

People's Republic of China

Ex-Post Evaluation of Japanese ODA Loan

“Inland Higher Education Project (Regional Vitalization, Market Economy Reform Support, and Environmental Conservation)” (Ningxia Hui Autonomous Region)

External Evaluator: Naomi Murayama, OPMAC Corporation

## 0. Summary

The objective of this project (hereinafter referred to as “the Project”) was to improve higher education in the Ningxia Hui Autonomous Region (hereinafter referred to as “NHAR”) quantitatively and qualitatively by supporting the construction of buildings, the procurement of equipment and the training of teachers in the target universities. This objective was consistent with China’s development plan and development needs as well as with Japan’s ODA policy at the time of both the appraisal in 2004 and the ex-post evaluation; therefore its relevance is high. The effectiveness and impact of the Project was high because quantitative indicators (building areas, amount of educational equipment) and qualitative indicators (number of key faculties and laboratories, number of research papers, etc.) have improved. Moreover, there are many cases of good practice in the utilization of buildings, equipment and training provided under the Project. Although the outputs were essentially completed in line with the initial plans, some equipment was additionally procured. While the project cost was within the plan, the project period exceeded the plan. Considering that the additional equipment, which was important for Project effectiveness, was procured in the final stage of the Project implementation, this was an unavoidable delay; therefore the efficiency of the project is high. No major problems have been observed in any of the institutional, technical or financial aspects of the operation and maintenance system and its current status is very good; therefore the sustainability of the project effects is high.

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

## 1. Project Description



Project Location



Laboratory building, Ningxia Medical Univ.

## 1.1 Background

As far as the economic situation of NHAR at the time of appraisal is concerned, the GDP per capita (RMB<sup>1</sup> 5,775 in 2002) was below the national average (RMB 7,966 in 2002). “The 10th NHAR Five-Year Plan (2001-2005)” had the target of an annual average GDP growth rate of more than 9.0% and of a GDP per capita of RMB 7,167 by 2005. In the fields of economic growth and industrial structural adjustment, the high-technology industry was specified as a key industry. The NHAR government recognized the necessity of expanding higher education for human resource development centering on this sector in order to attain its objective. It announced a policy to raise the higher education enrollment rate from 12.9% in 2002 to 13.5% in 2005 and the number of higher education students from around 34,000 (out of this total, 23,000 were ordinary higher education students) in 2001 to about 67,000 (with approximately 36,000 ordinary higher education students) by 2005.

## 1.2 Project Outline

The objective of the Project was to upgrade higher education in both quality and quantity for two important institutions<sup>2</sup> in NHAR by supporting the construction of school buildings, the procurement of educational equipment and the training of teachers in Japan, thereby contributing to regional vitalization, market economy reform and environmental conservation.

Loan Approved Amount/ Disbursed Amount	2,636million yen / 2,633 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March, 2004 / March, 2004
Terms and Conditions	Interest rate: 1.5 % (0.75% for training component) Repayment Period: 30 years (40 years for training component) (Grace Period) (10 years) Conditions for Procurement: General untied
Borrower/ Executing Agency (Agencies)	The Government of the People’s Republic of China / Ningxia Hui Autonomous Regional People’s Government
Final Disbursement Date	August, 2011
Feasibility Studies, etc.	1. F/S: “Feasibility Study Report Central and Western China Talent Training Project” (Ningxia Educational Loan Project management Office, August 2003) 2. JICA report: 1) “FY 2001 Special Assistance for Project Implementation(SAPI) for the Higher Education Project in China” (August 2003) 2) “SAPI for a Higher Education Project in the People’s Republic of China” (March 2004) 3) “SAPI for a Higher Education Project in China” (May 2005) 4) “The Supervision Survey Report on JICA Loaned Higher Education Project” (2010)

<sup>1</sup> Chinese Renminbi.

<sup>2</sup> The target universities at the time of appraisal were Ningxia University and Ningxia Medical College, currently Ningxia Medical University.

## **2. Outline of the Evaluation Study**

### 2.1 External Evaluator

Naomi Murayama, OPMAC Corporation

### 2.2 Duration of Evaluation Study

Duration of the Study: August, 2013 – November, 2014

Duration of the Field study: December 2, 2013 – December 27, 2013,

March 9, 2014 – March 17, 2014

## **3. Results of the Evaluation (Overall Rating: A<sup>3</sup>)**

### 3.1 Relevance (Rating: ③<sup>4</sup>)

#### 3.1.1 Relevance to the Development Plan of China

China was admitted to the World Trade Organization (hereinafter referred to as “WTO”) in December 2001 and has been aiming at high rates of economic growth, openness and reform through industrial structural adjustment. Disparities between coastal and inland areas, and between urban and rural areas, have been issues in China. To address increasing environmental issues, not only government initiatives but also a more comprehensive approach was needed, including human resource development and research on environmental conservation by higher educational institutions.

It was expected that the Project would contribute largely to regional vitalization, market economy reform and environmental conservation by human resource development through supporting tertiary education in one of China’s inland areas. The Project objectives complied with “The 10th Five-Year Plan for National Economic and Social Development”, “The 10th Five-Year Plan for Education”, “China Western Development”, “The 10th NHAR Five-Year Plan” and “The 10th NHAR Five-Year Plan for Education” at the time of appraisal.

At the time of the ex-post evaluation, the “National Mid- and Long-Term Reform and Development Plan for the Education Sector (2010-2020)” had been formulated in addition to “The 12th Five-Year Plan for National Economic and Social Development”, “The 12th Five-Year Plan for Education”, “China Western Development”, “The 12th NHAR Five-Year Plan” and “The 12th NHAR Five-Year Plan for Education”. In line with these plans, China has been promoting human resource development and regional disparity rectification for further economic growth, together with further openness and reform.

#### 3.1.2 Relevance to the Development Needs of China

At the time of the appraisal, the quantitative demand for higher education was growing, against the background of an increase in the number of secondary graduates and government

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<sup>3</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>4</sup> ③: High, ②: Fair, ①: Low

policies for an increase in the number of higher education students. However, insufficient capacity of facilities and teaching staff at universities was an issue. In order to address this issue, the enhancement of higher education from the aspects of infrastructure, human resources and finance was needed. The Project supported the enhancement of higher education; therefore it was consistent with the development needs of China.

Table 1: Number of Post-secondary Students and Tertiary Enrollments in NHAR

Unit: thousand

	2007 (Target)	2007 (Actual)	2012 (Actual)
Post-secondary students	23.3	42.0	47.0
Tertiary enrollments	31.0	19.0	32.0
Ordinary tertiary enrollments	12.0	8.1	13.4

Source: NHAR people's government

Note: Higher education institutions (tertiary) include vocational technical schools, short-term higher education, four-year universities, and graduate schools. Ordinary tertiary institutes include only four-year universities and graduate schools. In this chart, these indicate institutions excluding graduate schools.

