

People’s Republic of China

Ex-Post Evaluation of Japanese ODA Loan Project

“Broadcasting Infrastructure Improvement Project (Ningxia Hui Autonomous Region)”

External Evaluator: Yusuke Hasegawa, International Development Center of Japan Inc.

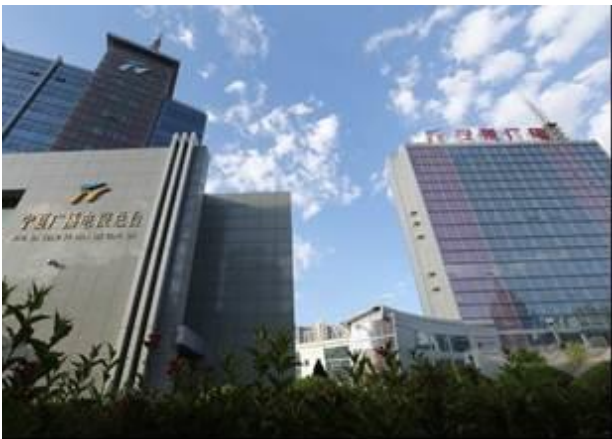
**0. Summary**

The goal of this project was to improve the quantity and quality of TV and radio programs in Ningxia Hui Autonomous Region by updating the broadcasting infrastructure and providing training to the staff of the broadcasting stations. This would contribute to the advancement of education, knowledge enhancement, and cultural enrichment of the citizens in the Autonomous Region and also to the promotion of mutual understanding between China and Japan. The project was highly relevant to the development plans and development needs of China in a consistent manner from the appraisal to the ex-post evaluation, and also to Japan’s assistance policy for China at appraisal; therefore, its relevance is high. More outputs were produced than originally planned because of a significant change in the execution plan during the implementation process in order to properly meet new needs emerging from advances in technology and the executing agency’s expanded scope of business. Thus, the project cost appropriately reflected the outputs actually produced. The project period, however, significantly exceeded the plan; therefore, its efficiency is fair. The project significantly contributed to the improvement of the broadcasting programs in quantity and quality, and has had a certain observable impact; therefore, its effectiveness and impact are high. No major problems have been observed in the institutional, technical, or financial aspects of the operation and maintenance system; therefore, 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



Ningxia Radio and TV Station (NXTV)<sup>1</sup>

<sup>1</sup> The Ningxia Television Station and the Ningxia Radio Station were integrated into the Ningxia General Radio and Television Station in 2005, which was renamed the Ningxia Radio and Television Station (NXTV) in 2014.

## 1.1 Background

Broadcasting stations in China operate at the central, provincial, prefectural, and county levels and are supervised by the corresponding governments. In 2001, television broadcasting covered 94% of the population. As an influential means of distributing information, broadcasting was already integrated into the everyday lives of Chinese citizens. With a view to enhancing the development of its society and economy, the Government of China had been working on the improvement of information access and cultural enrichment, setting a target to have more than 97% of the population in administrative villages covered by TV broadcasting by 2010.

The Ningxia Hui Autonomous Region is located in the northwest part of China and had a population of 5.7 million in 2002. It is one of the five autonomous regions in China that have a higher population of a particular minority ethnic group. In this autonomous region, the Hui people make up approximately 35% of the population, and many of them live in prefectures of poverty in the south. Income per capita in Ningxia Hui Autonomous Region was 5,804 RMB in 2002, which was substantially below the national average of 7,997 RMB (Source: documents provided by JICA). The then-Ningxia TV station (currently Ningxia Radio and TV station) was the most influential TV station among all stations in the autonomous region as a province/autonomous region-level broadcaster, and played an important role in the development of the economy and society in the region. However, because of its aging broadcast center building and equipment that resulted from a lack of funds, the station was unable to improve TV programs, including educational programs, in quality as well as quantity.

Against this background, this project was implemented to improve the quantity and quality of broadcasting in Ningxia Hui Autonomous region to contribute to the advancement of education, knowledge enhancement, and cultural enrichment of the citizens in the autonomous region, and also to the promotion of mutual understanding between China and Japan. In addition, the project planned to introduce Japanese broadcasting technology and equipment into China under the Special Terms for Economic Partnership (STEP)<sup>2</sup>.

## 1.2 Project Outline

The objective of this project was to improve the quantity and quality of the TV and radio programs in Ningxia Hui Autonomous Region by updating the broadcasting infrastructure and providing training to the staff of the broadcasting stations, thereby contributing to the advancement of education, knowledge enhancement, and cultural enrichment of the citizens in the autonomous region, and also promote mutual understanding between China and Japan.

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<sup>2</sup> JICA approved a total of six broadcasting projects under the STEP condition in China at the same time, including the Ningxia Hui Autonomous Region project. The target areas of the other five projects were Jinan City, Qinghai Province, Yunnan Province, Anhui Province, and Jilin Province.

<ODA Loan Project>

Loan Approved Amount/ Disbursed Amount	4,250 million yen / 4,248 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March 2004 / March 2004
Terms and Conditions	Interest Rate 0.75% Repayment Period 40 years (Grace Period) (12 years) Main Contracts: Tied (Special Conditions for Terms for Economic Procurement: Partnership (STEP)) Sub Contracts: General Untied
Borrower / Executing Agency(ies)	Government of the People's Republic of China/ People's Government of Ningxia Hui Autonomous Region
Final Disbursement Date	August 2012
Main Contractor (Over 1 billion yen)	-
Main Consultant (Over 100 million yen)	-
Feasibility Studies, etc.	Feasibility Study by Ningxia Project Consultation Company (June 2003)
Related Projects	None

## 2. Outline of the Evaluation Study

### 2.1 External Evaluator

Yusuke Hasegawa, International Development Center of Japan Inc.

### 2.2 Duration of Evaluation Study

Duration of the Study: August, 2014 – January, 2016

Duration of the Field Study: November 18–28, 2014; January 28–February 3, 2015

## 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

The Government of China has placed an emphasis on television and radio broadcasting as a means of ensuring people's cultured living in its five-year plans from the Tenth Plan (2001–2005) through the Twelfth Plan (2011–2015). These plans aimed for informatization through developing an information infrastructure by constructing a nationwide digital TV broadcasting network, extending the coverage of TV and radio broadcasting, and developing digital broadcasts. The latest five-year

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

<sup>4</sup> ③: High, ② Fair, ① Low

plan of the State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China (SAPPRFT), namely the Twelfth Plan, sets a target of having 99% or above of the population covered by TV and radio broadcasting by 2015. The Twelfth Five-Year Plan of Ningxia Hui Autonomous Region also aims to accelerate the construction of the next generation of the information infrastructure such as integrated networks of telecommunication, broadcasting, and computers, and to extend TV and radio coverage in rural areas through the “Village to Village Project” in order to promote the delivery of public cultural services in every village and the “Home to Home Project” to connect to every home by direct satellite communication.

Thus, this project was in line with the development plans of China at the national and the autonomous-region levels from the time of appraisal through ex-post evaluation.

### 3.1.2 Relevance to the Development Needs of China

Ningxia's income per capita in 2012 was 36,394 RMB, which still fell below the national average (38,459 RMB), although the gap had been narrowing. In addition, there was a significant economic gap between urban and rural residents in the autonomous region that was clearly indicated by the fact that the disposable income of urban residents was 3.2 times higher than the net income of rural residents in 2012 (Source: *Ningxia Statistical Yearbook*). The provincial government recognizes the importance of broadcasting as a means of social services to bridge the gap, which is reflected in its development plans.

According to NXTV, the technical level of broadcasting equipment and infrastructure in the station has been improved through this project, making NXTV one of the technically advanced broadcasters in the west part of China. On the other hand, the station is now more aware of the need to improve “soft capacities” such as planning of new programs and gathering of information, in order to make its programs more attractive to the audience.

In addition, NXTV recognizes that Japanese broadcasting technology and products such as recording and editing equipment have been world leaders, and that it is necessary to continually purchase Japanese equipment to update capabilities in the future from the viewpoint of technical continuity.

Thus, this project was in line with the needs of China for enhancing the broadcasting sector and introducing Japanese technology from the time of appraisal through ex-post evaluation. In addition, improvement in capacities of the staff, such as program planning and information gathering, is becoming a central issue for the executing agency.

