2007 and 2007/2008 and it is surmised that this is due to the impact of the project.

3.4.1.2 Changes in Attitude and Awareness in the Targeted Districts (Survey on Beneficiaries)

Figure 4 shows the changes that this project has caused at the sample schools in terms of teachers, pupils, students, and the community. The most positive change attributed to this project is the attendance rate and attitude of the pupils and students. Of the survey respondents, 36 schools (28.6%) stated that the attendance rate and attitude “have greatly improved”, 80 schools (53.5%) responded that it has “improved,” and 92.1% of all the sample schools appears to have had a positive impact.

The Survey on Beneficiaries did not clarify whether there were any changes in attitude and awareness among the female teachers, pupils and students with the installation of restrooms for the girls. Regarding SMC and PTA activities, 39 schools (31.0%) responded that they have “greatly improved” and 70 schools (55.6%) said that they have “improved,” and positive

changes were seen in 86/6% of all the sample schools. Although a few schools stated that “there were positive changes” in the attendance rate and attitude of children with disabilities, the schools that responded “there were hardly any changes,” or “there was no difference” comprised 32.9% of the all the schools.



Source: Survey on Beneficiaries in this ex-post evaluation

Figure 4: Changes in Attitude and Awareness at the Sample Schools

3.4.2 Other Impact

3.4.2.1 Impact on the Natural Environment

During the ex-ante evaluation, it was concluded that negative impact would be minimal since construction would take place within the school compound, but the school compound area is limited in the mountain and hill areas of Nepal. Among the targeted schools, there were a few cases where the land had not been prepared and the public facilities and green areas around the school were converted to the school compound or the mountain surface was carved out. Information about this type of negative impact that occurred in correlation with land acquisition was not available during this study.

3.4.2.2 Land Acquisition, Removing Communities

The Nepalese side (SMC) was responsible for all land acquisitions related to the project and in the notice of completion, nothing was written about land acquisitions. According to the field study findings in the ex-post evaluation, measures were taken such as giving away private land in the community to the school because assistance for classroom construction was not granted to schools without any land, transferring publicly owned green areas to the school, or even leveling a slope in the school compound. There were cases where requests were made to level the land during the project period and as a result, the review and adjustment period for land acquisition and preparation were inadequate.

3.4.2.3 Other Indirect Impact

During the ex-ante evaluation, arsenic tests were conducted in conjunction with the installation of water supply facilities; and if arsenic levels higher than control values were detected, there was a need to implement measures to eliminate the arsenic. According to the facility investigation report by the responsible consultant, arsenic tests were conducted at 105 sites out of the 135 sites in Phase 1 where water supply facilities were planned. The test showed two sites where arsenic levels exceeded control values (higher than 0.05mg/l) at the time of the follow-up survey completion in Phase 1. When the same test was repeated in Phases 2 and 3, arsenic was not detected at the schools with uncompleted water supply works, thus nothing was mentioned in the report.

The arsenic test cases were confirmed with DoE during the ex-post evaluation, but the person-in-charge had changed and the data could not be obtained. According to the consultant who was in charge, DoE was very diligent about conducting the arsenic tests, which were also adequately carried out in Phases 2 and 3. At the time of the ex-post evaluation, DoE properly conducted the arsenic tests for the planned and the on-going water supply facilities; where there are only limited cases found. However, because the necessity of the arsenic tests was pointed out and the issues might seriously influence pupils and students' health conditions, DoE should have monitored the progress of arsenic tests and shared the test results with the relevant agencies.

Based on the above, it is surmised that the project contributed to increasing the enrollment rate in primary education in the targeted 15 districts. According to the findings of the Survey on Beneficiaries, positive changes were seen in the participation and attendance rate, attitude, and awareness of pupils, students, SMCs, PTAs, and teachers at the sample schools. Land was acquired for classrooms due to the combined efforts of the SMC and the community. The impact on the natural environment may exist, but during the field study, negative impact on the social environment was not reported.