The number of tertiary enrollments in NHAR have increased drastically in recent years (Table 1). Tertiary enrollments in 2007 were substantially below the target, but then afterward sharply increased. In 2012, tertiary enrollments and ordinary tertiary enrollments were above the targets set at the time of appraisal. According to the Education Department of NHAR, this is attributed to acceptance of more students at higher education institutions following the development of buildings and equipment.

At the time of Project planning, there were four higher education institutes (four-year ordinary universities and short-term higher education) in NHAR, of which one was a central-government-run university, one was for short-term higher education, and two were NHAR-government-run ordinary universities. Two ordinary four-year universities, which were not for short-term higher education (equivalent to *senmon gakko* or technical schools in Japan) but under the control of NHAR, were selected as the target universities. The NHAR Higher Education Development Plan at the time of ex-post evaluation clearly stipulated that the NHAR government intended to develop these two universities (Ningxia University and Ningxia Medical University) intensively. So it can be said that these target universities were important for human resource development in NHAR at the time of ex-post evaluation.

NHAR's higher education budgets during the Project implementation period were tight. On the other hand, the development of school facilities and equipment was an urgent task in order to address the increasing need for higher education. From the viewpoint of corresponding to need, the timing of the financial support by the Project was very appropriate. The budget in 2012 was more

Table 2: Higher Education Budget in NHAR

Unit: RMB million

FY2001	FY2007	FY2012
288.77	821.54	2,372.34

Source: Responses to the questionnaire

than eight times larger than the one in FY 2001 (before Project implementation). The higher education institutes in NHAR have achieved a more remarkable development with the government budget based on the facilities and equipment developed by the Project (Table 2).

### 3.1.3 Relevance to Japan's ODA Policy

Japan's ODA Charter at the time of appraisal placed 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, the Country Assistance Program for China, the Medium-Term Strategy for Overseas Economic Cooperation Operations and the Country Assistance Strategy for China at the time of appraisal made human resource development a priority from the viewpoint of support for openness and reform (market rules), environmental conservation, and regional development (including progress in Japan-China exchanges). The project objectives were therefore also consistent with Japan's aid policies.

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

## 3.2 Effectiveness<sup>5</sup> (Rating: ③)

### 3.2.1 Quantitative Effects (Operation and Effect Indicators)

In this ex-post evaluation study, the evaluator analyzed the quantitative effects using indicators directly related to the three project components, i.e. building construction, the provision of educational equipment and training. Specifically, contributions to increases in the number of students were evaluated by analyzing the areas of school buildings (floorage), the monetary value per student of educational equipment and the utilization rate of school buildings and educational equipment for quantitative improvement.

For qualitative improvements, the educational environment was analyzed by floorage per student and the monetary value per student of educational equipment. The contribution made by the project to aspects of education and research was then evaluated based on the number of key faculties, key laboratories, research papers, research projects and so forth.

#### 3.2.1.1 Improvement in Quantity

##### (1) Change in the number of students

In China, the number of higher education institutes and university students has sharply increased since the release of the "Action Plan for Educational Vitalization Facing the 21st Century" in 1998, which aimed at an increase in the university enrollment rate from 9.8% in

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<sup>5</sup> Sub-rating for Effectiveness is to be put with consideration of Impact.

1998 to 15.0% in 2010. In the meantime, the number of higher education institutes in NHAR increased from four in 2002 to eight as of 2012. The number of university students also increased, 1.8 times, from 27 thousand in 2002 to 48 thousand in 2012.

On the other hand, the growth rate of student numbers at the target universities was less than the total for the autonomy as a whole (a 77.8% increase). According to the Education Department of NHAR, this is attributed to stopping the mass recruitment of candidates in order to prevent deterioration in the quality of education in recent years. This is not a problem, however, as the number of students at the target universities has steadily increased (Table 3).

Table 3: Increase in students at the target universities

Unit: person

	Baseline (2002)	Actual (2007)	Actual (2012)	Increase compared to baseline	Growth rate (%) (2002–2012)
Ningxia University	16,220	17,084	18,321	2,101	13.0
Ningxia Medical University	3,416	5,578	7,383	3,967	116.1
Total	19,636	22,662	25,704	6,068	30.9

Source: Responses to the questionnaire

#### (2) Change in school building areas

To meet the increase in university students mentioned above (1), each target university constructed teaching and laboratory buildings, libraries and so on. The education environment was improved as the extensions of school building area were more than the growth rate of students at any of the target universities (Table 4). Ningxia Medical University relocated to a new campus in July 2007. The relocation was planned in 2005 and the school building under the Project was constructed at the new campus (completed on December 2008).

The Project buildings account for a relatively large share of the building areas at each university. In particular, the proportion of the school building area at Ningxia Medical University, which has relocated to a new campus, is large at 31.3% (Table 4). The Project has played a significant role in mitigating the shortage of buildings and facilities<sup>6</sup> and in education and research activities by the timing of its implementation, which coincided with the need to reconstruct school buildings and relocate a campus.

Table 4: Change in school building areas at the target universities

Unit: m<sup>2</sup>

	Baseline (2002)	Actual (2012)	Growth rate (%)	Project area	Project share (%)
Ningxia University	121,388	262,447	116.2	44,658	17.0
Ningxia Medical University	33,702	115,118	241.6	36,000	31.3

Source: Responses to the questionnaire

<sup>6</sup> The Project contributed to mitigating the shortage of buildings, which was an urgent issue for the target universities, by constructing around 20% to 30% of the total school building areas as of 2012.

(3) Change in the monetary value of educational equipment

In NHAR, the monetary value of educational equipment increased drastically. The Undergraduate University Establishment Standards of China of the Ministry of Education of the People’s Republic of China has the following requirements: that the monetary value of educational equipment per student for science faculties is not less than RMB 5,000; for literature and social faculties, not less than RMB 3,000; for gymnastic and art faculties, not less than RMB 4,000. Neither of the target universities met this requirement before Project implementation. After Project completion, however, both the target universities met this requirement (Table 5).

Table 5: Monetary value of educational equipment

Unit: RMB

	Baseline (2002)	Actual (2007)	Actual (2012)
Ningxia University	3,999	7,547	15,343
Ningxia Medical University	2,911	10,633	16,961

Source: Responses to the questionnaire

The total amount of educational equipment greatly increased at both the target universities (Table 6). After Project implementation, the government budget for higher education rose sharply so that the Project share was only 10% to 20% of the total amount in 2012. Considering the limited total amount of educational equipment before commencement of the Project, however, it can be seen that the school buildings and equipment developed by the Project played an important role during Project implementation.