### 3.1.3 Relevance to Japan's ODA Policy

Japan's Economic Cooperation Program for China (October 2001) aimed to develop an environment to promote a market economy, to improve livelihoods in order to promote social development in the inland areas, and to enhance economic activities in the private sector.

Medium-Term Strategy for Overseas Economic Cooperation Operations (2002–2005) of JICA

(JBIC at that time), which was the policy of Japanese ODA loans at the time this project was appraised, emphasized the promotion of information technology to reduce the information gap in developing countries. In addition, the Country Assistance Strategy for China (2003) of JICA (JBIC at that time) stressed human resource development, particularly for regional revitalization and interactions, the strengthening of market rules by utilizing Japan’s experiences through interactions with Japan’s broadcasting stations (for example, through training and co-production of programs), and environmental conservation.

Thus, the orientation of these policies was consistent with the project, which aimed to improve the livelihood and promote social and economic development by enhancing broadcasting in the inland areas of China.

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

### 3.2 Efficiency (Rating: ②)

#### 3.2.1 Project Outputs

The project outputs can be divided into three categories: a “hard” component that is mainly related to equipment and facilities, a “soft” component that includes training and other activities, and consulting services. The planned and actual project outputs are explained as follows:

Table 1 Project Outputs (“Hard” Component)

	Plan	Change	Reason
NXTV Ningxia TV Station	<ul style="list-style-type: none"> <li>Construction of broadcast center (total floor area: 32,300 m<sup>2</sup>)</li> </ul>	<ul style="list-style-type: none"> <li>It was undertaken with the Chinese fund.</li> </ul>	<ul style="list-style-type: none"> <li>Chinese government policy made it impossible for Japanese construction firms to serve as the prime contractor as required by STEP.</li> </ul>
	<ul style="list-style-type: none"> <li>Studio equipment (digital cameras/recorders, satellite program receivers, monitors, lighting, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Some of the equipment and facilities were upgraded. (e.g., studio equipment and nonlinear editing network were changed to the HDTV system.)</li> <li>Expansion of nonlinear production and editing systems (news system, production and recording systems were added.)</li> <li>Expansion of signal</li> </ul>	<ul style="list-style-type: none"> <li>To meet financing needs created because broadcast center was financed by the Chinese fund.</li> <li>To respond to advances in technology</li> <li>To respond to an expanded scope of business and to improve the efficiency of the entire operation at the</li> </ul>

	Plan	Change	Reason
		<ul style="list-style-type: none"> <li>receiver and transmission system (fiber-optic and microwave transmitter, satellite signal receiver, and monitoring system were added.)</li> <li>Effective lighting equipment (1,200 m<sup>2</sup>) as added.</li> </ul>	<ul style="list-style-type: none"> <li>station.</li> <li>To improve efficiency and effectiveness of using the planned equipment.</li> </ul>
	<ul style="list-style-type: none"> <li>Broadcasting van</li> </ul>	<ul style="list-style-type: none"> <li>Three TV vans including an HDTV van were procured. (Only one Standard Definition TV van was originally planned.)</li> </ul>	<ul style="list-style-type: none"> <li>Higher-grade equipment and system were introduced in response to advances in technology.</li> <li>To respond to an expanded scope of business of the station.</li> </ul>
	(none)	<ul style="list-style-type: none"> <li>Radio broadcasting system was added. (production system, live broadcasting system, recording equipment, radio broadcasting van, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>To respond to the needs for equipment and facilities caused by the integration of Ningxia TV Station with Ningxia Radio Station.</li> </ul>
	(none)	<ul style="list-style-type: none"> <li>Electric machine equipment (3 elevators, power generator)</li> </ul>	<ul style="list-style-type: none"> <li>To increase operational efficiency by maintaining the entire broadcast center.</li> </ul>

Source: Documents provided by JICA and Executing Agency; interview with Executing Agency

(1) “Hard” Component (procurement of broadcasting equipment and facilities)

The planned outputs were changed during the implementation in two respects. First, the civil work for construction of NXTV’s broadcast center that was planned to be conducted by the JICA fund was cancelled and transferred to the Chinese fund. Second, in connection with the first change, the scope of equipment and facilities purchased was expanded. There were sufficient reasons identified for these changes, and they are recognized as relevant in the light of the project objective. The details are as follows:

1) Exclusion of Broadcast Center Construction from the JICA Fund

This Japanese ODA loan project originally planned to include the civil work for constructing NXTV’s new broadcast center. After the start of the project, the executing agency selected a Japanese construction firm as the main contractor for the civil work according to the STEP rule

on nationality requirements. However, during the process of contract negotiations with the firm, an issue came up about a contradiction regarding nationality requirements between the STEP rule and Chinese government policy. The policy on foreign-invested construction enterprises that was issued after the project started made it impossible for Japanese construction firms to serve as the prime contractor as required by the STEP condition of the project. As a result, the civil work portion was cancelled and transferred to the Chinese fund.

The problem arose because of a notice issued by the Chinese Ministry of Construction (at that time) in September 2004. The notice stipulated that the Ministry had ceased to accept applications from foreign-invested construction firms for initial registration or extension of registration as eligible entities. On the other hand, according to the documents provided by JICA, the legal opinions issued by the Chinese Ministry of Foreign Affairs that were a precondition for the commencement of the loan agreement had stated that there was no contradiction with domestic laws. After the Ministry of Construction issued its notice, the Chinese Ministry of Finance denied the application of the STEP condition to the civil work for this project. Based on the above, it is considered that it was difficult to foresee the problem at the time of appraisal. According to the executing agency, although they consulted with the Ministry of Finance and Ministry of Construction many times, the original plan had to be changed in the end. The broadcast center was duly completed by the Chinese fund.

## 2) Expansion of the Scope of Equipment and Facilities Procured

Regarding TV equipment and facilities such as studio equipment, network systems, and broadcasting vans, the main contents of those procured were largely the same as planned, while there were some modifications to the number of pieces and specifications of certain equipment in response to advances in technology during the implementation. In addition, equipment for the radio broadcasting system and electric machine equipment such as elevators were added to the project. Many of these alterations were made to utilize the JICA fund that became available as a result of the exclusion of the civil work from the JICA fund as stated above. The exclusion triggered NXTV's financing needs for the equipment and facilities that the station originally intended to procure on its own instead of undertaking the civil work. In addition, according to interviews with the concerned parties and an analysis of the related documents, NXTV felt that there were more important needs at that time.

- (i) There was a growing need for radio equipment and facilities caused by the organizational integration between the Ningxia TV Station and the Ningxia Radio Station in 2005.
- (ii) Upgrading and adjustment of the number of pieces of certain equipment were increasingly needed in response to technological advances such as HDTV technology.
- (iii) At the start of full-scale operation of the new broadcast center, the equipment and system to improve the entire operational efficiency and effectiveness of the station were needed.

In consideration of the project objective, which is to improve broadcasting, the outputs added to

the original plan were considered as relevant and met the needs of NXTV at the time.

(2) “Soft” Component (training for the staff of the broadcasting station and other activities)

For the “soft” component, the project plan included training for the staff of the Chinese broadcasting station, co-production of programs and other collaborations between the Chinese and Japanese broadcasting stations, the purchasing of programs produced in Japan, and so on. In reality, training and program co-production were implemented with some modifications to the plan, and the changes are recognized as justifiable. On the other hand, collaboration between the Chinese and Japanese broadcasting stations and purchasing of Japanese-made programs were not realized. The details are explained below.

