2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) Basic Policy

The Project shall be implemented under the following basic policies in accordance with the guidelines of the Japan's Grant Aid.

1) The Project, once approved by the Cabinet of the Government of Japan, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and Mongolia.
2) The Agreement for the design and supervision service shall be made between the Government of Mongolia and Japanese entity, duly registered in Japan (persons of Japanese nationality or Japanese corporation controlled by persons of Japanese nationality). This Agreement shall be verified by the Government of Japan prior to its execution.
3) The Contract for procurement and installation shall be made between the Government of Mongolia and Japanese entity, duly registered in Japan in accordance with the tender guidelines of Japan International Cooperation Agency (JICA).
4) The executorial organization of the tender will be the Implementation Agency. The selected Consultant shall fully cooperate to the Implementation Agency in the tender procedure.
5) The Contract for procurement and installation shall be verified by the Government of Japan prior to its execution.

(2) Equipment Procurement Policy

Equipment and materials included in the transmitting systems will be procured by the Project. Since these equipment and materials are not produced in Mongolia and require a high level of system integration technology in design and manufacturing, they will be procured from Japan.

On the other hand, products, such as cements, aggregates, reinforcement bars and temporary construction materials, can be procured in Mongolia. The quality and quantity of these local materials are deemed to satisfy the requirements of the Project. It is the procurement policy of the Project that the materials available on the local market should be procured as much as possible.

(3) Policy for Utilization of Local Transportation Company

The Project sites are located in Ulaanbaatar, Altai and Murun. To assure reliability and consistence of transportation of the equipment and materials procured under the Project,

the transportation shall be taken care of by one company who shall be responsible for the transportation from the port of shipment to final destination at the Project sites.

The transportation can be roughly separated into two segments, "Japan to Ulaanbaatar" and "Ulaanbaatar to each Project site". The transportation segment from “Japan to Ulaanbaatar” should be carried out directly by a Japanese transportation company since it will be more efficient and practical to carry out the work.

On the other hand, transportation from Ulaanbaatar to each Project site will require hands-on knowledge such as local transportation routes and procedures. Therefore, it is considered that inland transportation is carried out by a local transportation company under a supervision of the Japanese transportation company.

(4) Policy for Utilization of Local Construction Company

Local construction companies lack practical experience in installation of the transmitting equipment and materials, similar to those procured under the Project. These companies do not possess construction capabilities required to complete the required work.

Furthermore, there remains a concern of the local construction companies over the financial and mobilization capabilities. It is therefore considered that a Japanese firm shall take overall responsibility as a prime contractor and then the Japanese firm shall utilize a local construction company as his subcontractor, where deemed appropriate.

In this way, it is thought that the installation work can be accomplished properly within the time frame and with sufficient quality as required for the Project.

(5) Policy of Design and Supervision Services

Consulting services for the Project shall be rendered by a Japanese consultant on the basis of the basic design study report in accordance with the guidelines as set forth by Japan International Cooperation Agency (JICA) for the Japanese Grant Aid projects.

(6) Utilization of Local Consultant Company

As local consultants are not experienced in the consulting services similar to those required for the Project, it is assumed that no local consultants will be employed for the Project.

