People's Republic of China

Ex-Post Evaluation of Japanese ODA Loan Project

"Broadcasting Infrastructure Improvement Project (Anhui province)"

External Evaluator: Atsushi Tsukui, International Development Center of Japan Inc.

0. Summary

The objective of this project was to improve television and radio broadcasting programs in Anhui province with respect to both quantity and quality through renovation of equipment of the Anhui Radio and Television Transmitting Center[1] (hereinafter called ARTTC), Anhui Radio Station[2] (hereinafter called ARS), Broadcasting Monitoring Station[3] (hereinafter called BMS), and General Transmitting Station[4] (hereinafter called GTS) as well as implementing the training in Japan, thereby contributing to the advancement of education, knowledge enhancement, and cultural enrichment of the citizens in Anhui, and also to the promotion of mutual understanding between China and Japan. This project was highly relevant for China's development plans, development needs, and Japan's ODA policy; therefore, its relevance is high. Whereas the project cost was within the plan, the project period exceeded the plan; therefore, its efficiency is fair. Both the population coverage rate and the viewership that were set as the project target criteria have been steadily increasing, making the project more effective. The efficiency of program production has improved, and the incidence of unforeseen accidents during the broadcasting operation decreased owing to the renovation of equipment and facilities in all the four organizations. With respect to broadcasting content, the extension of the equipment and facilities such as channel addition as well as the employment of the outside broadcast van has allowed the broadcasting station to produce audience-friendly programs, resulting in the improvement of program quality. The improvement of these programs both with respect to quantity and quality has contributed to the advancement of education, cultural enrichment, and knowledge enhancement for the citizens in Anhui to a certain extent; therefore, the effectiveness and impact of the project are high. Regarding the operation and maintenance of broadcasting services, no major systemic, technical, and financial problems have been observed; sustainability of the effectiveness of the project is thus high.

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

[1] It is a state-owned enterprise in which the central government owns 100% of the stocks. The enterprise has delivered cable television programs since 2001.

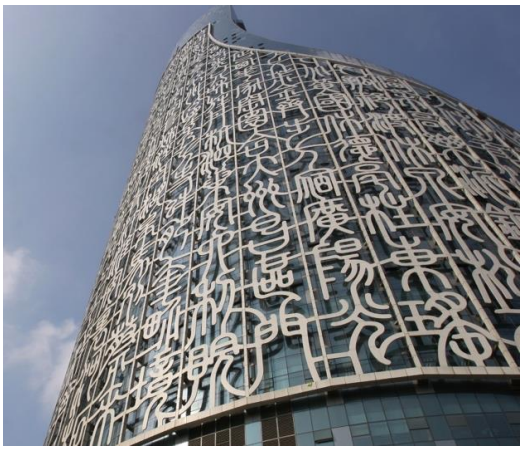
[2] Owing to an organizational change in 2011, Anhui Radio Department was renamed as Anhui Radio Station. Its responsibilities and services in the province were not changed (see also "3.5 Sustainability").

[3] The organization is supervised by the Administration of Press, Publication, Radio, Film and Television of Anhui province (APPRFTA) to monitor radio-wave broadcasting in the area.

[4] The organization is supervised by APPRFTA to manage radio transmission at the transmitting towers, which are located in the corresponding geographic areas to cover the entire population in the province.

1. Project Description

Project Location



Anhui Radio Station

1.1 Background

The broadcasting stations in China operate at (1) the central, (2) provincial/municipal/autonomous regional, (3) prefectural, and (4) county levels and are supervised by the corresponding governments. In 2001, the population coverage in the entire country was 94% for television, which meant that broadcasting services had achieved a certain influence on information provision, cultural enrichment, and enhancement of educational opportunities for the citizens. In view of these achievements, and to stimulate further socioeconomic development, the government set a target of 97% population coverage for television by 2010 to enhance information delivery and cultural enrichment for the people.

Anhui province, the target area of the project, with a population of 63250,000 people in 2001, is one of the most important provinces for agricultural production. Blessed with natural advantages such as scenic lands and rivers, Anhui province had developed the tourism industries, whereas industrial development lagged in its rural areas owing to natural disasters such as droughts and floods. In 2001, 20 counties were designated as “poor counties” according to government criteria. Because the poverty was mainly caused by unsatisfactory provision of information and education, the provincial government formulated a policy of developing broadcasting programs in order to disseminate cultural and educational information as well as disaster forecasting/prevention information and the technology. However, ARTTC as well as ARS, the organizations responsible for the broadcasting services, have been suffering from a lack of finance; moreover, difficulties were encountered in the production of programs such as the programs for distance education owing to the poor quality of broadcasting equipment in terms of specifications compared with the quality of the equipment in the coastal area (documents provided by JICA).