- Although the training was provided to the same number of NXTV staff members as planned, the training period was substantially shortened for each course, resulting in the reduction in total person-months (16 person-months planned and 3.5 person-months implemented). The change was made based on NXTV’s operational decision that it would be difficult for its main technical staff to be away from work for a long time as project implementation was ongoing. However, still focusing on technical training as planned, the training contents were carefully designed to generate sufficient results. The training program focused on production and transmission technology of HDTV programs, the issues of program design and creation using documentary programs in Japan as an example, and the current trend and future challenges of state-of-the-art broadcast technology. As a result, NXTV (including the training participants who were interviewed) recognizes that there was no shortage of technical learning during the training for that period. Thus, the training program was judged to be appropriately implemented even after the change in period.
- Co-production of programs between Chinese and Japanese broadcasting stations was not realized. Instead, NXTV, in cooperation with a Japanese production company, made two 20-minute TV programs. The theme of the both programs was Japanese ODA loan assistance (one an afforestation project and the other a human-resource development project) underway in Ningxia at that time. Each program was broadcast by NXTV Economy Channel twice in May 2010.
- According to NXTV, the principal reason for not succeeding in program purchasing was restrictions on importing and broadcasting foreign TV programs. These restrictions were implemented by SAPPRFT, which supervises the Autonomous Region’s Administration of Press, Publication, Radio, Film and Television Bureau, and NXTV. In addition, NXTV pointed out other reasons, including the high costs of the programs and a lack of capacity to re-edit the program for broadcasting in China.
- According to the consultant to this project, collaboration between the broadcasting stations and program co-production were not realized because Japanese broadcasting stations contacted by the consultant were unable to agree on a planning policy with the Chinese side,



and were limited in resources such as staffing and funding. As stated above, restrictive policies of the Chinese government regarding the broadcast of foreign TV programs also hindered the ability to collaborate or co-produce.

Table 2 Project Outputs (“Soft” Component)

	Plan	Change	Reason
NXTV	<p>Ningxia TV Station</p> <ul style="list-style-type: none"> <li>▪ Training (editing technique: 2 months × 4 staff; transmission: 2 months × 4 staff): total 480 person-days</li> <li>▪ Collaboration with Broadcasting System of San-in (BSS) and NHK</li> <li>▪ Purchase of programs/broadcasting rights of programs produced in Japan</li> <li>▪ Co-production of programs with Japanese broadcasting stations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Training period was shortened (editing technique: 7 days × 2 staff; transmission: 15 days × 6 staff): total 104 person-days</li> <li>▪ Co-produced TV programs titled “Common Wish” and “Future” with a Japanese production company</li> <li>▪ Collaboration with Japanese broadcasting stations and purchase of programs/broadcasting rights of programs produced in Japan were not implemented.</li> </ul>	<ul style="list-style-type: none"> <li>▪ NXTV requested their main technical staff to be away from work for a shorter period for operational reasons.</li> <li>▪ The main reasons for not implementing program purchasing were restrictions of the government on importing/broadcasting foreign programs, the high cost of purchasing programs, and related expenses such as translation.</li> <li>▪ For the Japanese broadcasting stations, the main reasons for not implementing collaboration and program co-production with NXTV were their different planning policies and limitations in resources such as staffing and funding.</li> </ul>

Source: Documents provided by JICA and Executing Agency; interview with Executing Agency

### (3) Consulting Services

Part of the consultant’s work was changed in accordance with a change in the procurement method for equipment and facilities in March 2007, owing to a significant delay in the procurement process caused by the slowed inception of civil work. At the time of the change in procurement method, three years had passed since the signing of the loan agreement, and procurement needed to begin promptly. According to the document prepared by JICA, the estimated cost of each package was below a specified allowable level, and post-qualification reviews were conducted instead of pre-qualification (P/Q) to ensure the quality of contractors. Thus, the change in procurement method was considered to be relevant for the purpose of speeding up the procedure.

Table 3 Project Outputs (Consulting Services)

Plan	Change	Reason
(Support in procurement) <ul style="list-style-type: none"> <li>Preparation of detailed design (D/D) and pre-qualification (P/Q) documents</li> <li>Evaluation of P/Q results</li> <li>Preparation of tender documents</li> <li>Evaluation of tender results</li> </ul> (Support for training and others) <ul style="list-style-type: none"> <li>Training in Japan</li> <li>Co-production of programs with Japanese broadcasting stations</li> <li>Purchase of Japanese programs and broadcasting rights</li> </ul>	<ul style="list-style-type: none"> <li>Preparation of P/Q documents and evaluation of P/Q results were removed. Instead, support for post-qualification (document preparation and evaluation) was conducted.</li> </ul>	<ul style="list-style-type: none"> <li>Procurement method of equipment and facilities was changed from International Competitive Bidding (ICB) with P/Q to ICB with post-qualification.</li> </ul>

Source: Documents provided by JICA; interview with Executing Agency



TV Control Room



Broadcasting Network Server

#### (4) STEP's Effects on Outputs

The Customer Satisfaction Survey for the STEP Loan, which was conducted with the executing agency, reveals that the executing agency is highly satisfied with the content and technical level of the procured equipment and facilities. On the other hand, the executing agency also expressed its view that the STEP rules limiting the prime contractor to Japanese firms and specifying a minimum procurement share of Japanese products constrained the number of bidders and hindered the price competition to some extent.

As stated above, the original plan for the project included civil work to construct a new broadcast center for NXTV. This was to be undertaken by the JICA fund. However, the civil work part was transferred to the Chinese fund because of the Chinese government's policy on foreign-invested construction enterprises that was issued after the project started. The revised policy made it impossible for Japanese construction firms to serve as the prime contractor as required by the STEP condition of the project. As a result, new procurement packages for equipment and facilities were

added to the implementation plan of this project, and the structure of outputs for the hard component was changed significantly from the combination of civil work and equipment and facilities to equipment and facilities in all packages.

### 3.2.2 Project Inputs

#### 3.2.2.1 Project Cost

The estimated project cost at appraisal was 5,266 million yen in total, out of which the Japanese ODA loan was to be used for the foreign currency portion amounting to 4,250 million yen. The remaining 1,016 million yen was to be funded by the Chinese side for the local currency portion. The actual cost of the project was 7,625 million yen, which exceeded the planned amount (145% of the plan). The principal reason was that construction of broadcast center was excluded from the JICA fund and transferred to the Chinese fund, and that the corresponding ODA loan amount was used for additional purchases of equipment and facilities. Because the cost of broadcast center construction was still included in the calculation of the project cost, the total project cost increased according to the expanded scope of equipment and facilities that were additionally purchased.

The actual amount disbursed from the Japanese ODA loan was 4,248 million yen, which corresponded to 100% of the planned amount.

Table 4 Project Cost (Unit: million yen)

	Plan				Actual			
	FC(*2)	LC(*2)	Total		FC	LC	Total	
	JICA fund	Non-JICA fund	Total	JICA fund	JICA fund	Non-JICA fund	Total	JICA fund
Construction of broadcast center	2,403	795	3,198	2,403	0	3,141	3,141	0
Broadcasting equipment	1,357	0	1,357	1,357	4,177	235	4,413	4,177
Training	94	0	94	94	(*4)	0	(*4)	(*4)
Price escalation (*3)	163	0	163	163	-	-	-	-
Contingency	201	164	365	201	-	-	-	-
Consulting services	32	0	32	32	70	0	70	70
Interest during construction	0	57	57	0	-	-	-	-
<b>Total</b>	<b>4,250</b>	<b>1,016</b>	<b>5,266</b>	<b>4,250</b>	<b>4,248</b>	<b>3,376</b>	<b>7,625</b>	<b>4,248</b>

Source: Documents provided by JICA and Executing Agency; interview with Executing Agency  
Exchange rate: 1 RMB = 14.3 yen at appraisal;

1 RMB = 13.9 yen at ex-post evaluation (average from 2004 to 2013)

Note: (\*1) Money amount was rounded down to one million yen.

(\*2) FC: Foreign currency; LC: Local currency

(\*3) Contingency fund to cover cost rises caused by price increases

(\*4) The cost of training is included in that of consulting services

The procurement in this project was originally planned to be implemented in two packages: “TV station equipment” and “civil work.” The packaging was changed three times, as shown below.

- 1) The “TV station equipment” package was divided into six packages in March 2007.
- 2) The “Civil work” package was replaced by seven new packages of equipment and facilities in October 2007.
- 3) A portion of the items in the 10th package was separated in March 2008 as the 14<sup>th</sup> package.

The purpose of the first change was to encourage more bidders to participate and to make the bidding process smoother by dividing the equipment and facilities into smaller packages based on their types and functions. The second change was made to purchase additional equipment and facilities. The third change was intended to purchase a TV relay vehicle ahead of the other items in order to utilize it for airing the Beijing Olympic Games.