Table 6: Total amount of educational equipment

Unit: RMB million

	Baseline (2002)	Actual (2012)	Growth rate (%)	Project equipment	Project share (%)
Ningxia University	64.86	281.11	333.4	36.25	12.9
Ningxia Medical University	12.20	198.79	1,529.4	45.08	22.7

Source: Responses to the questionnaire

Moreover, as mentioned later, the Project played a role in the designation of Ningxia University as one of the Project 211<sup>7</sup> universities, in its accreditation as an institute awarding doctorate degrees, and in its being granted the honorable title “Excellent University” in the “Undergraduate University Teaching Level Evaluation”<sup>8</sup> conducted by the Ministry of Education of China. It also played a role in the upgrading of Ningxia Medical “College” to Ningxia Medical “University” in 2008. School facilities were greatly improved by the Project

<sup>7</sup> Project 211 is a national project, named from an abbreviation of “the 21st century” and “approximately 100 universities” respectively. To be designated as Project 211 by the Ministry of Education of the People’s Republic of China means that the university is at a top level in education, research and management. (Source: Japan Science and Technology Agency China Research Center, 2011, “2010 Current Situation and Trend of Higher Education in China”)

<sup>8</sup> The evaluation system for higher education introduced by the Ministry of Education of China. Once every five years, school operations and the quality of education are evaluated. The first phase of evaluation was conducted from 2003 to 2008. The results are evaluated on a four-point scale.

and as a result, the target universities received good ratings, as mentioned above. This led to increases in the budget granted from the government to the target universities. Thus, the education and research environments were improved in a virtuous cycle created by the Project.

(4) Utilization rate of school buildings and educational equipment

As mentioned above, the school building areas and the monetary value of educational equipment increased as each target school quantitatively responded to the increase in students. However, effectiveness cannot be discussed if buildings and equipment are not actually utilized.

Table 7 shows the utilization rate of major school buildings. In each university, the utilization rate is 100% and thus it can be said that the buildings are sufficiently utilized.

Table 7: Utilization rate of major school buildings

	Unit: %	
	2007	2012
Ningxia University	100	100
Ningxia Medical University	100	100

Source: Responses to the questionnaire

Table 8: Utilization rate of major equipment

	Unit: %	
	2012 (a)	2012 (b)
Ningxia University	100	100
Ningxia Medical University	100	99

Source: Responses to the questionnaire

Note: Equipment in use (a) at price base, and (b) at operation rate

Table 8 shows the utilization rate of major equipment at the target universities. This is also a very high ratio, at more than 90% at both the universities. An atomic absorption spectrophotometer, for which utilization rate is high at Ningxia University, is an important piece of apparatus from an educational perspective. At Ningxia Medical University, advanced electron microscopes such as a transmission electron microscope are highly utilized and have an important role in research activities. Within NHAR some equipment procured under the Project is owned only by Ningxia Medical University. Such equipment is rented to other universities, research institutes and enterprises for a price matching that of the consumable goods needed to operate the equipment through an information platform for sharing facilities in NHAR. To a certain extent, the facilities developed by the Project, as mentioned later, have contributed to the designation of a State Key Laboratory Breeding Base at Ningxia University and a State Experimental Teaching Demonstration Center of Higher Educational Institutes at Ningxia Medical University.

As seen above, regarding quantitative improvement, the number of students, the monetary value of educational equipment per student, and school building areas at the target universities increased. The utilization rate of school buildings and equipment was also very high. In light of the above, it can be said that the construction of buildings and procurement of equipment under the Project contributed largely to quantitative improvement.

### 3.2.1.2 Improvement in Quality

#### (1) Floorage and monetary value of educational equipment per student

The Undergraduate University Establishment Standards of China required a 2006 national standard of floorage per student of more than 30 m<sup>2</sup><sup>9</sup>. The floorage per student of Ningxia University was below this national standard and although it improved substantially, it had not achieved the standard as of 2012. In the case of Ningxia Medical University, the floorage per student was beyond the national standard. The construction of school buildings by the Project contributed to increasing the floorage (Table 9).

Table 9: Floorage per student

Unit: m<sup>2</sup>

	Baseline (2002)	Target (increase of the floorage per student through the project)	Actual (2012)	
			Floorage per student	Increase of the floorage per student through the project
Ningxia University	6.3	2.02	14.3	2.4
Ningxia Medical University	28.1	4.34	30.7	4.9

Source: Responses to the questionnaire

The monetary value of equipment per student, as confirmed in Table 5, has improved further and creates a virtuous cycle, as mentioned above. The Project has had a positive effect on the increase in the monetary value of equipment. In light of the above, it can be recognized that the educational environment is improving.

#### (2) Changes in the number of key faculties and key laboratories

In China, since “Some opinions concerning the development of higher education institutions and key faculties” was proclaimed by the State Education Commission in 1993, the state or provincial governments have designated faculties and laboratories which closely relate to national development strategies and public welfare. These are labeled key faculties and key laboratories and supporting funds are intensively provided by the government in order to raise education and research to an international level (Table 10, Table 11)<sup>10</sup>.

<sup>9</sup> For education and administration buildings at ordinary universities, the floorage per student for departments of science, engineering, agriculture and medicine is more than 20m<sup>2</sup>, the floorage per student for departments of humanities, social sciences, and management is more than 15m<sup>2</sup>, and the floorage per student for departments of physical education and arts is more than 30m<sup>2</sup>.

<sup>10</sup> National key faculties are designated by the national government. Provincial or ministerial key faculties are designated by provincial governments, while ministerial key faculties are designated by provincial governments or ministries such as the Ministry of Education.

Table 10: Number of key faculties

	Baseline	Target	Actual	
	2002	2007	2007	2012
Ningxia University	NL: 0 PML: 12	NL: 2 PML: 15	NL: 0 PML: 12	NL: 1 PML: 17
Ningxia Medical University	NL: 0 PML: 4	NL: 3 PML: 16	NL: 0 PML: 9	NL: 0 PML: 17
Autonomous Total	NL: 0 PML: 16	NL: 5 PML: 31	NL: 0 PML: 29	NL: 1 PML: 38

Source: Responses to the questionnaire

Note: NL (National Level): National key faculty, PML (Provincial or Ministerial Level): Provincial or ministerial key faculty

As regards the number of provincial or ministerial key faculties, the actual numbers in 2012 were beyond the target although for national key faculties, the number did not increase enough to reach the target. Only one faculty was designated as a national key faculty in Ningxia University. The number of designated key faculties at the two target universities accounts for nearly 90% of the total in NHAR. There are some cases where the Project contributed to increasing the number of key faculties. For example, some apparatus in the “autonomous level key faculty of human anatomy and embryology” was procured under the Project. Also, some lecturers who had training in Japan under the Project played an important role in establishing the “autonomous level key faculty of industrial health and environmental hygienics”.