In view of this background, the project aimed at improving broadcasting programs in Anhui both in quantity and quality in order to improve the access of the citizens to the broadcasting programs, and also to contribute to the advancement of education, cultural enrichment, and knowledge enhancement for the citizens. The project also was expected to deepen mutual understanding between Japan and China. Further, the project planned to introduce Japanese broadcasting technology and equipment to China through the Special Terms for Economic Partnership (STEP).[5]

1.2 Project Outline

The objective of this project is to improve the quantity and quality of the television and radio programs in Anhui by upgrading broadcasting equipment and providing training to the staff of the broadcasting stations, thereby contributing to the advancement of education, cultural enrichment, and knowledge enhancement for the citizens in Anhui and also to the promotion of mutual understanding between Japan and China.

<ODA Loan Project>

Loan Approved Amount/ Disbursed Amount	3,301 million yen/ 3,250 million yen	
Exchange of Notes Date/Loan Agreement Exchange Date	March 2004/March 2004	
Terms and Conditions	Interest rate: Repayment period (grace period) Condition for procurement:	0.75% p.a 40 years (12 years) Tied (Special Terms for Economic Partnership (STEP))
Borrower/Executing Agency	Guarantor: Government of the People's Republic of China/People's Government of Anhui province	
Final Disbursement Date	August 2012	
Main Contractor (over 1 billion yen)	—	
Main Consultant (over 100 million yen)	—	
Feasibility Studies: F/S, etc.	F/S by Anhui Engineering Consulting Institute (July 2003)	
Related Projects	—	

[5] Six projects, including this project, were adopted at the same time as the projects in the broadcasting sector in China. The other five projects were those in Jinan city in Shandong province; Qinghai, Yunnan, and Jilin provinces; and the Ningxia Hui Autonomous Region.

2. Outline of the Evaluation Study

2.1 External Evaluator

Atsushi Tsukui (International Development Center of Japan Inc.)

2.2 Duration of the Evaluation Study

The evaluation study was conducted in accordance with the following schedule.

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

Duration of the field study: December 6 – December 14, 2014; March 4 – March 9, 2015

3. Results of the Evaluation (Overall Rating: A[6])

3.1 Relevance (Rating: ③[7])

3.1.1 Relevance to the Development Plan of China

The government of China has placed emphasis on the broadcasting sector to enrich people's cultural life and formulation of policies to enhance the population coverage rates of TV and radio, improve the quality of broadcasting programs, and upgrade the information technology infrastructure, including the broadcasting sector. These policies have been consistently applied from the Tenth Five-Year Plan of China (2001–2005) at the appraisal stage to the Twelfth Five-Year Plan of China (2011–2015) at the ex-post evaluation stage. The Twelfth Five-Year Plan of China emphasizes the policy of "Village to Village," which aims to provide public services, including broadcasting services, to all the rural area. From 2010 onward, the government has pushed ahead with a policy called "Fusion of the Three Nets" that integrates the existing mass media such as broadcasting into the Internet. Having set a precedent for this policy, Anhui province has upgraded the communication infrastructure, which enables people to communicate in an interactive way through media such as radio, TV, and Internet through the project (through the cable network integrating the three media). The government has subsidized Anhui's advanced trial since 2009, which shows that the project has been highly appreciated by the central government.

From the foregoing facts, it is clear that consistency between the development policies of the national and provincial governments and the project has been maintained at both the appraisal and the ex-post evaluation stages.

3.1.2 Relevance to the Development Needs of China

The per-capita GDP of Anhui province in 2013 was 31,684 yuan, which is much below the

[6] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[7] ③: High, ② Fair, ① Low

national per-capita GDP of 41,908 yuan. Although economic development is successfully under way in the province, the number of poor counties was still 19 in 2013, and has not significantly decreased compared to the value of 20 at the project appraisal stage in 2003 (the Government of China "Anhui Province People Economic and Social Development Bulletin"). The Twelfth Five-Year Plan of Anhui province (2011–2015) set out policies such as the optimization of the income distribution structure in the area, income generation for the low-income group, and expansion of the middle-income group. To implement these policies, the government addressed the improvement in the infrastructure and the service system for information provision such as broadcasting that covers both urban and rural areas, so that all the people in the area benefit equally from the regional development.

After implementation of the project, though the ratio of digitization of broadcasting facilities of ARS has been increased, the need to enhance the capacity of media signal transformation devices has arisen because of this digitization at the ex-post evaluation. In the cable network of ARTTC, the population coverage rate in the urban areas reached almost 100% at the time of ex-post evaluation, whereas the coverage in rural areas was still approximately 60%. In order to correct the disparity of access to information between the urban and rural areas, a more extensive cable network needs to be laid that delivers TV, radio, and Internet to the most remote villages.