The equipment and facilities procured in a total of eight additional packages accounted for approximately 63% of all the equipment and facilities procured in terms of contract amount (i.e., 2,610 million yen out of 4,170 million yen). The large amount of cost input is considered to have reflected on the fact that the additional equipment and facilities were, for the most part, critically important to a broad range of users in the station, and that the equipment and facilities were technically advanced. For example, highly important systems that play a pivotal role in the overall operations in the station, such as a nonlinear editing network and equipment of high-level specifications were included in response to the need for a sophisticated technology such as an HDTV broadcasting system. Looking at the costs of the individual packages, the eighth package (including a nonlinear production and editing network) and the 10<sup>th</sup> and 14<sup>th</sup> packages (including broadcasting vans), which consisted of a major part of the overall package of additional equipment and facilities in terms of value, were not recognized as excessive expenses because there was no substantial difference observed in the contract amount between the major equipment in the above additional packages and the same type of equipment in the packages that were originally planned. Furthermore, based on interviews and observations at NXTV, no equipment and facilities were found to be used at considerably low frequencies. As a whole, the project cost was considered to meet the actual outputs.

Table 5 Procurement Packages

(Unit: million yen)

Package	Plan at appraisal	Revised plan in March 2008	Actual	
	Total	Total	Total	(Reference) Japanese-product ratio (%)
1. TV Equipment	1,357	-	-	-
2. Civil Works	2,403	-	-	-
1. 10-Channel Digital SD TV OB Van, DSNG Communication Vehicle, Mobile Microwave Transmission Equipment	-	431	375	59
2. 150 m <sup>2</sup> Studio Video Equipment, 400 m <sup>2</sup> Studio Video Equipment	-	233	344	62
3. Center Control System, Playing System, Transmission System	-	181	198	15
4. TV Studio and OB Van Audio System, Intercom System	-	106	117	10
5. Lighting (150-m <sup>2</sup> Studio, 400-m <sup>2</sup> Studio, 1200-m <sup>2</sup> Studio)	-	293	303	3
6. Nonlinear Editing Network, Receiving and Recording System, Virtual Studio	-	129	223	8
7. Special Machinery and Power-generating Equipment	-	128	94	55
8. Business Platform of Nonlinear Program and Network System	-	833	783	26
9. Radio Broadcast System	-	368	452	10
10. HD OB Van, Recording Van System	-	625	578	58
11. Monitoring and Control System of Broadcast, Recording Equipment	-	124	247	99
12. Signal Receiving and Transmitting System	-	112	219	13
13. Effective Light, Stage, Seat and LED Screen System of 1200-m <sup>2</sup> Studio	-	209	149	1
14. Microwave Television Relay Vehicle for the News	-	86	88	5
Total	3,760	3,865	4,173	34

Source: Documents provided by JICA

Note: Money amount was rounded down to one million yen. Percentage was rounded to the unit.

### 3.2.2.2 Project Period

The project period<sup>5</sup> was significantly longer than planned. While the planned period at appraisal was 52 months, the actual period was 111 months, which was 213% of the planned period. The main reason for this was a delay in the commencement and implementation of constructing the broadcast center. This had a great influence on the timing of the start and the progress of consulting services, procurement of equipment and facilities, and training.

<sup>5</sup> The completion of the project was defined as the completion of all components, i.e., construction of the broadcast center, equipment and facilities, training, and consulting services. The completion of construction was defined as the date of inspection approval by the Ningxia Department of Construction, completion of equipment and facilities was the date of delivery when completed by the contractor, and completion of training was the date when Chinese trainees returned to the country (documents provided by JICA). The completion of consulting services was defined by the evaluator as the final day of the consultant's work.

As stated above, the exclusion of civil work from the Japanese ODA loan was decided during the process of contract negotiation with a Japanese firm. This caused the executing agency to restart the procedure to select a construction company with Chinese nationality. According to NXTV, the progress of civil work had been slowed by more than two years than planned at that time. Moreover, after construction began, the timing for procuring equipment and facilities had to be adjusted to the progress of the civil work. On the other hand, part of the civil work, such as interior finish work, was delayed owing to some procurement packages that required rebidding because no bidders were technically qualified.

Table 6 Project Period

	Planned	Actual
Entire Project	March 2004 (L/A signed)–June 2008 (52 months)	March 2004–May 2013 (111 months) (213% of the plan)
a) Construction of broadcast center	April 2003–December 2007	March 2007–May 2013
b) Procurement of Equipment	July 2005–June 2008	November 2007–July 2012
c) Training	October 2004–December 2005	(Training) December 2008 (Co-production) April 2009–February 2012
d) Consulting Services	April 2004–March 2007	August 2005–February 2012

Source: Documents provided by JICA; interview with Executing Agency

### 3.2.3 Results of Calculations of Internal Rates of Return (Reference Only)

This project was designed to cover a broad range of effects such as the provision of broadcasting equipment, training, mutual understanding between China and Japan through co-production and procurement of programs, and raising awareness of environment, hygiene, and market rules. Since these effects cannot be measured quantitatively and comprehensively, it was not possible to calculate the internal rate of return at appraisal and at ex-post evaluation.

To sum, the project cost exceeded the plan, and the project period significantly exceeded the plan. It should be noted, however, that the additional cost properly met an expanded scope of the project based on the revised implementation plan that was developed during the project implementation.

Based on the above, the project cost matched the outputs while it exceeded the plan, and the project period significantly exceeded the plan. Therefore, efficiency of the project is fair.

### 3.3 Effectiveness<sup>6</sup> (Rating: ③)

Effectiveness was analyzed from both aspects of the quantitative effects, including operation and effect indicators (broadcast coverage, number of viewers, etc.) defined at the time of appraisal and the

<sup>6</sup> Sub-rating for Effectiveness is to be put with consideration of Impact.

qualitative effects concerning the improvement of the quality of broadcasting.

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

Although the verification of quantitative effects is to be conducted by comparing the actual performance and the target values set for one year (or two years for some indicators) after project completion as defined at the time of appraisal, it was not possible at the time of the ex-post evaluation to obtain the data showing the actual performance achieved one year after project completion, which was marked by the completion of the broadcast center in 2013. However, because the delivery of equipment for this project was completed in 2012, we conducted a verification that compared the newest available data from 2013 and the target values.

As shown in Table 7, as basic operation and effect indicators, broadcast coverage and the number of TV viewers in Ningxia Hui Autonomous Region both greatly exceeded the target values. Broadcast coverage reached 99% (vs. the target value of 89%), and the number of TV viewers grew to 1.80 million households (vs. the target value of 1.75 million households). However, these effects are considered to reflect the direct contribution of the expansion of the transmission network infrastructure and the policy of the Chinese government to promote access to broadcasting in rural areas. This project, which aimed at improving the stage of program production such as information gathering and editing, is considered to have made only an indirect contribution. On the other hand, target values have also been reached for the indicators that are more directly related to program production, such as the number of education programs, broadcasting hours per day of education programs, and share of independently produced programs. These are also included in operation and effect indicators listed in the documents provided by JICA.

Although this project did not include a provision for improving the broadcasting facilities and equipment at Ningxia Educational TV Station, the description of expected quantitative effects included those concerning Ningxia Educational TV Station. This is because a merger between Ningxia Educational TV Station and Ningxia TV Station was foreseen at the time of appraisal, and the educational station planned to use the TV station building constructed in this project. However, at the time of the ex-post evaluation, this merger has not taken place, and there is no direct operational relationship between the educational TV station under the direct management of the Autonomous Region's Department of Education and NXTV, which belongs to a division of the administration of Press, Publication, Radio, and Film and Television. Therefore, this evaluation does not include the indicators concerning Ningxia Educational TV Station that were described at the time of appraisal.