Table 11: Number of key laboratories

	Baseline	Actual	
	2002	2007	2012
Ningxia University	NL: 0 PML: 0	NL: 0 PML: 5	NL: 0 PML: 9
Ningxia Medical University	NL: 0 PML: 0	NL: 0 PML: 1	NL: 0 PML: 5

Source: Responses to the questionnaire

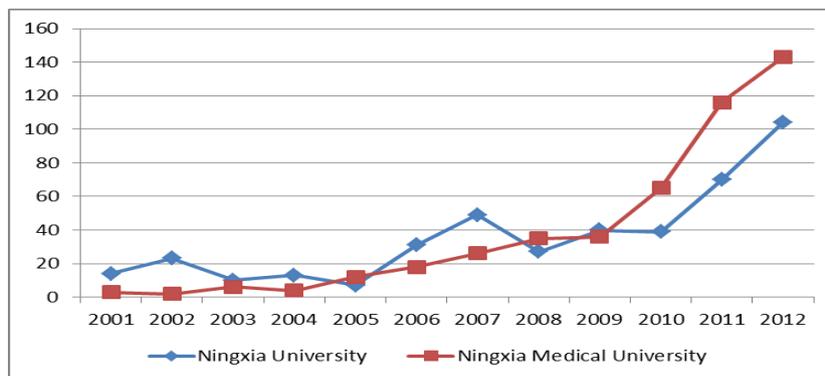
Note: NL (National Level): National key laboratory, PML (Provincial or Ministerial Level): Provincial or ministerial key laboratory

The number of provincial or ministerial key laboratories gradually increased in each target university. There is no national level key laboratory at this moment, but both Ningxia University and Ningxia Medical University have laboratories designated as “breeding bases” which are laboratories at the preparatory stage for becoming national level key laboratories. These breeding bases are due to become national key faculties in the near future. In the national key laboratory breeding base of energy chemical engineering at Ningxia University, for instance, three major pieces of apparatuses were procured in 2006 through the Project. These contribute to related research activities and human development at Ningxia University. In addition, the university provides a service for research and industrial product performance evaluations by allowing other science research and education institutes and enterprises to use the apparatus through the NHAR major scientific instrument cooperation platform. In the cerebropathy laboratory (national key laboratory breeding base) at Ningxia Medical University, a lecturer who participated in training on neuronal morphology in Japan works as the vice director. He is

now preparing for the establishment of a neuronal morphology laboratory within the cerebropathy laboratory. In this way, the Project has played an important role in developing key laboratories.

(3) Number of research papers, research projects, prizes awarded etc.

The number of research papers published in international scholarly journals such as Science Citation Indicators (SCI) has been increasing at both the target universities (Figure 1). Although the number was less than 20 at the target universities before project implementation, a large increase in articles since 2009 has been an outstanding feature. More high-quality research papers have been written thanks to facilities being expanded by the Project and larger research budgets being allocated than before Project implementation. As mentioned before, the Project has had a relatively large effect on the expansion of facilities and it is considered that the Project has contributed to the increase in research papers to some extent.



Source: Responses to the questionnaire  
 Note: SCI (Science Citation Indicators), EI (Engineering Index),  
 ISTP (Index to Scientific & Technical Proceedings)

Figure 1: Number of articles in SCI, EI, and ISTP

The number of research projects has greatly increased during the last decade at all the target universities (Table 12). As mentioned in a later paragraph on social contributions and prizes awarded, some lecturers who participated in training under the Project were involved in these research projects and apparatus procured by the Project was utilized in the research projects.

Table 12: Number of research projects

	Baseline (2002)	Actual (2007)	Actual (2012)
Ningxia University	NL: 0 PML: 42	NL: 29 PML: 120	NL: 108 PML: 6,352
Ningxia Medical University	NL: 3 PML: 3	NL: 9 PML: 7	NL: 61 PML: 150

Source: Responses to the questionnaire  
 Note: NL (National Level): National research project, PML (Provincial or Ministerial Level): Provincial or ministerial research project

The number of social services, one of the so-called “university’s three missions” (education, research and social service), has also been basically on the increase (Table 13). For instance, urgent technical issues in the NHAR coal-processing industry, such as the development of coal-water slurry producing technology and coal-derived olefin catalyst, detoxifying treatment and total utilization in the coal-processing process have been tackled through close cooperation between the National Key Laboratory of Energy Chemical Engineering, Ningxia University, and a coal processing enterprise. These have been core innovations in coal-processing resource recycling technology. At Ningxia Medical University, the faculty of oral-medical science has been engaged in voluntary medical activities. In all cases, equipment and facilities procured under the Project has performed a certain function.

Table 13: Number of social services

	Baseline (2002)	Actual (2007)	Actual (2012)
Ningxia University	2	46	140
Ningxia Medical University	8	1	6

Source: Responses to the questionnaire

Note: The definition of social services is in accordance with the Higher Education Law in China (passed by the 4th meeting of the 9th Standing Committee of the National People's Congress, on August 29, 1998 ).

As for the number of prizes awarded, there are many cases where prizes have been awarded to participants in training under the Project (Table 14). For example, a trainee from Ningxia University was

Table 14: Number of prizes awarded

	Actual (2007)	Actual (2012)
Ningxia University	NL: 0 PML: 1	NL: 0 PML: 5
Ningxia Medical University	NL: 0 PML: 13	NL: 0 PML: 21

Source: Responses to the questionnaire

Note: NL: National Level, PML: Provincial or Ministerial Level

awarded first, second and third prizes for NHAR Social Science Excellent Research for seven items of research including the “Study on Tiansheng Code and Tangut Legislative” (of these, there were three first prizes.). At the time of the ex-post evaluation, the trainee was directing research projects such as the National Social Science Fund key research project “China Tibet Tangut Literature Study”, the Ministry of Education Key Research Base Important Project “Organized Publication on China Khara-khoto Chinese classical literature”, and the National Higher Education Institutes Antiquarian Filing Research Project “Literature Study on Tangut Lapidary Character”. In Ningxia Medical University, there have been many prizes awarded to participants in training under the Project such as the National Natural Science Fund project “Study on Immunity Protective Quality of Recombination Antigen of Echinococcus Granulosus and its Mechanism”.