3.5 Sustainability (Rating : ②)

3.5.1 Structural Aspects of Operation and Maintenance

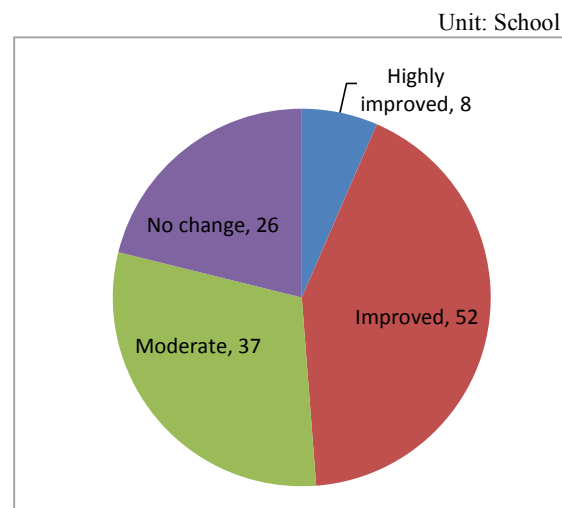
The SMC is responsible for the operation and maintenance of the constructed facilities, but regular maintenance is not carried out. When repairs are needed, the SMC will submit a proposal to DEO or VDC and a budget for repairs (about 100,000 rupees) is secured and the repairs are carried out. The frequency in which the classrooms are cleaned may differ according to school, but it is usually done by the teachers and students. The durability of the classrooms constructed under this project is good and they are maintained in good condition at this point in time. Although the SMC is in charge of maintenance, there is no regular maintenance system. If the SMC or PTA is taking responsibility for the facility's maintenance, then this role should be made clear; and it is desirable that guidelines and training sessions on regular maintenance and cleaning methods are provided rather than just emergency repairs.

3.5.2 Technical Aspects of Operation and Maintenance

In the past under BPEP-II, DoE prepared an operations and maintenance manual and held training sessions for schools nationwide, but presently, the manual remains unused and since training sessions are no longer held, the technical aspects of facility operations and maintenance at each school is low. Even under this project, training in school facility operations and maintenance were not provided for the SMC, PTA, and community residents.

Figure 5 (next page) shows an evaluation of the operations and maintenance capacity of the schools in the Survey on Beneficiaries. There were only 8 schools (6.3%) which responded that operations and maintenance had “greatly improved,” and only 52 schools (41.3%) stated that the situation had “improved.” These schools are believed to have improved their technical skills in operations and maintenance through the construction monitoring activities carried out by DEO.

Although the SMC has been placed in charge of facility operations and maintenance, in actuality, they have not been adequately carried out. It is important that DoE and DEO re-review the existing operations and maintenance structure such as the SMC manual and put it into practice.



Source: Survey on Beneficiaries in this ex-post evaluation

Figure 5: Improved Operations and Maintenance Capacity at Each School due to the Project

3.5.3 Financial Aspects of Operation and Maintenance

In interviews conducted with DoE and the schools during the ex-post evaluation, it was found that the DoE allocates funding for facility maintenance and operations, but it does not submit a budget. If a facility breaks down and requires repairs, the SMC reviews the matter and submits a request for funds to DEO or VDC, and repairs are carried out when funds are granted. For moderate repairs, 100,000 rupees are provided and 200,000 to 300,000 rupees are issued for serious repairs.

The durability of the classrooms constructed under the project is good and its design is low

maintenance, and despite the lack of a fixed maintenance budget, they are in comparatively good condition. The school budget is limited with almost no funds for maintenance and the fact that the facilities can be maintained by the community is a benefit.

Funding for repairs provided by DEO and VDC are not always issued even after an application for repairs has been submitted due to the limits that exist for each district and village. DDC and VDC have been instructed by the central government to allocate the majority of their budget to basic education, but the overall budget is limited. For example, 20% of the development budget (300,000 to 500,000 rupees) of the Dhading DDC is allocated to the education sector. But school needs are not limited to facility repairs. The budget also pays the salaries of temporary teachers who are hired to fill the shortage of teachers. As a result, school building repairs are not adequately implemented.