Table 7 Operation and Effect Indicators

Indicator	T/E (*1)	Baseline	Target	Actual		
		2003	2008	2008	2012	2013
		Baseline Year	1 Year After Completion			(Latest Year)
Broadcast Coverage in Ningxia (%)	T	87.7	89.3	96.78	98.90	99.09
TV Viewers in Ningxia (10,000 households)	T	165.3	174.6	n.a.	n.a.	180.1
Number of education programs (programs/year)	T	2	3 (*2)	3	4	4
	E	7	9 (*2)	-	-	-
Broadcasting hours per day of education programs (hours/day)	T	0.75	1.25 (*2)	1.25	1.5	1.5
	E	3.00	4.50 (*2)	-	-	-
% Share of independently produced programs (%)	T	20	35 (*2)	35	35	35
	E	10	20 (*2)	-	-	-

Source: Documents provided by JICA and Executing Agency; *Statistical Yearbook of China*

(\*1) T: Ningxia TV Station; E: Ningxia Educational TV Station

(\*2) It is indicated in the JICA document that these are the target figures for 2008 and “two years after completion.”

In addition, among the quantitative indicators listed for reference purposes other than the operation and effect indicators, 11 of the 13 items achieved their target values in 2013. In particular, the number of TV channels increased to five after the launch of the children’s channel in 2006, and the number of programs for children also increased. The number of independently produced programs also increased dramatically. Because the equipment for production and editing and the key components of the internal operation system at the new broadcast center were procured in this project, it is considered that this project contributed greatly to the attainment of these quantitative results.

The only parameter that failed to reach the target value was the number of programs produced in other countries including Japan. This figure decreased considerably in comparison with the baseline, particularly in recent years. The reasons for this decrease mentioned by NXTV include 1) the limitations imposed by higher administrative bodies of China on the number of imported programs aired, and 2) the recent rapid hike in the prices of Chinese programs purchased in various genres, which drained funds for the purchase of foreign-made programs. As for the programs produced in Japan, it has been pointed out that these programs are losing acceptance among TV viewers. This reflects the recent aggravation in the international relationship between the two countries, in addition to the above reasons.

According to the documents provided by JICA and interviews with relevant persons, there was an attempt to promote the purchase and airing of Japanese programs among the executing agency, Japan Foundation, and JICA, where JICA would add Chinese subtitles to the Japanese-language programs produced by the Japan Foundation and offer them at no cost to the executing agency. Although this idea was discussed beginning around 2008, it was not realized because approval was not obtained



from the higher authority in China.

Table 8 Other Indicators

Indicator	T/E (*)	Baseline	Target	Actual		
		2003	2008	2008	2012	2013
		Baseline Year	1 Year After Completion			(Latest Year)
Number of independently produced programs (programs/year)	T	17	21	22	29	29
	E	5	7	-	-	-
Number of channels (channels)	T	4	5	5	5	5
	E	1	1	-	-	-
Broadcasting hours per week (hours/week)	T	512	588	588	700	700
	E	105	120	-	-	-
Number of programs/ broadcasting times of programs related to disaster (T: programs/year; E: times/year)	T	0	1	2	3	3
	E	26	52	-	-	-
Number of programs related to environmental conservation (programs/year)	T	8	9	9	9	10
	E	1	1	-	-	-
Number of programs related to public health (programs/year)	T	7	7	7	7	7
	E	2	2	-	-	-
Number of programs related to the development of market economy (programs/year)	T	7	8	8	8	8
	E	2	2	-	-	-
Number of programs produced in other countries (programs/year)	T	169.5	204	120	40	40
	E	0	2	-	-	-
Number of programs produced in Japan (programs/year)	T	39.8	43.5	20	0	1
	E	7.7	19.6	-	-	-
Number of programs/ broadcasting times of programs targeting ethnic minority groups (T: programs/year; E: times/year)	T	3	4	4	4	4
	E	0	52	-	-	-
Number of programs/ broadcasting times of programs targeting women (T: programs/year; E: times/year)	T	2	3	3	3	3
	E	52	52	-	-	-
Number of programs targeting children (programs/year)	T	1	1	3	4	4
	E	3	3	-	-	-

Source: Documents provided by JICA and Executing Agency; *Statistical Yearbook of China*

(\*) T: Ningxia TV Station; E: Ningxia Educational TV Station

### 3.3.2 Qualitative Effects (Other Effects)

The use of the facilities and equipment procured in this project at NXTV is considered to have improved the quality of broadcast in various aspects such as the efficiency of program production, production and broadcast techniques, directing and broadcasting methods, and efficiency of work at

the broadcasting station. These qualitative improvements support quantitative expansion such as the increases in broadcast hours and the number of programs. In concrete terms, the following qualitative effects are observed:

- Complete transition from analog to digital formats in production and airing was realized. For example, the children's channel that launched in 2006 was initially an analog broadcast channel, but was switched to digital using the equipment in this project. The switch to digital shortened the time needed for program production, and reduced production cost.
- HDTV transition of newsgathering, recording, and production equipment was realized. This greatly improved technical quality and helped enrich content such as high-picture-quality programs.
- With regard to program direction and effects, newly introduced equipment enabled the live broadcasting of news shows, which previously were entirely prerecorded. A large outside broadcasting van, satellite truck, and other equipment were used for the live coverage of major events and sports meetings, such as the torch relay during the 2008 Beijing Olympic Games, the Ningxia Yellow River Gold Coast International Marathon, Ningxia Spring Festival Gala, and the China-Arab States Expo.
- The commissioning of a stationwide operations network remarkably improved the efficiency of program production and airing. The establishment of a network that covered the entire broadcasting station provided connectivity among the production and broadcasting subsystems, which previously were incapable of mutual conversion, and realized a unified digital system. This organized the entire workflow in the form of document files, facilitating information exchange and realizing a broadcasting system that used no tapes (VTR).
- The appreciation from governmental bodies in the country concerning the programs produced by NXTV has generally been improving. There is an increasing trend in the number of state, province (autonomous region), and department-level awards won by the station, which totaled 151 programs in 2013. From 2008 to 2014, the station received four Golden Sail Awards (for TV programs) and 11 Golden Deer Awards (for radio programs), which the State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China presents every year to commend programs of high technical quality.
- The answers from the beneficiary survey<sup>7</sup> also confirmed the qualitative and quantitative improvement of the programs of NXTV. The survey results indicated that the station's TV programs concerning education, culture, and living information improved in comparison with 5 to 10 years ago in the following aspects, in decreasing order of the appreciation of TV viewers: (i) provision of more local information; (ii) an increase in the number of programs; (iii) provision of more easily understood programs, and (iv) timely availability of information. Radio programs

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<sup>7</sup> The beneficiary survey was conducted in December 2014 in Yinchuan City, Wuzhong City, and Guyuan City, using questionnaires administered by researchers. Effective answers were obtained from 100 people in total (51 males and 49 females). The questionnaire mainly consisted of questions regarding TV and radio viewing and listening behavior, evaluation of NXTV programs, and knowledge and interest in foreign countries (U.S., Korea, and Japan) via broadcasting.

were also highly evaluated by listeners in the following aspects, in decreasing order: (i) provision of more local information; (ii) an increase in the number of programs; (iii) provision of more easily understood programs, and (iv) better reflection of the listeners' needs.

However, according to NXTV, the average audience share for the station in Ningxia Hui Autonomous Region as a total of all channels dropped from 3.78% in 2005 to 2.15% in 2014 (at the time of the ex-post evaluation). This is considered to reflect the increasing competition with satellite channels in other provinces, as well as the loss in popularity of television in general owing to the expansion of media other than TV. Although the station asserts that some programs are popular among viewers, the effect of the improvement of quality in the production stage has not resulted in an increase in the audience share as a whole. This view concurs with the station's understanding that, once it has achieved the introduction of advanced equipment and improvement of technical expertise, it urgently needs to develop the ability to produce attractive content.

Column "My Experience in the Upgrading of Broadcasting Equipment"

Mr. Liu Junkai, Recording and Production Department, Ningxia Radio and TV Station Technology Center

I am in charge of the Recording and Production Department, which includes operation, maintenance, and servicing of studios, outside broadcasting (OB) vans, and lighting system equipment. I have been working with NXTV as an engineer since 1996. When the station underwent a major upgrade to its broadcasting equipment and facilities under a Japanese ODA loan project, some of the young and middle-level workers in the station were appointed to take charge of equipment management in 2008, and among others, I was chosen to work in the Recording and Production Department. Starting from the time of the trial operation of the 1,200-m<sup>2</sup> studio, completed in the same year and continuing after the beginning of its full operation, I learned studio operation and production techniques through training and instruction given by the manufacturers for two years. Formerly, when we wanted to record a large event, we had to do it outdoors or borrow a third-party facility such as a gym. The completion of this large studio on the premises of the station greatly improved the efficiency and cost of production.