Faculties at undergraduate schools and courses at graduate schools have also shown an upward trend (Table 15). In particular, at undergraduate level at Ningxia University, the number of students has remained at almost the same level for the last five years due to limited recruitment in order to maintain or improve the quality of education. However, master’s courses at graduate schools have drastically increased at both the target universities as they have been aiming for higher education which is research-oriented. As of 2012, only Ningxia University

had doctoral courses but in 2013 Ningxia Medical University was also accredited as an institute able to award doctorate degrees in three courses: basic medicine, clinical medicine and public health and prevention medicine. Ningxia Medical University is starting to recruit ten students from September 2014.

Table 15: Number of undergraduate faculties and graduate courses

	Undergraduate			Master's course			Doctoral course		
	Baseline	Actual		Baseline	Actual		Baseline	Actual	
	2002	2007	2012	2002	2007	2012	2002	2007	2012
Ningxia University	54	69	68	29	48	152	0	3	23
Ningxia Medical University	10	12	17	12	28	59	0	0	0

Source: Responses to the questionnaire

In light of the above, as far as qualitative improvement is concerned, it can be seen that the educational environment is gradually improving and floorage and the monetary value of equipment per student also show an upward trend. As for the development of school buildings and equipment, there has been a substantial improvement, especially in educational equipment. Meanwhile, the project has contributed to the improvement of floorage to some extent. The project has had a profound effect on the increase in the designation of key faculties and laboratories. The project also contributed to the increase in the number of research papers, prizes awarded etc. as many of these used equipment procured and were produced by teaching staff who had participated in training under the Project. Therefore, the Project has played a significant role in improving the quality of education and research.

### 3.2.2 Qualitative Effect

Qualitative effects of the project are (1) the enhancement of the reputations of schools through an upgrade in the educational environment (effects of building construction and equipment procurement) and (2) improvements in the education system with institutional change (the effects of training).

#### (1) Effects of building construction and equipment procurement

Effects of building construction and equipment procurement include 1) good results on the “Undergraduate University Teaching Level Evaluation”, 2) upgrades from college to university, 3) accreditation for institutes awarding doctorate degrees, and 4) designations as universities of “Project 211” through upgrading of the educational environment. In the “Undergraduate University Teaching Level Evaluation” conducted by the Ministry of Education of the People's Republic of China, each target university received good results due to improvements in floorage per student and in the rate that experiments are conducted through enhancements of equipment. Ningxia Medical “College” was upgraded to Ningxia Medical “University” in 2008 as, through

the implementation of the Project, the institute was able to meet the requirements for the quantity of experimental apparatus per student established by the Ministry of Education of China. Furthermore, the establishment of new faculties and accreditation for institutes awarding master's degrees were approved. Ningxia University was accredited as an institute awarding doctoral degrees. The Project indirectly contributed to the designation of Ningxia University as one of the universities of "Project 211" by the development of facilities under the Project.

## (2) Effects of training

In case of NHAR, all training was related to specialized education and directly led to improvements in the level of education and research. At Ningxia University, the "International Joint Research Institute of; Shimane University, Japan & Ningxia University" was constructed. Collaborative research and symposiums in a wide range of areas have been held there to date. Ningxia Medical University has achieved impressive results in the "9 plus 3 program for pursuing a doctorate" with the College of Medicine, Shimane University (Box).

Box: Collaboration between Shimane University and Ningxia University and Ningxia Medical University

Academic co-operation between Shimane University and Ningxia started 1987<sup>11</sup>. Around 2003, when Shimane University and Ningxia University sought sustainable means and a hub for academic exchange, the construction of school buildings was planned at Ningxia University, a target university of the Project. At that time, the "International Joint Research Institute of Shimane University, Japan & Ningxia University, China" was added as a construction component. Concurrently with this, the former Shimane Medical University was integrated into Shimane University. Shimane University and Ningxia Medical University (former Ningxia Medical College) concluded an exchange agreement in 2004. During the implementation of the Project, Shimane University received 44 trainees in total, 22 from Ningxia University and 22 from Ningxia Medical University.



International Joint Research Institute of Shimane University, Japan & Ningxia University, China

Since 2005, when the laboratory building was completed at Ningxia University, the International Joint Research Institute has held international symposiums every year and interdisciplinary collaborative research such as research in policies related to anti-desertification and depopulation measures have been conducted with Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science. In addition, research on agriculture and zootechnics has continuously taken place with Ningxia University. After the completion of the training component of the Project, Shimane University provided research grants for researchers at Ningxia University using the budget of Shimane University and contributions from corporations. An increase in the number of students studying at Shimane University (from both the undergraduate and the graduate school of Ningxia University) has resulted from the extension of these academic activities and development of human resources has continued.

The medical school of Shimane University has received teaching staff who already hold master's degrees from Ningxia Medical University as special researchers (training within one year) under the Project training component. However, one year is too short to conduct research. The medical school of Shimane University therefore judged the educational effectiveness as insufficient and looked at measures by which these special researchers could go on to doctoral courses. At that time, the

<sup>11</sup> The exchange agreement between Shimane University and Ningxia University was signed officially in 1997.

Chinese side was suffering from a shortage of scholarship funds for candidates who wanted to study at graduate school. Therefore, the medical school of Shimane University established an epochal program called the "9 plus 3 program for pursuing a doctorate". Under this program, teaching staff of Ningxia Medical University maintain their position and perform duties such as teaching and research etc. for nine months in China. For three months, they earn credits through an intensive course and video lectures in Shimane, finally completing their doctoral theses within four years. During the nine-month stay in China, an e-learning system is utilized. This program produces a steady flow of successful results as researchers who finished degrees at Ningxia Medical University continue to conduct collaborative research with researchers in Shimane University.

Successful factors in co-operation between Shimane University and Ningxia University and Ningxia Medical University are as follows:

- 1) They have common research themes as there are regional issues common to both Shimane and Ningxia, such as depopulation.
- 2) Shimane University develops human resources to be partners in collaborative research not by ending with short-term training but by promoting the completion of degrees.
- 3) The activities did not fade away through institutional decision-making on academic exchange with Ningxia nor through the influence of any individual professor.
- 4) Financial issues are avoided as international students are received with support for research expenses from Shimane University's own funds, contributions from companies, research funds from foundations etc.

As there is also a geographical similarity, the academic exchanges between the universities have also developed into exchanges between Japan and China beyond university level such as sister-city affiliations at municipal level and support for trainees and international students by NPO located in Shimane. In the future, it is planned that the cooperative framework will be expanded in order that collaborative research may be conducted by establishing research networks not merely between Ningxia and Shimane University but among universities and researchers in the whole western region of China and so that more high-level and deep academic exchange may be conducted through the development of human resources not only from doctoral courses but also from master's courses and at undergraduate level. For example, concrete activities are already underway such as an academic seminar co-hosted by Shimane University, Ningxia University and JICA on May 2013 in which many universities located in the Western region participated, including the target universities of Inland Higher Education Projects in other provinces.