3.1.3 Relevance to Japan's ODA policy

"Economic Cooperation Program for China" (October 2001) of the government of Japan at the project appraisal stage formulated policies such as the promotion of market-oriented economic reform, environmental arrangements for the extension of economic relationships in the private sector, and the promotion of mutual understanding between people in both countries. "Medium-Term Strategy for Overseas Economic Cooperation Operations" emphasized human resource development and the reduction in income disparity by bridging the information gap. The project also aimed at reducing the information gap, promoting human resource development, and increasing mutual understanding in the broadcasting sector between the two countries.

From these facts, it is clear that this project has been highly relevant to the country's development plan and development needs, as well as Japan's ODA policy at both the appraisal and the ex-post evaluation stages. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

There are two project outputs in ARTTC, ARS, BMS, and GTS: (1) upgrading "hard" components (improvement of devices and infrastructure for broadcasting); and (2) strengthening "soft" components (training for the staff). The comparison between the planned and actual output is as follows.

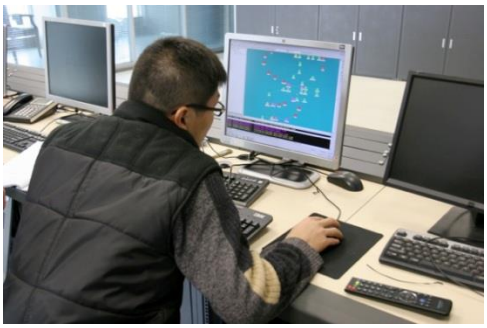
(1) Upgrading "hard" components (improvement of devices and infrastructure for broadcasting)

The upgradation took two years from the appraisal stage to procurement of the first package, during which period technological advances were made in the equipment. Consequently, the equipment procurement process was modified as shown in Table 1. The specifications of the corresponding equipment were changed so as to meet the total amount of the ODA loan. No change was necessary in terms of the function as well as the end use of the equipment.

Table 1: Plan and Actual Project Outputs ("Hard" Components)

Organization	Plan	Modification	Cause of modification
ARTTC	・Cables (fiber cables, coaxial cables, transmitters, etc.) (Package 2, 3, 5, a part of 8, 9, 10, and11)	・Though products were modified in terms of their specifications, their functions were not changed	・Time taken from appraisal to procurement stages of the first package resulted in modification of product specifications given by manufacturers
ARS	・Studio equipment (lighting, digital cassette/CD recorders, editing facilities, etc.) (Package 1, a part of Package 8)		
BMS	・Monitoring equipment (broadcasting monitor, video analyzers, receivers, etc.) (Package 6, a part of Packages 4 and 8)		
GTS	・Transmitting equipment (televisors, signal monitoring systems, adjusters, audio-video switchers, audio-video dischargers, microwave transmitters, microwave receivers, etc.) (Package 7)		

Source: Documents provided by JICA and executing agency and interview with executing agency.



Radio wave monitoring in BMS

Recording devices of ARS

(2) “Soft” components (the training in Japan)

With respect to staff training, while the original plan was to draw up midterm courses for technical personnel for 2–3 months (27 man-months in all), the plan was changed to short-term training for 40 personnel, including the staff of Administration of Press, Publication, Radio, Film and Television of Anhui province (hereinafter, APPRFTA), and BMS for 12 days (16 man-months in all) during the actual implementation (Table 2). The reasons for the change were as follows: to minimize the duration of absence of these personnel from their organizations; to apply knowledge of Japan effectively in the workplace by dispatching more personnel from each organization; and to take into account the fact that organizations were of the opinion that the skill training for personnel in the operation of the procured equipment could be sufficiently imparted by the manufacturers. This change was deemed to be acceptable for the enhancement of project effectiveness.

Purchase of Japanese music was not implemented. The reason was that in 2008, when ARS initiated the purchase, the relevant policy and law were changed by the government, which made it impossible for ARS to purchase it.

Table 2: Plan and Actual Project Outputs (“Soft” Components)

Organization	Plan	Modification	Cause of modification
ARTTC	・Training in Japan (cable TV engineering and management: 2 months × 3 persons)	・Training on cable TV engineering and management, visits to broadcast stations:10 persons × 12 days	・The number of trainees was increased because it was judged to be effective to dispatch multiple personnel from one organization so that they could apply their knowledge of Japan to their workplace. The duration of training was shortened because it was judged that
ARS	・Training in Japan (equipment maintenance and engineering: 3 months × 2 persons, recording	・Training on equipment maintenance and engineering, recording techniques and device maintenance, network	

	techniques and device maintenance: 3 months × 1 person, network engineering and management: 3 months × 1 person) ・Purchase of Japanese music	engineering and management, training on program planning, visits to broadcast stations: 10 persons × 12 days	the skill to operate the procured equipment could be properly acquired from manufacturers at the time of equipment delivery, and the focus of the training was shifted from technical training to site visits ・In addition to the planned personnel of three organizations in the appraisal, staff from BMS and APPRFTA also participated in the training because the needs of the broadcast management arose during the implementation of the project ・Purchase of Japanese music was not implemented because in 2008, when ARS initiated the purchase, the relevant law was changed by the government, which made it impossible for ARS to purchase it
GTS	・Training in Japan (TV transmitting engineering: 3 months × 1 person, TV broadcasting transmitting engineering: 3 months × 1 person, TV broadcasting management: 3 months × 1 person)	・Training on transmitting engineering, visits to transmitting stations: 10 persons × 12 days	
BMS/ APPRFTA	・Not planned	・Training on management of broadcast organization, visits to broadcast stations: 10 persons × 12 days	

Source: Documents provided by JICA and executing agency and interview with executing agency.