The introduction of the outside broadcasting van under the Japanese ODA loan project also completely changed broadcasting practices at NXTV. As we formerly had only one analog recording van, we sometimes needed to borrow OB vans from broadcasting stations in other cities or other

provinces when we needed to perform digital broadcasting. I used the newly introduced digital OB van for the first time for the coverage of the mid-autumn festival in October 2008, when I had just completed a two-month training period. Because we were not prepared sufficiently at the time, the program was recorded rather than live coverage. However, the use of the OB van enabled us to perform editing work such as subtitling and dubbing on the spot, and we were able to air the program on the next day. This represented a tremendous improvement in efficiency, as we used to require one week for the editing and production work on recorded video and audio materials.

Now, the OB van and satellite truck provided in this project are used on various occasions such as seasonal events, political events, and sports tournaments. For example, the National Traditional Ethnic Minority Sports Meet held in 2012 in Ningxia was covered on the spot by NXTV, and the signals were sent to Chinese Central Television (CCTV) for real-time live broadcasting all over the country. In many events, such as the Yellow River Gold Coast International Marathon held biannually in Ningxia, we use the microwave relay van, the TV broadcasting van, and the satellite truck in an integrated system to deliver a realistic experience and to ensure the security of broadcasting by using a combination of different transmission routes. In terms of production capabilities, we can now perform slow-motion replay in the OB van, for example. This improved the quality of live sports programs. Since we have this well-equipped setup for outside broadcasting, we now occasionally lend the OB van to stations in other provinces.

*(Retold by the evaluator based on an interview.)*



Satellite Truck



150-m<sup>2</sup> TV Studio

### 3.4 Impacts

#### 3.4.1 Intended Impacts

##### (1) Advancement of Education, Cultural Enrichment, and Knowledge Enhancement for Ningxia Citizens

NXTV recognizes that TV viewers want educational and cultural programs made to a higher standard both in terms of the depth and expanse of the treatment of subjects and the level of production techniques. The viewers' opinions are a result of changes in the last 10 years, such as

the rapid development of media technologies, the increase in the variety of communication media, and the popularization of social networks and other means for information exchange. In response, the station has been increasing its production of high-quality documentary shows and splendid artistic programs that combine filming, music, voice dubbing, literature, and other elements. The satellite channel of NXTV produced and nationally aired high-quality programs featuring the nature and society of Ningxia, such as “Impressions of Ningxia” and “Here is Ningxia,” which were favorably received by the public. NXTV also recognizes the rapid diversification of the ways that young people get information as a result of the spread of new media, and in response, the station has produced lifestyle and informational TV and radio programs linked to the Internet and social networks. In addition, the public channel of NXTV is sponsoring campaigns and various awareness activities about activities such as free health checkups for citizens in cooperation with local healthcare professionals.

Apart from that, our beneficiary survey ascertained that the TV and radio programs of NXTV are used effectively in citizens’ daily lives. For example, TV programs such as “The Shining City” and “The Story of Wealth” are highly regarded as very useful sources of information and knowledge directly related to daily living. People are also making good use of radio programs at work and in daily life, such as listening to “Traffic Radio” to get timely information of road conditions.

As described above, NXTV is responding to the needs of citizens and promoting knowledge and awareness by providing high-quality programs concerning culture, education, social, and lifestyle information, and by conducting various campaigns. Citizens are using the lifestyle and informational programs of NXTV to improve their knowledge and to obtain useful information. We therefore conclude that the project has been making beneficial impacts on the advancement of education, cultural enrichment, and knowledge enhancement of people in the autonomous region.

## (2) Promotion of Mutual Understanding between Japan and China

As discussed above, the TV programs “Common Wish” and “Future,” which were produced jointly with a Japanese production company, were each aired twice on the economy channel of NXTV in May 2010. These programs featured the activities in Japanese ODA loan projects (an afforestation project and a human resource development project) conducted in Ningxia Hui Autonomous Region. Because these programs did not simply introduce Japan but pursued the theme of cooperation between the two countries, they were considered to be in line with the goal of mutual understanding. However, we could not obtain information concerning concrete responses from viewers. The NXTV employees involved in the production of these programs, nevertheless, stated that they were very impressed by the meticulous preparation and material-gathering procedures performed by the staff from the Japanese production, and that experience was helpful to them in improving their work. The engineers who attended the training in Japan commented that they were impressed by the very earnest attitude of the workers at the Japanese broadcasting station they visited.

We also conducted a beneficiary survey to find out how the media changed the people's impressions of and interest in Japan. The answers concerning changes in the impression of Japan as seen in TV programs in comparison with 5 to 10 years ago were "no change" for 46% of responders, "became better" for 13%, and "became worse" for 27%. When the same question was asked concerning the impression of the United States and that of Korea, more people answered "no change" and "became better" (50% and 24% for the US, and 54% and 29% for Korea) as compared with the question about Japan, and fewer people answered "became worse" (12% and 6%, respectively). However, this question was not targeted at a particular broadcasting station, because NXTV aired only a very limited number of programs produced in Japan during the past five years.

Because two jointly produced programs were aired and the content of these programs was in line with the goal of mutual understanding between Japan and China, we can consider that the program was effective to a certain extent in promoting understanding among the viewers of these programs. However, because the purchase and airing of programs concerning Japan have been extremely limited, it is difficult to say whether this project had a positive impact on deepening the understanding of Japan among citizens in general. On the other hand, some of the NXTV personnel who were directly involved in this project deepened their understanding of the Japanese people and the work attitude of Japanese companies through interaction with the Japanese people.

### (3) Strengthening of Collaboration between Japanese and Chinese Broadcasting Stations

There were no identified cases of collaboration between NXTV and Japanese broadcasting stations being strengthened through this project. Although Ningxia TV Station, which was the predecessor of NXTV, entered a cooperation agreement with Broadcasting System of San-in (BSS) in 1994, no concrete cooperation activities are ongoing at present.

#### 3.4.2 Other Impacts

Other positive impacts include the fact that the advertising revenue of NXTV has been showing an increasing trend (Table 9). As to the factors behind this change, the station mentioned an increase in the number of channels during and after 2006, an increase in the number and airing hours of independently produced programs, and the improvement of audio and visual effects realized by the use of new equipment mainly provided by this project.

No impact on the natural environment arising from this project has been identified. This project did not involve the acquisition of new land or relocation of inhabitants.

As discussed above, target values were attained for the majority of quantitative indicators defined for the purpose of verifying the effects of this project. Qualitative indicators also confirmed an improvement in the quality of programs through the improvement of various program production technology and methods. Although some of the planned impacts were missing or limited, it was found that programs responding to the needs of society were produced and utilized in the people's daily

lives.

Based on the above, this project has largely achieved its objectives. Therefore, effectiveness and impact of the project are high.

### 3.5 Sustainability (Rating: ③)

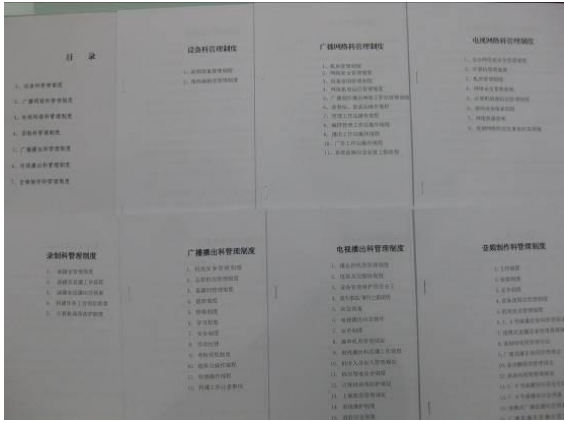
#### 3.5.1 Institutional Aspects of Operation and Maintenance

In 2005, Ningxia Administration of Press, Publication, Radio, Film and Television, and NXTV became organizations that were ranked equally on the agency/bureau level, and the organization in charge of this project was changed from the Ningxia Administration to NXTV. In the new system, NXTV operates and maintains the facilities and equipment procured in this project under the supervision of the Finance Department of the Autonomous Region. A system for the operation and maintenance of facilities and equipment has been maintained at the station up to the present.