### 3.3 Impact

#### 3.3.1 Intended Impacts

##### (1) Impact on higher education at provincial level

The number of higher education institutes and the number of students at higher education institutes, the enrollment ratio, floorage per student and monetary value of educational equipment per student as a whole in NHAR increased (Table 16). Average floorage per student of the target universities increased from 10.6m<sup>2</sup> in 2002 to 14.7m<sup>2</sup> in 2012, but it did not reach the autonomous average (23.2m<sup>2</sup> in 2011). The Project impact does not seem to have been so great from the viewpoint of NHAR as a whole. One of the reasons for this is that the Project impact had lessened at the time of the ex-post evaluation because the Chinese government (including the autonomous government) budget for higher education had greatly increased.

Table 16: Impact on higher education at autonomous level

Purpose	Indicators	Baseline (2002)	Target (2007)	Actual (2007)	Actual (2012)
Quantitative improvement	Number of higher education institutions	4	4	7	8
	Number of students at higher education institutions (thousands)	27	30	29	48
	Higher education enrollment ratio (%) (=Appropriate age enrollment/ Appropriate age population)	7.3	13.5	23.0	30.0
Qualitative improvement	Floorage per student (m <sup>2</sup> /student) (=floorage/number of students)	7.2	—	25.6	23.2
	Monetary value of educational equipment per student (RMB)	3,000	—	5,770	14,515

Source: Responses to the questionnaire

Note: floorage per student of autonomous total is the data in 2011.

## (2) Impact on regional vitalization

At the time of appraisal, an impact on regional vitalization was expected through the dispatch of school teachers and doctors to rural areas, the provision of human resources to key industries, and the development of human resources through vocational training and adult education. As far as the dispatch of human resources is concerned, a system for dispatch to rural areas already existed so there had been some examples of the dispatch of teachers and doctors to rural areas for some time. The actual number, however, was only from a few to tens of people. Although some of the buildings and equipment developed by the Project are utilized, this is of less immediate relevance to the Project. As for adult education, numbers increased considerably but this is also not related to the Project<sup>12</sup>.

As for providing human resources to key industries, the definition of “high-technology industries”, recognized as key industries at the time of appraisal, is not clear. Thus each target university provided information on the development of industrial human resources and good practice under the Project. As a result, it was confirmed that the Project had made a large contribution to the development of industrial human resources (Table 17).

Table 17: The Project contributions to development of industrial human resources

University	Good practices
Ningxia University	<ul style="list-style-type: none"> <li>The Engineering College Testing Building B (Mechanical Engineering College Building) constructed under the Project is of great use for the development of human resources for machinery manufacturing.</li> <li>Some equipment procured under the Project plays an important role in improving the level of experiments, teaching and research in the National Key Laboratory of Energy Chemical Engineering, the Agricultural College, the Chemical Engineering College, the Mechanical Engineering College, the Geographical Information College, the Humane Studies and Water Use Civil Engineering College and helps human resource development for NHAR key industries through the hardware.</li> <li>That the university dispatched some teaching staff related to NHAR key industries to Japan</li> </ul>

<sup>12</sup> Ningxia University: increase from 9,776 in 2002 to 16,137 in 2012

Ningxia Medical University: increase from 667 in 2002 to 6,452 in 2012

University	Good practices
	for training contributed to an increase in the quality of human resources development due to the enrichment of teaching staff through improvements in their levels of research and teaching.
Ningxia Medical University	<ul style="list-style-type: none"> <li>Thanks to the Project, the university's ability to develop competent medical and health specialists was enhanced and its contribution to medical and health industries in NHAR and the Western Region was improved. The pass rate for the Exams for Medical Practitioner and Trainee Doctor is continuously improving. In 2009, the university was selected as one of the "typical case national top 50 higher education institutes for graduates being employed"<sup>13</sup> by the Ministry of Education.</li> </ul>

Source: Responses to the questionnaire

### (3) Impact on the strengthening of market rule

In order to see the impact on the strengthening of market rule, the external evaluator confirmed the number of graduates from the financial management faculty of Ningxia University only. It was confirmed that the number increased from 615 in 2002 to 921 in 2012 but it was unclear what graduates do and where they play an active role after graduation. Therefore, the external evaluator could not confirm whether or not the Project had had an impact on the strengthening of market rule.

### (4) Impact on environmental conservation

There is no obvious evidence of a direct contribution by graduates on environmental conservation and public health. However, each target university has conducted some activities, as shown in Table 18. The connection with the Project is the utilization of equipment procured under the Project in the case of research on digital forest industry system development. Also, in the case of the formulation of "the 12th NHAR Five-Year Plan for Urbanization", the contribution of teaching staff who participated in training under the Project can be observed.

Table 18: The contributions of the target universities to environmental conservation and public health

University	Good practices
Ningxia University	Environmental conservation projects in 2012: <ul style="list-style-type: none"> <li>the 12th NHAR Five-Year Plan for Urbanization</li> <li>the 12th NHAR Five-Year Plan for Rural Development and Real-estate</li> <li>Research on the "digital forest industry" system development based on ArcIMS (standing for Arc Internet Map Server) in mountain areas of Southern Ningxia at the late phase of the return of grain plots to forestry</li> <li>Study on the protection of the polluted water treatment capacity of natural lakes and marshes</li> <li>Study on precipitation and dew water resources in the Ocher Plateau drought area and their effects on the ecological system</li> <li>Resistivity of energy plant on saline-alkali soil given by desulfurization waste and its effect on soil characteristic and others</li> </ul>
Ningxia Medical University	<ul style="list-style-type: none"> <li>Social service through the Public Health Screening and Detection Center</li> <li>Water quality inspection at schools</li> </ul>

Source: Responses to the questionnaire

<sup>13</sup> The Ministry of Education has annually selected 50 universities that have a high placement rate and have been satisfied by students as "higher education institute graduates being employed in typical cases" since 2009.

### 3.3.2 Other Impacts

#### (1) Impacts on the natural environment

Construction work was started after the draft architectural design for the Project was approved by the NHAR environmental conservation bureau. The environmental conservation bureau monitored air contaminant, dust, discharged water, noise and so forth monthly during construction. As a result, all the requirements were fulfilled. In constructing the school buildings, the following reduction measures against environmental impact were taken. There were no protests or complaints against noise, vibration, dust and sediment discharge through construction, or water pollution by those using the facilities.