（3）Consulting service

Consulting services for equipment procurement were conducted as planned.

（4）Effect of STEP conditionality

The project was implemented under the conditions laid down by STEP, which included the following: the main contractor should be Bilateral-tied, and the share of products of Japanese origin should be more than 30% of the total contract amount. These conditions have been observed.

With respect to the purchase of products of Japanese origin according to the STEP conditions, the executing agency recognizes the excellence of and necessity for products of Japanese origin. In particular, ARS appreciated Japanese microphone equipment, also ARS and GTS highly appreciate the value of Japanese measuring equipment and microwave devices, and indicated an interest in the subsequent purchase and use of these products. The

executing agency was satisfied with the performance of the procured equipment and facilities. The executing agency pointed out that the condition of Japan tied constrains the number of bidders and affects the adequateness of the competitive bidding. In fact, as mentioned in "3.2.2.1 Project Cost," no evidence for a price hike caused by the foregoing condition was found.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The total project cost was 5,222 million yen, lower than the planned (98% of it). The foreign currency component of the project cost was 3,250 million yen, almost the same as the planned amount (98% of it). The local currency component of the project cost was 1,972 million yen, almost the same as the planned amount (97% of it).

Table 3: Project Cost—Planned and Actual (unit: million yen)

	Plan				Actual			
	FC*	LC**	Total		FC*	LC**	Total	
	(Target of loan)	(Not-targeted by loan)	Total	of which loan amount	(Target of loan)	(Not-targeted by loan)	Total	of which loan amount
Broadcasting equipment	3,063	1,932	4,995	3,063	3,186	1,972	5,158	3,186
Training in Japan	7	—	7	7	24	—	24	24
Price escalation***	17	—	17	17	—	—	—	—
Contingency	154	97	251	154	—	—	—	—
Consulting service	60	—	60	60	40	—	40	40
Total	3,301	2,029	5,330	3,301	3,250	1,972	5,222	3,250

Source: Documents provided by JICA and executing agency.
Note: FC*: foreign currency; LC**: local currency; Price escalation***: contingency for the rise of project cost due to inflation
Exchange rate: 1 yuan = 14.3 yen at appraisal. 1 yuan＝13.9 yen at ex-post evaluation (based on the average of IMF rates from 2007 to 2011 during which the project procured hard components)

In relation to the distribution of procurement packages, there were 7 packages at the appraisal stage, whereas there were 11 packages during implementation (Table 4).

Package 8 was added by picking some items and combining them into package 8 so that the project could commence earlier the procurement of the first package. All the equipment and facilities planned at the appraisal stage were included in packages 1 to 8, and the functions of these items were not changed from the plan. The total actual cost of packages 1

to 8 was 2,349 million yen, much less than that amount of 3,063 million yen estimated at the appraisal stage. The reasons for the low cost were as follows: 1) specifications and prices of the planned equipment and facilities changed owing to the time lag of 2 years between the appraisal and the modification of items for procurement, and 2) the actual bidding amount of all packages from 1 to 8 was much lower than planned.

Packages 9, 10, and 11, which consisted of transmission facilities for ARTTC, were added after completion of equipment procurement of packages 1 to 8 so as to extend the cable network of the plan. ARTTC originally planned to extend the network after completion of the project, and therefore these additional packages are regarded as a sound use of the loan surplus.

Table 4: Value of Respective Packages

(unit: million yen)

Package	Plan	Actual
1. Broadcasting equipment	172	285
2. Network equipment	525	636
3. Network equipment	294	213
4. Microwave transmitting/ receiving devices and vehicle	864	541
5. Network equipment	829	185
6. Monitoring devices	32	46
7. Transmitting equipment	347	224
8. Optical cables/cables*		219
Subtotal	3,063	2,349
9. Network equipment**		382
10. Network equipment**		253
11. Network equipment**		202
Total	3,063	3,186

Source: Documents provided by JICA and executing agency.
*Package 9, 10, and 11 were added after project commencement
**Package 8 was added by choosing some devices for packages 1, 3, and 6 then combining these packages into one package

3.2.2.2 Project Period[8]

The total project period was longer than the planned period by 119% (Table 5). The delay was due to three reasons: 1) the executing agency was not familiar with the procedure of STEP loan projects because it was their first implementation of such a project, and so it took two years to gain double approvals from the domestic and foreign governments for the selection and employment of the Japanese consulting agency; 2) the national policy related

[8] The end of the project period is defined as the completion of all the three components, that is, the procurement of equipment, the implementation of the training in Japan, and the consulting service.

to tax refunds was changed after the completion of the first bidding, because of which the procedure had to be repeated to gain the double approvals again; and 3) during the delays noted in 1) and 2), the specifications of the products to be purchased changed owing to technological advances, because of which the equipment list had to be changed.