The main department in charge of the operation and maintenance of broadcasting facilities and equipment within NXTV is the Technology Center. The Technology Center is staffed with approximately 150 workers and is composed of a Facility Section, Radio Network Section, TV Network Section, Recording Section, Radio Broadcast Section, TV Broadcast Section, and Audio Production Section. Apart from the Technology Center, the Transmission Center takes charge of the operation and maintenance of transmission facilities, and the Logistics Support Service Center handles the operation and maintenance of power supply facilities. There is a well-established system for the management of equipment and facilities according to their types and functions, and the station is considered to have an appropriate maintenance system.

#### 3.5.2 Technical Aspects of Operation and Maintenance

NXTV has approximately 80 (including approximately 30 at the Technology Center) senior- and higher-level engineers (high-level engineers and professor-level engineers). There are approximately 160 entry-level and middle-level engineers (including approximately 40 at the Technology Center). Considering the situation of technology at the new broadcast center, the station introduced a new set of rules concerning facility operation, maintenance, and use management to the sections in the station. In addition, the Technology Center originally produced use management handbooks for technical facilities that were tailored to program production personnel (operational techniques) and technical maintenance personnel (repair techniques) for use in internal training and education. During the implementation of this project, a total of 40 workers were trained overseas, and a total of more than 580 workers were trained in the country, consolidating the foundation for the operation and maintenance of equipment and facilities. According to NXTV, the station has a high employee retention rate, and the workers who received domestic and overseas training remained employed at the station at the time of ex-post evaluation, indicating that the station is successfully retaining the operation and maintenance know-how it acquired. From the above, it is considered that the presence of sufficient operation and maintenance technology in the organization is ensured.



Facility and Equipment Management Manuals  
Developed by NXTV



Delivered Japanese-made Camera Equipment

### 3.5.3 Financial Aspects of Operation and Maintenance

The total revenue of NXTV has been increasing for the past five years, and the share of government subsidies in the revenue is approximately 20–30% of the total. On the other hand, maintenance expenditures are within several percent of the total expenditure amount, although there are fluctuations from year to year. Capital investment such as facility renewal is also less than 10% of annual revenue (Table 9). Now that the equipment and facilities were all delivered in this project, the station plans an outlay of more than 13 million RMB per year in maintenance costs to ensure the normal operation of these facilities and for training engineers (source: Project Completion Report, 2013). This plan is fairly affordable considering the size of the station’s income. In addition, there is no plan for a major renewal of equipment and facilities in the near future. Therefore, it is considered that the financial sustainability of operation and maintenance is guaranteed.

Table 9 Financial Revenue and Expenditures of NXTV

(Unit: million yuan)

Item	2009	2010	2011	2012	2013
Total annual revenue	188.04	255.87	294.25	346.14	336.12
Business revenue: advertising	154.40	208.36	243.99	267.25	228.54
Business revenue: other	0	0	0	0	0
Government fund (subsidies, etc.)	33.64	47.51	50.26	78.89	102.58
Other revenue	0	0	0	0	5
Total annual expenditure	184.18	258.77	295.21	334.86	329.46
Personnel expenses	23.26	26.35	34.75	41.04	56.11
Program production & purchase cost	13.52	10.11	13.70	13.91	10.75
General overhead	98.94	187.98	178.79	229.33	213.73
(Incl. maintenance cost)	3.92	5.21	6.62	8.01	2.11
Capital investment	16.81	5.21	24.28	6.50	15.23
Payment to the government	1.34	5.41	5.41	12.61	27.10
Other expenditures	30.31	23.71	38.28	31.47	6.54

Source: Document provided by Executing Agency



### 3.5.4 Current Status of Operation and Maintenance

According to NXTV, maintenance and inspection/repair of the equipment and facilities managed by the Technology Center, the Transmission Center, and the Logistics Support Service Center are conducted once per week. Virtually all of the delivered equipment and facilities are working normally, and there are no major problems in maintenance. As for the spare parts for Japanese-made equipment, no problem has occurred because paid services are available after the expiration of the manufacturers' warranty. Therefore, it is considered that operation and maintenance are performed without notable problems.

As discussed above, no major problems have been observed in the institutional, technical, and financial aspects of the operation and maintenance system. Therefore, sustainability of the project effects is high.

## **4. Conclusion, Lessons Learned and Recommendations**

### 4.1 Conclusion

The goal of this project was to improve the quantity and quality of TV and radio programs in Ningxia Hui Autonomous Region by updating the broadcasting infrastructure and providing training to the staff of the broadcasting stations. This would contribute to the advancement of education, knowledge enhancement, and cultural enrichment of the citizens in the Autonomous Region and also to the promotion of mutual understanding between China and Japan. The project was highly relevant to the development plans and development needs of China in a consistent manner from the appraisal to the ex-post evaluation, and also to Japan's assistance policy for China at appraisal; therefore, its relevance is high. More outputs were produced than originally planned because of a significant change in the execution plan during the implementation process in order to properly meet new needs emerging from advances in technology and the executing agency's expanded scope of business. Thus, the project cost appropriately reflected the outputs actually produced. The project period, however, significantly exceeded the plan; therefore, its efficiency is fair. The project significantly contributed to the improvement of the broadcasting programs in quantity and quality, and has had a certain observable impact; therefore, its effectiveness and impact are high. No major problems have been observed in the institutional, technical, or financial aspects of the operation and maintenance system; therefore, sustainability of the project effects 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

Through the comprehensive introduction of broadcasting equipment and related facilities, this project realized program production and airing at a high technical level and an efficient work system at the new broadcasting center of NXTV. As a result, the station now possesses advanced equipment

and facilities, which are remarkable among the province/autonomous region-level broadcasting stations in China, and the employees are highly motivated to work in operation and maintenance. Now that the improvement of hardware has come to an end, the station is strongly aware of the need to recruit and develop production engineers who have the ability to plan, gather material, and edit so that the station can produce and air more attractive programs. Improving the abilities of personnel who use the equipment and facilities provided in this project is crucial to the full manifestation and continuation of the project's effects. Since competition with other broadcasting stations in the country and other media is expected to continue, the station should strengthen medium-term personnel recruiting and development plans beyond the short-term satisfaction of manpower needs in order to improve the production capabilities of the organization as a whole.

#### 4.2.2 Recommendations to JICA

Concerning the question of how the executing agency can improve its production capabilities as an organization, the production engineers working at NXTV commented that their interaction with the production engineers from broadcasting stations in Japan and other foreign countries provides an opportunity to learn not only how to use equipment but also to obtain concrete know-how and knowledge about work processes including planning, material gathering, and editing. This can be a very effective means for achieving improvement. JICA should consider activities to promote interaction between the production workers from Japanese and Chinese broadcasting stations. This responds to the needs of the executing agency to maintain the high effectiveness and motivation achieved in this project. The forms of such activities can be training in Japan and training and seminars in China.

As a concrete example, a seminar or domestic training session can be held, gathering the personnel from the production departments of broadcasting stations, including those in other provinces where the broadcasting projects from Japanese ODA loans were conducted simultaneously with Ningxia Hui Autonomous Region. Production personnel from Japanese broadcasting stations can be invited so that they can exchange information concerning trends in production technology in both countries and work knowledge. It may also be meaningful to promote interaction among the people in the same field of work, not only among production engineers but also among the workers in such fields as programming and maintenance.

### 4.3 Lessons Learned

#### **(1) Sufficient Consideration of the Technological Advances in Equipment Upgrading Projects in Advanced Technology Fields**

Major alterations were made to this project during its implementation. This resulted in the exclusion of civil engineering work from the Japanese ODA loan and the additional procurement of equipment and facilities. This was the most important cause that elongated the period of project implementation. On the other hand, this enabled adjustments to satisfy the wishes of the executing

agency, such as the new equipment procurement plan that reflected the development of broadcasting technology at the time of alteration and a change in broadcasting equipment, which was initially planned to be standard picture quality, to high-definition equipment. According to the executing agency, this enabled the station to “ride the wave” of high-definition TV, which was starting to be used at leading broadcasting stations in China at the time.