According to the findings of the Survey on Beneficiaries, 56 schools out of the 127 sample schools (41% of the total) said that they prepare an annual a maintenance budget of 10,000 to 50,000 rupees. The budget is funded by education funds provided by DEO or by donations of 1,000 or 2,000 rupees which are collected from each pupil or student. The remainder of the schools replied that they did not have a maintenance budget.

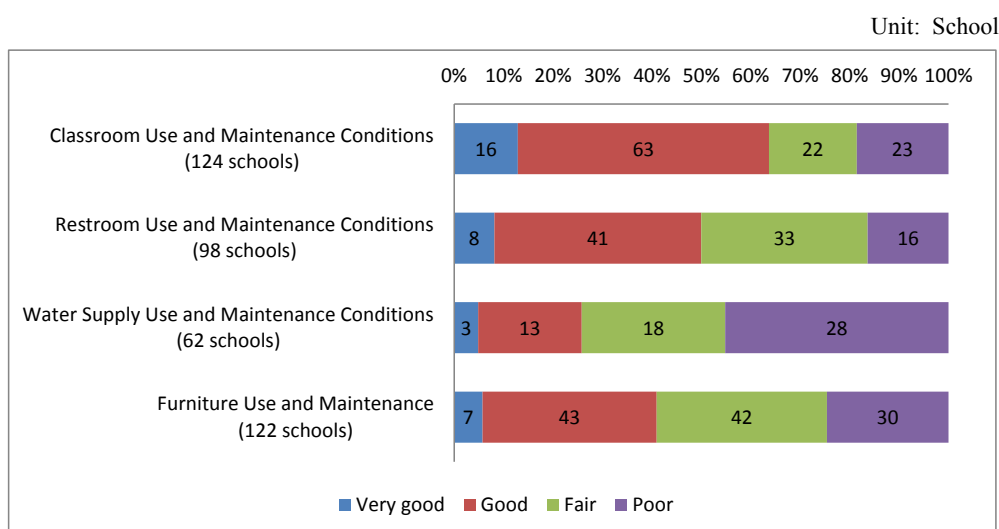
3.5.4 Current Status of Operation and Maintenance

During the field study, it was observed that the durability of the classrooms constructed by the project was good and since the design required minimal maintenance, they were in comparatively good condition. As explained earlier, there were some cases where the classrooms were not used according to their original intent, but as staff rooms, a library, and for other non-classroom functions. Although the intended use of the classrooms is the decision of the SMC, in order to reform primary education, the management of school facilities must be improved to provide the best educational environment possible for the lower grades.

As described earlier, due to the small number of first graders at some of the primary schools in the hill area, the classrooms were split in half by concrete or brick walls and used as two classrooms. Although they were kept clean, the classrooms were extremely narrow and stifling. There were cases where the classroom furniture provided by the project was not in use and had been substituted with wooden furniture paid for by the school. There were cases where the furniture was sent out for repairs due to loose screws or cases where the furniture was not in use due to lost screws. Opinions such as the “furniture did not meet school needs so it wasn’t used” and “maintaining the furniture was difficult” were voiced. There were no problems with the furniture for the RC and were used in good condition. DoE must provide comprehensive facility guidelines regarding the separation of one classroom into two separate classrooms

Figure 6 shows the results of the Survey on Beneficiaries regarding the maintenance conditions of the classrooms, restrooms, water supply facilities, and classroom furniture provided by the project and the response from the sample schools were divided into the four categories of “extremely good,” “good,” “average,” and “poor.” Of the sample schools, 16 schools (12.9%) responded with an “extremely good” and 63 schools (50.8%) rated the facilities

as “good.” In contrast, 23 schools (18.5%) rated maintenance of the facilities as “poor,” and 28 schools (45.2%) rated maintenance of water supply facilities as “poor.” For maintenance of classroom furniture, 30 schools (24.6%) responded with a “poor.”