Table 5: Project Period—Planned and Actual

	Planned	Actual
Whole project	From March 2004 (signing of the loan agreement) to December 2009 (70 months)	From March 2004 (signing of the loan agreement) to January 2011 (83 months) (119% of planned duration)
a) Procurement of equipment	From October 2004 to September 2007	From July 2007 to January 2011
b) Training in Japan	From October 2004 to December 2009	From November 2009 to December 2009
c) Consulting service	From April 2004 to December 2009	From November 2006 to December 2009

Source: Documents provided by JICA and executing agency.

3.2.3 Results of Calculations of Internal Rates of Return

The effectiveness of the project was due to not only upgrading broadcasting equipment and facilities but also to various aspects such as training in Japan, dissemination of information for public awareness on the environment, public health, and market rules. Therefore, it is difficult to measure the effect quantitatively and comprehensively with the internal rate of return. The project did not compute the rate either at the project appraisal or ex-post evaluation stages.

From the aforementioned facts, it is clear that although the project cost was within the plan, the project period exceeded the plan. Therefore, the efficiency of the project is fair.

3.3 Effectiveness[9] (Rating:③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

This ex-post evaluation of the project validates evidence by comparing the planned and actual values a year after the project's completion. Because all the planned hard and soft components were completed in 2009, this ex-post evaluation study regarded 2009 as the project completion year and therefore 2010 as the year one year after the project's completion.

[9] Sub-rating for Effectiveness is to be put with consideration of Impact.

In respect to the Operation and Effect Indicators of both the population coverage rate and the number of viewers/listeners, these actual values were exceeded at the time of the project's completion. Most of the other quantitative indicators used as reference indicators also attained the target one year after the project's completion.

The number of ARTTC users increased from 840,000 households in 2003 to 3,210,000 households in 2013, a 3.8-fold increase in that period (interview with ARTTC). With respect to the radio and TV interactive communication service[10], which was made possible by the procured equipment, the number of users of this service increased from 60,000 households (2009, the year of inauguration of the service) to 200,000 households (2013), a 3.3-fold increase in that period (documents provided by ARTTC).

Table 6: Operation and Effect Indicators

Indicators	Baseline	Target	Actual	Actual	Actual
	2003	2010	2009	2010	2013
	Baseline	1 Year After completion	Completion Year	1 Year After completion	Latest
Population coverage rate (Anhui province) (%)	95.0	95.0	98	98	98
Number of viewers/listeners (Anhui province) (10,000 households)	5,985	6,111	6,200	6,205	6,286

Source: Documents provided by JICA and executing agency.

Table 7: Other Quantitative Indicators

Indicators	Organization	Baseline	Target	Actual	Actual	Actual
		2003	2010	2009	2010	2013
		Baseline	1 Year after completion	Year of completion	1 Year after completion	Latest
Number of independently produced programs (per week)	R	123	168	169	176	182
Rate of independently produced programs (%)	R	83.7	96	96	96	96
Number of channels	R	4	7	9	9	9
Broadcasting hours (per day)	R	79.5	152.5	198	214.5	219
Broadcasting hours of education programs (per day)	R	1	6	7	10	15
Number of education programs	R	2	8	8	10	12
Number of programs related to disaster prevention (per	R	10	12	13	15	18

[10] Users subscribing to the interactive service can choose any program by themselves (on-demand TV) and thus receive local information such as news and weather forecast, which are provided by ARTTC.

month)						
Number of programs related to environment conservation (per day)	R	3	6	7	11	19
Number of programs related to public health (per day)	R	3	6	5	11	20
Number of programs related to the development of market economy (per week)	R	3	6	5	10	19
Number of programs targeting women (per week)	R	20	26	22	28	31
Number of programs targeting children (per week)	R	14	20	17	23	28

Source: Documents provided by JICA and executing agency.
(R: ARS)

Screen of cable TV and radio of ARTTC

Equipment of cable network in ARTTC

3.3.2 Qualitative Effects

According to APPRFTA, the procured equipment has improved the quality and efficiency of program production; decreased broadcasting accidents; and made it possible to more easily produce listener-friendly programs, thereby stimulating innovation in program content.

Regarding the effectiveness of the training in Japan, the cases such as the application of the material archive system in NHK (Japan Broadcasting Association) , and the purchase of Japanese material (optical fiber cable) that was introduced in the training in Japan, within the scope of the project were reported. A synergy effect of hard components and soft components is deemed to appear.

