China

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

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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 universities[1] 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.	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 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: A[2])

3.1 Relevance (Rating: ③[3])

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 stage[4] 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.

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[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, Reponses 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	Changes in outputs, and their reasons: ・ At 2 universities, there was no change in the planned output and the actual output. ・ At 9 universities, actual output was better than planned. 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. 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. 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	Changes in outputs, and their reasons: ・ At 10 universities, there was no change in the planned output and the actual output. ・ At 3 universities, actual output was better than planned. 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

	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. ・ 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	・ 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, Reponses 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 m^2, expanding stronger than the planned level by 31,658 m^2, 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 Period[5]

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 m^2 in 2009 on average for the 16 target universities, getting improved from the reference data of 24 m^2 in 2000 and the target value of 28 m^2. This value also exceeds the reference value of the national standard[6] (30 m^2).

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 m^2) 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: m^2/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, Reponses 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 m^2. This national standard was revised in 2006, but the document materials submitted for JICA's appraisal describe "30 m^2 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, Reponses 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 Faculty[7] or Key Laboratory[8]

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

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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"	
Xi'an Foreign Languages University	Xi'an International Studies University
Xi'an University of Engineering Science and Technology	Xi'an University of Engineering Science & Technology
Xi'an Institute of Technology	Xi'an Institute of Technology
Xi'an Institute of Science and Technology	Xi'an University of Science & Technology
Xi'an Institute of Politics &Law	Northwest University of Political Science and Law
(2) Higher education institutes promoted from "3-year-course specialized school" to "institute"	
Xi'an Medical College	Xian Medical University
Ankang Teacher's College	Ankang University
Shangluo Teachers College	Shangluo University
Xianyang Teachers College	Xianyang Normal College
Yulin College	Yulin College
(3) Higher education institutes that have merged	
Shaanxi Institute of Technology	Shaanxi University of Technology
Hanzhong Teacher's College	
Yanan University	Yanan University
Yan'an College of Medicine	
Xi'an Institute of Statistics	Xi'an University of Finance and Economics
Shaanxi Business College	
Xi'an Allied University	Xi'an University of Arts and Science
Xi'an Education University	

Source: Reponses 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: Reponses 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.

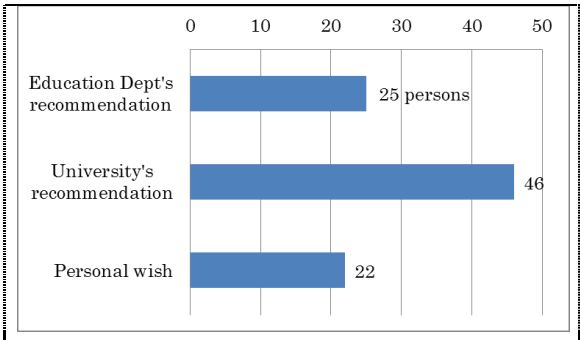
3.4.1.2 Encouraging mutual Understanding between Japan and China

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.

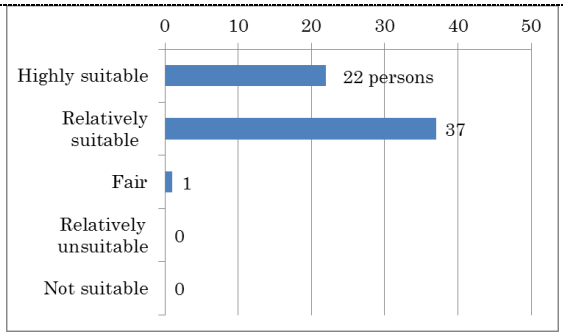
In the process of this ex-post evaluation, the evaluator conducted a beneficiary survey[10] on 59 university staff members participating in training programs at Japanese universities. Figure 1 shows the results of the beneficiary survey (59 samples) on the university staff participating in training programs 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.

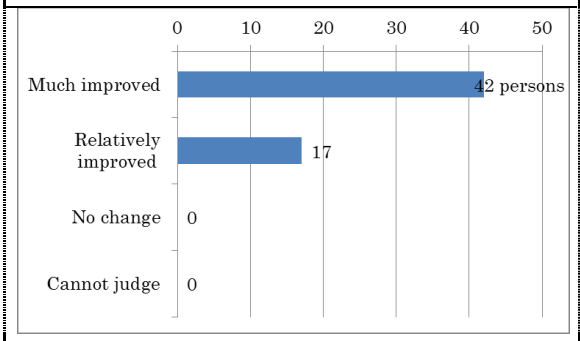
[10] In this ex-post evaluation, the evaluator conducted beneficiary (questionnaire) survey on 52 students of the target universities to check any change in university facilities/equipment/experiments or understanding about Japan, but many students do not know about this project, and significant results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



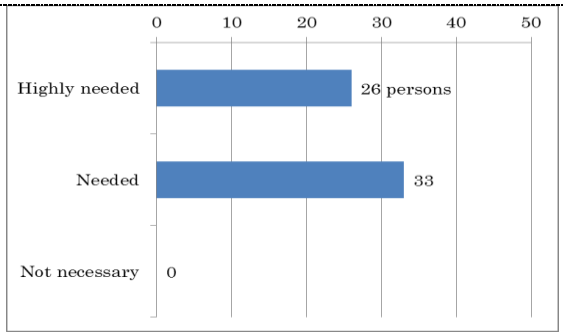
Question 1: Why do you decide to participate in a training program at a Japanese university?



Question 2: Is the training program at the Japanese university suitable to your needs?



Question 3: Do you have a deeper understanding of Japan through the training program at a Japanese university?



Question 4: Do you think it necessary to deepen human interactions with Japanese universities?

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 proving 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 ii. Enhancing educational facilities iii. Providing training sessions for university staff	 15 target universities, * total: 256,841m^2 16 target universities, total: 40,809 16 target universities, total: 247 university staff members	 15 target universities, total: 288,499m^2 16 target universities, total : 41,648 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 Amount paid in Local currency Total Japanese ODA loan portion Exchange rate	 6,021million yen 4,615 million yen (307.6 million yuan) 10,636 million yen 6,021 million yen 1 yuan = 15 yen (As of September 2001)	 6,020 million yen 6,694 million yen (495.8 million yuan) 12,714 million yen 6,020 million yen 1 yuan = 13.5 yen (As of December 2009)