Source: Survey on Beneficiaries in this ex-post evaluation

Figure 6: Use and Maintenance of Facilities and Furniture at Sample Schools

Based on the above, despite the fact that the facilities were used in comparatively good condition due to the sturdiness of the classrooms and the low-maintenance design, a few problems have been observed in terms of structural, technical, and financial aspects, therefore the sustainability of project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objectives of the project were to improve the quantitative and qualitative aspects of basic education in 15 districts in Nepal by improving classrooms, restrooms, water supply, and other facilities with the local community participation. The purpose of the project was to be consistent with the development policy given in the ex-ante and ex-post evaluations; and the project was highly relevant in terms of the stakeholders’ need. In light of the fact that project output, cost and project period was achieved according to plan; project implementation has been highly efficient. A total of 2,530 classrooms were constructed according to the project plan and the student capacity of the targeted schools rose showing effectiveness to a certain extent. However, because there are some issues observed regarding the purpose of the constructed facilities and the degree to which the classroom furniture is used, project effectiveness is fair. The management and maintenance of the classrooms and other school facilities were not adequately implemented in the structural, technical, and financial areas, and the existing framework was not

sufficiently utilized. The sustainability of the project's effect was seen as satisfactory.

In light of the above, this project has been evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

- 1) To sustain the impact of this project, it is recommended that specific guidelines on regular inspection and maintenance of classrooms and facilities and not just for emergency repairs are prepared, and the responsibilities of the SMC, PTA, and community need to be clarified in the SIP of each school. Guidance should be provided to implement this.
- 2) In addition, although it is important that DoE respect the independence and ownership of the SMC, in view of the acute dropout rate of first and second grade pupils, it is important that each school understands that providing a good educational environment is crucial for the lower grades.
- 3) Due to the demographic shift from the mountain area to the Tarai area, the integration of schools in the mountain and hill area and the growing prominence of private schools, the needs of existing public schools are undergoing major changes. It might be necessary for DoE to update the school location/enrollments information of the public and private schools to create more efficient school construction plan, which reflects the actual conditions in the districts. School mapping (it does not have to be digital, but analog, key maps that simply show school locations) should be adequately implemented to help the government quickly grasp the conditions that dominate basic education services.

4.2.2 Recommendations to JICA

The revision of constitutional laws in the peace-building process in the aftermath of political conflict has lagged and the capacity of MoE and DoE to execute a budget is inadequate due to the unorganized structure of the central and local governments. The Nepalese side recognizes JICA as a major partner in its school construction programme and in view of this fact, technical cooperation, etc. should be provided under SSRP to help review the school locations of the central and local governments, to prepare school construction plans, to provide monitoring technology for construction projects, and to help improve budget execution and project implementation capacity, while confirming the needs of MoE and DoE. In an interview with an international institution that was conducted during the field study, JICA's importance in providing assistance to enhance the capacity to monitor school construction was discussed. It is desirable for JICA to promote and enhance the assistance not only in classroom construction but also in capacity development of construction planning, monitoring and maintenance at the central and the local government level as well as at the school level.

4.3 Lessons Learned

Through the procurement of construction materials and the school construction based on community participation, this project contributed to the effectiveness of utilizing local resources

for school construction and it was significant in quantitatively improving education in the targeted districts.

However, it should be noted that land acquisition activities had been conducted in a few cases, despite the fact that there had supposedly been none conducted during the ex-ante evaluation, and it is possible that the review and adjustments were not adequately carried out. To prevent such activities from reoccurring, there is a need to improve the provision and confirmation of information beforehand.

By providing assistance that prioritized quality-controlled procurement of construction materials and enhanced construction monitoring activities, it is possible to construct good quality classrooms with the participation of the community. It is important that JICA make an even stronger appeal to the Nepalese government and other donors to show the effectiveness of an improved classroom environment as well as disaster reduction. By effectively utilizing the output of this project to demonstrate the pursuit of good-quality classroom construction through community participation, it becomes possible to clearly show DoE and DEO the merits of project assistance.

END