The beneficiary survey[11] illustrates that although the number of listeners of ARS has been

[11] The beneficiary survey was conducted in January 2015 at approximately 10 sites in Hefei and Bozhou prefectures by using a questionnaire. Researchers heard the answers from beneficiaries, filled them in the sheets, and then collected them. The numbers of valid responses were 50 in Hefei prefecture, 30 in Bozhou prefecture, and 20 in Guoyang county (50 males and 50 females). The questions mainly covered the trends in TV and radio use, the evaluation of ARS, and knowledge of and interest in foreign countries(US, Korea, and Japan), through TV and radio programs.

declining, nearly one half of the total inhabitants acknowledge ARS's broadcasting programs to be one of their main information sources. These listeners appreciate the local interest and the promptness of information that ARS delivers. Further, the listeners appreciate the current usefulness of ARS's programs in terms of factors such as local interest and promptness compared to the programs of 5 to10 years ago. For instance, 41% of listeners who responded that ARS's program was useful appreciated the utility of ARS's channel of transportation information. The channel was a pioneer in delivering live broadcasting of traffic information in the whole country, and consequently ARS received a prize in the category of "National level advanced organization in radio movie and TV sector" owning to the performance of that channel. It is an annual prize awarded by the State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China.[12] Other than this channel, the programs that the listener appreciated were news programs such as "Early Morning News" and "News from Direct Source." This demonstrates that the prompt provision of news based on local interest is useful for citizens. The results of the beneficiary survey indicate that the good features of ARS's program are highly appreciated by listeners.

Recording studio in ARS

Transmitting tower of GTS

3.4 Impacts

3.4.1 Intended Impacts

(1) Advancement of education, cultural enrichment, and knowledge enhancement for citizens

As described in Section 3.3, the number and duration of broadcasting programs related to education, culture, and sociocultural information have risen since the appraisal.

By adding more channels, ARS has delivered more programs to broader groups of listeners, and has tried to ascertain and incorporate listeners' opinions on their programs by holding events for listeners. The evidence shows that ARS has retained the activities that improve the quality of broadcasting programs that advance education and enhance the knowledge of

[12] The national-level organization that supervise sectors of press, publication, radio, film, and television.

people. As noted in Section 3.3.2, the beneficiary survey shows that people gain the most benefits from transportation and news programs. Therefore, the project has made a certain impact on the advancement of education, cultural enrichment, and knowledge enhancement for the citizens.

(2) Promotion of Anhui citizens' understanding of Japan

While the beneficiary survey shows that 71% of citizens in Anhui have had the same or more opportunities to get information related to Japan, there is no reliable evidence in the analysis to show an improvement in people's impressions of Japan compared to other countries.

3.4.2 Other Impacts

There were no negative impacts on the natural environment and resettlement of residents due to this project.

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

3.5 Sustainability (Rating:③)

3.5.1 Institutional Aspects of Operation and Maintenance

Owing to the organizational change in 2010, Anhui Radio, Film, TV Department was reorganized as APPRFTA. Although this organization used to supervise Anhui TV, Anhui Radio, and GTS at the appraisal stage, these three organizations currently have the same rank in the administration level. BMS still operates under the supervision of APPRFTA. ARTTC, the state-owned enterprise in which the national government holds 100% of the stocks, has operated cable TV services on a self-paying basis, and retained its organizational arrangement since the commencement of the project.

The technical personnel for the operation and maintenance work shown in Table 8 are engaged in sustainable operation of the facilities procured by the project. According to the executing agency, the right personnel for operating and maintaining procured equipment have been largely secured.

Table 8: Organizational Arrangement for Operation and Maintenance

ARTTC	The total numbers of staff, including both in the headquarters and subsidiaries, is 3,500. There are approximately 1,000 technical personnel in charge of operation and maintenance of equipment
ARS	The total number of staff is 500. There are 70 to 80 technical personnel in charge of operation and maintenance of equipment
BMS	Most staff in BMS are technical personnel. There are 17 technical staff
GTS	There are 28 transmitting towers in Anhui, and there are approximately 500 staff. Most of the staff are in charge of operation of transmitting services. The number of staff who directly work in the General Transmitting Station that is located in the center of Anhui province is 42, including 6 technical personnel

Source: Interview with executing agency.

3.5.2 Technical Aspects of Operation and Maintenance

In ARTTC, ARS, BMS, and GTS, various regulations and detailed rules have been developed by the central government to secure a 24-hour broadcasting operation. Technical aspects of the operation and maintenance of equipment are shown in Table 9. The ex-post evaluation study did not observe any lacunae in the technical aspects.