1. Cement and other easily-scattered particulate building materials were kept in storage or were prevented from scatter by covering. Prevention of dropping and scattering during conveyance and dust suppressing measures in discharging were made an obligation.
2. The surface of construction roads was swept once a day and sprinkled with water three times a day. Hardened asphalt was used for the surface. Car wash stations were set up. In sweeping industrial garbage, effective measures against secondary dust scattering were required.
3. Emission from vehicles had to meet the related national standard and vehicles beyond an acceptable level were prohibited from running on the construction roads.

After completion of the Project, effluent from laboratory discharges were treated in accordance with regulations. At Ningxia Medical University, a wastewater treatment plant was constructed and effluent discharged to drain pipes after being detoxified.

#### (2) Land Acquisition and Resettlement

The project was carried out on existing university properties, and thus there was no land acquisition or relocation of residents.

#### (3) Mutual understanding between Japan and China

It can be said that participants in the training in Japan were able to gain a deep understanding of Japan especially through human development and academic exchange with Japanese universities. In particular, due to the sister-city relationship between NHAR and Shimane Prefecture, both Ningxia University and Ningxia Medical University have very strong links with Shimane University. The exchange between each target university and Japanese universities is shown as in Table 19 and has already been described in the Box.

Table 19: Exchange between each target university and Japanese universities

University	Good practices
Ningxia University	Based on the International Joint Research Institute of Shimane University and Ningxia University constructed under the Project, academic exchanges continue after Project completion. Both Japanese and Chinese universities conduct research activities collaboratively and have tackled theoretical and experimental research on issues of the economy and society in underdeveloped mountain areas of Ningxia and Japan. As a result of multilateral and interdisciplinary collaborative research, scientific research such as “Study of Regional Development in China’s Least Developed Areas – nurturing primary industries in Plateau”, “Empirical research on the establishment of an ecological system in the Ningxia southern mountainous area” were conducted and academic books such as “Twenty-year Academic Exchange” and “Poverty reduction and environmental reclamation in Chinese rural areas” were published. Ningxia University and Shimane University continue to conduct exchange. More than 50 people from Ningxia University visited Shimane University and more than 200 experts and students from Shimane University visited Ningxia. A wealth of accomplishments from collaborative research and amicable cooperation between Ningxia University and Shimane University play a positive role in developing the relationship.
Ningxia Medical University	Ningxia Medical University established friendly relationship with Shimane University and Toyama Medical and Pharmaceutical University and conducted mutual visits and exchanges with them. Substantive results have been achieved in areas such as human resource training and academic exchange. Ningxia Medical University is looking for a new way to develop teaching staff through the “9 plus 3 program for pursuing a doctorate”. And in order to reinforce cooperation in the academic and educational aspects of both universities, progress is being made on the exchange of master’s students. At least two graduate students a year are dispatched to Shimane University and Ningxia Medical University lets them participate in scientific research activities for more than one year. Since Project implementation, Yinchuan City and Shimane Prefecture have held four successful “Ningxia Medical University- Shimane University International Symposiums”. So far, more than 1,000 researchers from both the Japanese side and Chinese side have had academic interactions.

Source: Responses to the questionnaire

This project has largely achieved its objectives. Therefore its effectiveness and impact is high.

### 3.4 Efficiency (Rating: ③)

#### 3.4.1 Project Outputs

The Project included the construction of school buildings, the enhancement of educational and research equipment, and the training of the target universities’ personnel in Japan. The outputs of each component are as follows:

Table 20: Comparison of Outputs (planned and actual)

Items	Planned	Actual (achievement rate)
Buildings	2 universities total:75,000 m <sup>2</sup>	2 universities total: 80,658 m <sup>2</sup> (107.5%)
Equipment	2 universities	2 universities: additional procurement ( JPY 26 million)
Training	2 universities total: 45 staff	2 universities total: 48 staff (106.7%)

Source: JICA appraisal documents for the planned, and responses to the questionnaire for the actual data

As far as building construction is concerned, a few design changes were observed but basically the buildings were constructed as planned.

As for educational equipment, the model was changed for some of the digital equipment due to production ending during the process of procurement. Furthermore, as detailed in 3.4.2.2 Project Period, some apparatus was additionally procured in order to enhance effectiveness of the Project and research and education.

As regards the training component, all the trainees received training in their specialized fields for relatively a longer term than planned. In the case of NHAR, the universities effectively utilized relationships with Japanese universities where agreements for co-operation had already been signed such as Shimane University, and trainees were efficiently dispatched. Some trainees continued to study in doctoral courses and received academic degrees after the completion of one-year training under the Project. The Project achieved significant results in the aspect of the academic degrees of teaching staff needed for accreditation to key faculties and key laboratories and in collaborative research.

### 3.4.2 Project Inputs

#### 3.4.2.1 Project Cost

Actual project costs amounted to 4,310 million yen (of this, the actual loan disbursement amounted to 2,633 million yen<sup>14</sup> against the estimated costs of 4,339 million yen (of this, the planned loan amounted to 2,636 million yen). The actual costs were mostly as planned (99%). While the appreciation of the yen against Chinese yuan was about two yen during project implementation, there was an average inflation rate of 3 % in China. Therefore, the Project was conducted mostly as planned in an efficient way.

#### 3.4.2.2 Project Period

The project period planned at the time of appraisal was 63 months, or from January 2004 to March 2009. The actual project period was 92 months, or from January 2004 to August 2011, which was longer than planned: equivalent to 146% of the original plan. This was largely due to the delay of adding a procurement package in 2008 (nine packages were planned originally). The completion of procurement in the additional package was planned for the final disbursement date (August 2011) and equipment for Ningxia Medical University was procured. In this additional package, items accompanying apparatus procured in the prior packages were procured. These were necessary to utilize the existing apparatus efficiently and effectively and to enhance the effects of research and education and they included some equipment which contributed to the increase in the number of research papers and to academic results. Therefore, the addition is considered to be an important part of the outputs. Taking into consideration this additional package, the Project Period is evaluated to have been within the plan.

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<sup>14</sup> According to data provided from the executing agency, this was JPY 2,632 million. As the executing agency received the fund in Chinese yuan through the Central government, the difference between this and the data provided by JICA depends on what the exchange rate was when the executing agency closes an account.

Regarding the training component, commencement was planned to be from the autumn term of 2004 at the time of appraisal. However, even if trainees entered doctoral courses as planned, it was very difficult for these international students with a language handicap to complete the course by March 2009. It can therefore be considered that there was a problem with scheduling.