As a result, NXTV has become one of the stations with the most advanced equipment and facilities at present. This fact indicates that needs are changing continuously in fields with rapid technological evolution, and that the appropriateness of equipment selection at a point in time is inevitably associated with uncertainty. Furthermore, while the executing agency is generally highly satisfied with the equipment and facilities provided in this project, some of the individual packages caused delays in the project because an unexpectedly long time was needed during the approval process for the Japanese ODA loan by relevant authorities, or because rebidding became necessary.

Based on the above, the basic principle should be that relevant organizations in both countries reliably perform necessary procedures so that there is no delay in the project, and that the supervising and executing agencies and JICA conduct appropriate progress management. However, when a major delay has occurred and the project plan needs to be reconsidered, JICA should discuss this with the recipient side and, within the purpose of the project, select the equipment and facilities that meet the needs of the executing agency at the time, paying sufficient attention to trends in technology.

## **(2) Sufficient Confirmation of the Rules of the Japanese ODA Loan and the Procurement Laws of the Project Site Country**

The civil engineering component, which was included in the initial project plan, later came to involve a problem because of a policy change in China: that the requirement of the nationality of the main contractor under the STEP rule contradicted a domestic rule in China. This necessitated a major revision to the project plan, resulting in the exclusion of civil engineering works from the Japanese ODA loan project and a plan for additional procurement of equipment and facilities. Such situation was difficult to foresee, because the Chinese government had assured a lack of contradiction with domestic laws when the L/A took effect. Generally speaking, there always is a risk that procurement rules of the recipient country may be amended or their implementation may be changed after the start of the project in a way that affects the Japanese ODA loan project, and it is impossible to avoid such risk completely. However, when a project is the first case of procurement under the STEP conditions in a country, as was the case in this project, and when a project is conducted in a country with little experience in Japanese ODA loan projects not limited to those under STEP conditions, it should be ensured that the project plan is based on the procurement rules and the cases of their implementation. Even in the case of a country with much experience in Japanese ODA loan projects, prior confirmation of the enacted and expected amendment to procurement-related laws should be performed meticulously to reduce this risk as much as possible.

### **(3) Importance of the Assessment of Achievement and Risk in Highly Difficult Soft Component**

The soft component planned in this project included training, the purchase of Japanese television programs, and co-production with Japanese broadcasting stations. Unlike the hard component, in which procurement is conducted based on a more or less concrete plan, the soft component in this project involved challenging activities that aimed to promote mutual understanding between Japan and China on the basis of many uncertain factors such as business decisions of the broadcasting stations in both countries, negotiations between broadcasting stations, and the policies of both countries. In planning such a difficult soft component, it is necessary to carefully locate and assess the extent of risks to achievement, beginning at the time of appraisal. In particular, if the activities in the soft component are susceptible to the direct impact of policies and regulations, such as licensing and approval of the government, we need to conduct information processing and analysis in advance that focuses on feasibility. For example, a major factor that impeded the purchase of Japanese programs in this project was the policies and regulations of the Chinese authorities. According to documents provided by JICA, although the past records of the purchase of foreign-made programs were confirmed, the possibility of restrictions on the purchases or imports of foreign-made programs was not recognized as an explicit risk at the time of appraisal, and a survey on relevant policies and rules was commissioned after the beginning of the project.

For a highly difficult soft component, setting high goals at the time of planning to maximize the effects of a bilateral cooperation project is a strategy that should not be rejected. On the other hand, proper recognition of the risks that can greatly affect the manifestation of effects and sufficient sharing of this recognition between the two countries in advance would provide the basis for a common understanding among the people from both countries as to how much success would be probable in reality. Explicit indication of such risks at the time of appraisal would also facilitate a convincing ex-post verification of the actual results.

### **(4) Importance of Coordination Between Civil Work and Equipment/Facilities Procurement and Overall Work Management in a Project Combining These Two Components**

In this project, the civil engineering works that were excluded from the Japanese ODA loan were conducted using the fund from the Chinese side. However, the mismatch in timing of the progress of construction works and the procurement of equipment and facilities resulted in procurement of items in the wrong order and problems in the compatibility of specifications for some pieces of equipment, leading to a delay in the completion of the broadcasting center. In a project combining civil engineering works and the procurement of equipment and facilities, such as this project, overall work management must be conducted to pay sufficient attention to the fact that the timing of the procurement of equipment and facilities can be affected by the progress of civil works. In particular, when civil engineering works and the procurement of equipment and facilities are conducted using different fund sources, the executing agency must pay special attention to ensure proper coordination between these two components.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
<p>1. Project Outputs “Hard” Component</p>	<p>&lt;Ningxia TV Station&gt;</p> <ul style="list-style-type: none"> <li>• Construction of broadcast center (total floor area: 32,300 m<sup>2</sup>)</li> <li>• Studio equipment (digital cameras/recorders, satellite program receivers, monitors, lighting, etc.)</li> <li>• Broadcasting van</li> </ul>	<p>&lt;Ningxia Radio and TV Station&gt;</p> <ul style="list-style-type: none"> <li>• Construction of broadcast center (total floor area: 32,300 m<sup>2</sup>) (procured by the Chinese fund)</li> <li>• TV Studio equipment (digital cameras/recorders, satellite program receivers, monitors, lighting, nonlinear program and network system, etc.)</li> <li>• Broadcasting van (Digital SD TV OB van, HD OB van, microwave television relay vehicle, etc.)</li> <li>• Radio Broadcast System (production system, live broadcasting system, recording room equipment, radio relay vehicle, etc.)</li> <li>• Electrical machinery (elevators and Power-generating equipment)</li> </ul>
<p>“Soft” Component</p>	<p>&lt;Ningxia TV Station&gt;</p> <ul style="list-style-type: none"> <li>• Training (editing technique: 2 months × 4 staff; transmission: 2 months × 4 staff): total 480 person-days</li> <li>• Collaboration with Broadcasting System of San-in (BSS) and NHK</li> <li>• Purchase of programs/broadcasting rights of programs produced in Japan</li> <li>• Co-production of programs with Japanese broadcasting stations</li> </ul>	<p>&lt;Ningxia Radio and TV Station&gt;</p> <ul style="list-style-type: none"> <li>• Technical training (editing technique: 7 days × 2 staff; transmission: 15 days × 2 staff): total 104 person-days</li> <li>• Collaboration with Japanese broadcasting stations, and purchase of programs/broadcasting rights of programs produced in Japan, were not implemented</li> <li>• Co-produced TV programs titled “Common Wish” (20 min) and “Future” (20 min) with a Japanese production company</li> </ul>
<p>Consulting Services</p>	<p>(a) Support in procurement</p> <ol style="list-style-type: none"> <li>① Preparation of detailed design (D/D) and pre-qualification (P/Q) documents</li> <li>② Evaluation of P/Q results</li> <li>③ Preparation of tender documents</li> <li>④ Evaluation of tender results</li> </ol> <p>(b) Support in training and others</p> <ol style="list-style-type: none"> <li>① Training in Japan</li> </ol>	<p>(a) Support in procurement</p> <ol style="list-style-type: none"> <li>① Preparation of detailed design (D/D) and post-qualification documents</li> <li>② Preparation of tender documents</li> <li>③ Evaluation of tender results</li> </ol> <p>(b) Support in training and others</p> <ol style="list-style-type: none"> <li>① Training in Japan</li> </ol>

	② Co-production of programs with Japanese broadcasting stations ③ Purchase of Japanese programs and broadcasting rights	② Co-production of programs with a Japanese production company
2.Project Period	March 2004–June 2008 (52 months)	March 2004–May 2013 (111 months)
3.Project Cost		
Amount paid in Foreign currency	4,250 million JPY	4,248 million JPY
Amount paid in Local currency	1,016 million JPY (71 million RMB)	3,376 million JPY (242 million RMB)
Total	5,266 million JPY	7,625 million JPY
Japanese ODA loan portion	4,250 million JPY	4,248 million JPY
Exchange rate	1 RMB = 14.3 JPY (As of September 2003)	1 RMB = 13.9 JPY (Average between 2004 and 2013)