Table 9: Technical Aspects of Operation and Maintenance of Equipment

ARTTC	ARTTC's technical personnel take full responsibility for operation and maintenance of procured equipment and facilities. Divisions in charge of technical matters have operational rules. ARTTC outsources maintenance of the facilities installed in their branches in prefectures and counties
ARS	ARS conducts a quarterly training session to upgrade technical personnel's skill. Further, the training session for the newly installed equipment is delivered by the manufacturer upon its installation. ARS has developed "The Manual of Equipment Procured by Japan Loan," which compiles information on installation of equipment and its use. ARS distributes a soft copy of this manual to the corresponding divisions, and these divisions adhere to the manual
BMS	The manufacturers of the equipment and facilities take the responsibility of maintaining them. BMS operates the equipment and facilities according to national regulations. Training sessions for technical personnel are regularly conducted
GTS	There is a set of national regulations for the operation and maintenance of the transmitting equipment. GTS has also developed detailed rules in addition to the national regulations

Source: Interview with executing agency.

3.5.3 Financial Aspects of Operation and Maintenance

From the current financial status and the increasing advertising revenue in ARTTC and ARS, both organizations are financially sound. BMS and GTS have secured sufficient budgetary allocation for maintenance costs from their supervisory organization, the Department of Finance of Anhui province (Tables 12 and 13). Thus, the foregoing organizations are not judged to have financial problems in regard to project sustainability.

Table 10: Financial Status of ARTTC

(unit: 10 thousand yuan)

Item	2002	2009	2010	2011	2012	2013
Total annual revenue	117	324	403	549	647	838
Sales: Advertising	NA	1	5	10	21	28
Sales: Others	NA	323	398	539	626	810
Subsidy	NA	0	0	0	0	0
Other income	NA	0	0	0	0	0
Total annual expenditure	140	313	379	506	579	743
Employment cost	NA	102	121	169	187	223
Program production, purchase	NA	16	23	19	21	26
Maintenance cost	NA	1	1	1	1	2
Money paid to government	4	7	6	18	21	20
Other costs	NA	187	228	299	349	472

Source: Documents provided by executing agency.

Table 11: Financial Status of ARS

(unit: 10 thousand yuan)

Item	2002	2009	2010	2011	2012	2013
Total annual revenue	76.4	188	256	294	346	337
Sales: Advertising	54	154	208	244	267	229
Sales: Others	1	0	0	0	0	0
Subsidy	21	34	48	50	79	103
Other income	0.4	0	0	0	0	5
Total annual expenditure	72.7	184	258	295	335	330
Employment cost	32	23	26	35	41	56
Program production, purchase	39	14	10	14	14	11
Administration expense	0	99	188	179	229	214
(share of maintenance cost)	0	(4)	(5)	(7)	(8)	(2)
Investment for fixed asset	0.4	17	5	24	7	15
Money paid to government	0	1	5	5	13	27
Other costs	1.3	30	24	38	31	7

Source: Documents provided by executing agency.

Table 12: Financial Status of BMS

(unit: 10 thousand yuan)

Item	2002	2009	2010	2011	2012	2013
Total annual revenue	NA	2.7	3.3	2.9	2.4	4.2
Subsidy	NA	2.2	2.7	2.4	2.0	3.5
Other income	NA	0.5	0.6	0.5	0.4	0.7
Total annual expenditure	NA	2.6	3.1	2.8	2.3	4.1
Employment cost	NA	0.9	1.1	1.0	0.8	1.4
Administration expense	NA	1.7	2.0	1.8	1.5	2.7
(share of maintenance cost)	NA	(1.5)	(1.8)	(1.7)	(1.4)	(2.4)
Other costs	NA	0	0	0	0	0

Source: Documents provided by executing agency.

Table 13: Financial Status of GTS

(unit: 10 thousand yuan)

Item	2002	2009	2010	2011	2012	2013
Total annual revenue	NA	22	25	32	34	42
Sales	NA	0	0	0	0	0
Subsidy	NA	22	25	32	34	42
Total annual expenditure	NA	21	22	26	29	36
Employment cost	NA	NA	NA	NA	NA	NA
Maintenance cost	NA	10	11	12	14	14
Other costs	NA	NA	NA	NA	NA	NA

Source: Documents provided by executing agency.

3.5.4 Current Status of Operation and Maintenance

The current status of operation and maintenance in ARTTC, ARS, BMS, and GTS is satisfactory. The aforementioned technical rules mandated by national and organizational regulations are observed. Maintenance work and repair work (including procurement of spare parts) are also on track. Thus, the four organizations are not judged to have problems in regard to operation and maintenance of equipment.