### 3.4.3 Results of Calculations of Internal Rates of Return

Due to the nature of the Project, a quantitative analysis of the internal rate of return was not possible.

In light of the above, although the project cost was within the plan, the project period exceeded the plan. However, the delay was caused by the addition of important outputs for Project effectiveness. Therefore the efficiency of the project is high.

## 3.5 Sustainability (Rating: ③)

### 3.5.1 Institutional Aspects of Operation and Maintenance

Each target university has registered the buildings and equipment developed under the Project as fixed assets and conducts daily maintenance.

The Education Department inspects whether the target universities properly manage the buildings and main equipment procured under the Project. The audit office, which is equivalent to the Board of Audit in Japan, supervises the Education Department annually.

In daily operation and maintenance, each university has established regulations for operation and maintenance, each laboratory operates and is maintained in accordance with the regulations and there are no problems.

### 3.5.2 Technical Aspects of Operation and Maintenance

Each laboratory regularly conduct a routine maintenance check. Regarding equipment, operation manuals are provided and operation and maintenance procedures are shown on the wall near the equipment.

Repair staff is allocated to each university department<sup>15</sup>. However, in case of malfunctions that cannot be fixed by these staff, reports are made to a laboratory and facility service center and repair outsourced following a review of the report. In



O/M procedures & regulations  
(Ningxia Medical University)

<sup>15</sup> Although the O/M system depends on universities, generally speaking, one O/ M staff is allocated to each university and each faculty. In addition, O/M staff is allocated to each team actually using the equipment. In case of malfunction, proper human resources are organized for coping with the malfunction.

particular, precision apparatus is not repaired within the university but the university asks manufacturers to perform maintenance for it. Daily maintenance at each laboratory is conducted without any problems.

### 3.5.3 Financial Aspects of Operation and Maintenance

The budget for operation and maintenance at each university is allocated from the university's own fund. If there is a shortage in the budget for operation and maintenance, the shortage is made up from the autonomous financial budget.

There is no evidence that the equipment lies neglected without maintenance and therefore, it is thought that the necessary resources for operation and maintenance are being provided.

Table 21: Operation and maintenance costs at each target university (annual)

Unit: RMB million			
	2010	2011	2012
Ningxia University	Income: 511.07 Expenditure: 501.27 (O/M: 34.41)	Income: 1457.15 Expenditure: 1257.35 (O/M: 50.71)	Income: 725.74 Expenditure: 680.98 (O/M: 21.57)
Ningxia Medical University	Income: 192.51 Expenditure: 155.36 (O/M: 6.06)	Income: 597.39 Expenditure: 553.68 (O/M: 10.71)	Income: 346.26 Expenditure: 360.25 (O/M: 10.39)

Source: Responses to the questionnaire

Note: O/M = Operation and Maintenance cost

### 3.5.4 Current Status of Operation and Maintenance

At both the target universities, both buildings and equipment developed under the Project are appropriately maintained. Both universities have inventory books and maintenance logs for the major equipment and keep records on them. End-of-life equipment, such as PCs, has already been replaced using their own funds. However, other large and valuable equipment for experiment is well maintained and the utilization ratio (100%) is high (actual (a) in Table 8). In order to raise the utilization ratio, the education department has established a platform for sharing equipment and this is open to other universities.

No major problems have been observed in the institutional, technical and financial aspects of the operation and maintenance system. Therefore sustainability of the project effect is high.

## 4. Conclusion, Lessons Learned and Recommendations

### 4.1 Conclusion

The objective of the Project was to improve higher education in NHAR quantitatively and qualitatively by supporting the construction of buildings, the procurement of equipment and the training of teachers in the target universities. This objective was consistent with China's development plan and development needs as well as with Japan's ODA policy at the time of

both the appraisal in 2004 and the ex-post evaluation; therefore its relevance is high. The effectiveness and impact of the Project was high because quantitative indicators (building areas, amount of educational equipment) and qualitative indicators (number of key faculties and laboratories, number of research papers, etc.) have improved. Moreover, there are many cases of good practice in the utilization of buildings, equipment and training provided under the Project. Although the outputs were essentially completed in line with the initial plans, some equipment were additionally procured. While the project cost was within the plan, the project period exceeded the plan. Considering that the additional equipment, which was important for the Project effectiveness, was procured in the final stage of the Project implementation, this was unavoidable delay; therefore the efficiency of the project is high. No major problems have been observed in the institutional, technical and financial aspects of the operation and maintenance system and its current status is very good; therefore the sustainability of the project effects is high.

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

#### 4.2 Recommendations

None.

#### 4.3 Lessons Learned

[Project period of a higher education project with academic degrees in mind]

The planned project period for the training component at the time of appraisal was from July 2004 to March 2009. The component included training aiming at academic degrees. However, considering the preparation period and the language handicap, it was difficult to complete doctoral degrees in this period. Especially in such a project, the project period needs to be set with consideration for a preparation period that is sufficient and with a necessary period for degrees.

[Sustainable efficiency of the training component]

A training period of less than one year is too short to conduct specialized education. It also prevents institutions from developing partners who can conduct collaborative research. Therefore, Shimane University encouraged trainees under the Project to take degrees and developed human resources to conduct research on even ground with Japanese researchers. In order to achieve this, Shimane University put in place an environment that would enable maintain consecutive cooperation to be maintained. However, Shimane University had to bear a great burden for the preparation of an acceptance system. In light of the above, study in Japan for a degree is more desirable than short-term training for that there can be not only cultural interaction but also development of exchange activities that lead to consecutive cooperation such as collaborative research. On the other hand, since not every university is able to incur the

costs for these, combination with other schemes should be considered in order to reduce the costs of the accepting universities in the planning stage of the Project.

End

### Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs	2 target universities	As planned
1) school buildings	9 buildings such as laboratory buildings 75,000 m <sup>2</sup>	9 buildings such as laboratory buildings 80,658 m <sup>2</sup>
2) equipment	Biotechnology, energy resources science analysis, pasture research, anatomy, multimedia education etc.	As planned
3) training	9 Package in total 45 staff from 2 target universities	Package 10 is added 48 staff from 2 target universities
2. Project Period	January 2004 – March 2009 (63 months)	January 2004 – August 2011 (92 months)
3. Project Cost		
Amount paid in foreign currency	2,636 million yen	2,632 million yen
Amount paid in local currency	1,703 million yen (119.1 million RMB)	1,678 million yen (138.4 million RMB)
Total	4,339 million yen	4,310 million yen
Japanese ODA loan portion	2,636 million yen	2,632 million yen
Exchange rate	1 RMB = 14.3 yen (As of July 2003)	1 RMB = 12.1 yen (As of August 2011)