On the basis of the aforementioned facts, no major problems have been observed in the institutional, technical, and financial aspects of the operation and maintenance system. Therefore, the sustainability of the project effects is high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

The objective of this project was to improve television and radio broadcasting programs in Anhui province with respect to both quantity and quality through renovation of equipment of the ARTTC, ARS, BMS, and GTS as well as through the training in Japan, thereby contributing

to the advancement of education, knowledge enhancement, and cultural enrichment of the citizens in Anhui, and also to the promotion of mutual understanding between China and Japan. This project was highly relevant for China's development plans, development needs, and Japan's ODA policy; therefore, its relevance is high. Whereas the project cost was within the plan, the project period exceeded the plan; therefore, its efficiency is fair. Both the population coverage rate and the viewership that were set as the project target criteria have been steadily increasing, making the project more effective. The efficiency of program production has improved, and the incidence of unforeseen accidents during the broadcasting operation decreased owing to the renovation of equipment and facilities in all the four organizations. With respect to broadcasting content, the extension of the equipment and facilities such as channel addition as well as the employment of the outside broadcast van has allowed the broadcasting station to produce audience-friendly programs, resulting in the improvement of program quality. The improvement of these programs both with respect to quantity and quality has contributed to the advancement of education, cultural enrichment, and knowledge enhancement for the citizens in Anhui to a certain extent; therefore, the effectiveness and impact of the project are high. Regarding the operation and maintenance of broadcasting services, no major systemic, technical, and financial problems have been observed; sustainability of the effectiveness of the project is thus high.

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

4.2 Recommendations

4.2.1 Recommendations to Executing Agency

None.

4.2.2 Recommendation to JICA

None.

4.3 Lessons Learned

(1) The need for risk analysis in implementation of components with high uncertainty:

The project aimed at the promotion of mutual understanding between Japan and China by the purchase and broadcasting of Japanese music with a budget of 1.4 million yen at the appraisal stage (interview with the executing agency). However, the plan was not implemented because of a change in the related laws introduced by the government. The project needs a careful investigation of the origin and the level of the risk that may limit the implementation of the project component, particularly the component that is vulnerable to the legal systems such as administrative approvals and licenses such as the purchase cited earlier.

For instance, the policies and institutions related to purchase of foreign countries' broadcasting content, which substantially influenced the decision to not purchase Japanese music, were not expressly recognized as a project risk. Later, JICA conducted a study on the legal systems governing the purchase and broadcasting of programs produced in foreign countries to understand the limitations introduced by the government and to analyze possible means to facilitate the purchase. Because the objective of the promotion of mutual understanding between the two countries by broadcasting Japanese music appeared to reinforce the bilateral cooperation project, the aforementioned information collection as well as the subsequent information sharing between two countries regarding a feasible implementation plan for the purchase was essential.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1.Project Outputs Hard components	<ARTTC> ・Cables (fiber cables, coaxial cables, transmitters, etc.) (Total 3 packages) <ARS> ・Studio equipment (lighting, digital cassette/CD recorders, editing facilities, etc.) (Total 4 package for ARS, BMS, GTS) <BMS> ・Monitoring equipment (broadcasting monitor, video analyzers, receivers, etc.) <GTS> ・Transmitting equipment (televisors, signal monitoring systems, adjusters, audio-video switchers, audio-video dischargers, microwave transmitters, microwave receivers, etc.)	<ARTTC> ・Cables (fiber cables, coaxial cables, transmitters, etc.) (Total 7 packages) <ARS> ・As planned <BMS> ・As planned <GTS> ・As planned
Soft components	<ARTTC> ・Training in Japan (cable TV engineering and management: 2 months×3 persons) <ARS> ・Training in Japan (equipment maintenance and engineering: 3 months × 2 persons, recording techniques and device maintenance: 3 months×1 person, network engineering and management: 3 months×1 person) ・Purchase of Japanese music <GTS> ・Training in Japan (TV transmitting engineering: 3 months × 1 person, TV broadcasting transmitting engineering: 3 months×1 person, TV broadcasting management: 3 months×1 person)	<ARTTC> ・10 persons × 12 days, cable TV engineering and management, visits to broadcast stations <ARS> ・10 persons ×12 days, equipment maintenance and engineering, recording techniques and device maintenance, network engineering and management, training on program planning, visits to broadcast stations <GTS> ・10 persons ×12 days, training on transmitting engineering, visits to transmitting stations <BMS/ APPRFTA > ・10 persons ×12 days, training on management of broadcast organization, visits to broadcast stations

Consulting service	(a) Technical assistance in procurement (1) Preparation of detailed design (D/D) and pre-qualification (P/Q) documents (2) Evaluation of P/Q results (3) Preparation of tender documents (4) Evaluation of tender results (b) Technical assistance in training (1) Implementation of the training in Japan	(a) Technical assistance in procurement ・As planned (b) Technical assistance in training ・As planned
2. Project period	March 2004–December 2009 (70 months)	March 2004–January 2011 (83 months)
3. Project cost amount paid in foreign currency Amount paid in local currency Total Japanese ODA loan portion Exchange rate	 3,301 million yen 2,029 million yen (142 million yuan) 5,330 million yen 3,301 million yen 1 yuan ＝14.3 yen (as of September 2003)	 3,250 million yen 1,972 million yen (142 million yuan) 5,222 million yen 3,250 million yen 1 yuan ＝13.9 yen （average between 2007 and 2011)