(7) Implementation Scheme

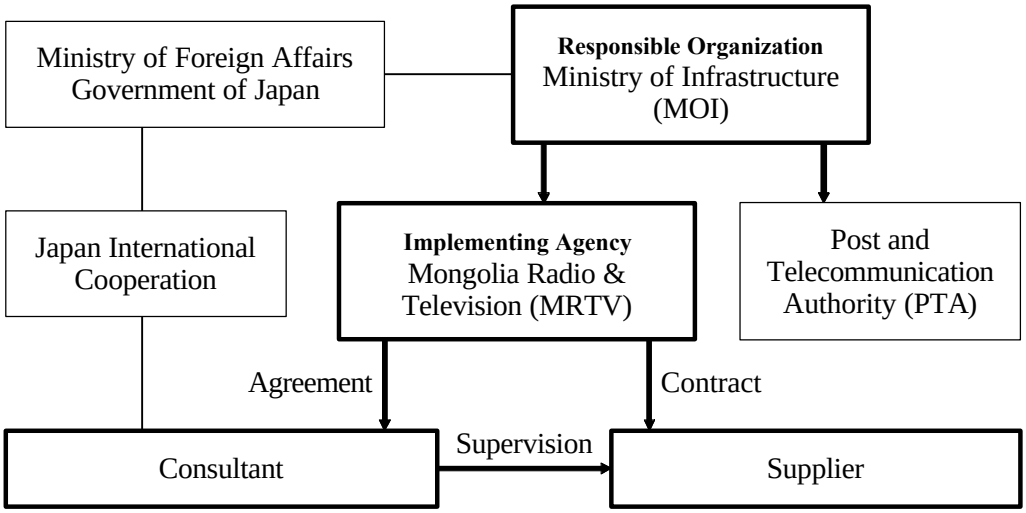
The implementation organization of this Project is as follows.

1) The responsible organization on the Mongolian side is the Ministry of Infrastructure (MOI).

2) The implementing agency of this Project is Mongolian Radio and Television (MRTV).
3) Whenever cooperation is required in the course of implementation of the Project from the Post and Telecommunication Authority (PTA) of Mongolia, who has the jurisdiction over operation and maintenance of the telecommunication lines, MOI will act as a contact organization to make such cooperation available from PTA.

The implementation scheme of the organizations concerned for this Project is as follows.

Figure 2-2 Implementation Scheme of the Project



2-2-4-2 Implementation Conditions

(1) Installation Work

1) Transportation

Transportation of equipment and materials in a safe manner, and in time to Altai and Murun sites are vital to successfully complete the Project. Therefore, the transportation company shall fully grasp the road condition and incorporate it into their transportation schedule. Moreover, airfreight shall be considered to transport fragile equipment that is unsuitable for over-the-road hauling.

2) Setup of the Communication Framework

Although there are telecommunication services made available among Ulaanbaatar, Altai and Murun, the services are found to be comparatively poor. Since Altai and Murun are fare away from Ulaanbaatar, correspondence between the Project sites by phone will be quite difficult. When the Project is implemented, the contractor is required to consider a setup of emergency communication routes in addition to the existing telephone services in order to secure means for smooth communication.

3) Determination of the Implementation Schedule

At the Project sites, excavation, concrete placing, equipment installation, etc. will be difficult to carry out in winter due to very low outdoor temperature. Such works shall be avoided as practical as possible in such harsh conditions. This is necessary so as not to decrease quality of the work and to increase construction cost. For this reason, any outdoor work shall be preferably conducted between May and October of the year when the temperature is deemed appropriate for the outdoor work.

4) Consideration for Minimizing Obstruction to the Operation of Existing Transmission Systems

Some of the existing transmitting systems at each transmitting station are under operation for radio broadcasting. Installation of the new transmitting equipment in implementing the Project may require temporary electric power outage and/or temporary out-of-service of the broadcasting. Design and installation of the new transmitting systems for the Project shall be made in consideration of minimizing obstruction to or interference with the operation of the existing transmitting equipment as much as possible. Taking these into account, a practically coordinated site work schedule shall be produced after a detailed consultation with the Mongolian side.

5) Quality Control of Concrete

AE concrete shall be used since freeze-thaw effect is inevitable. Furthermore, in order to improve the freezing resistance, water cement ratio shall be kept lower than 55% within limits that will assure adequate concrete workability and strength.

There are no laboratory to adequately implement the concrete compression test in Altai and Murun. Therefore, the test piece for concrete compression test must be conveyed to the laboratory in Ulaanbaatar.

6) Antenna Assembly Work

Maximum lifting height of the truck cranes that are available in Altai and Murun is around 13m. Construction methods for installation and assembly of such high structures as antennas need to be examined to take availability of local construction machinery into consideration.

7) Safety Measures

Safety and security equipment shall be always kept at the Project sites to ensure human safety and material security, and at the same time, safety education shall be provided to the staff at the sites, as and when required.

Interference with the operation of any existing transmitting system or unprepared entry into the restricted areas shall be avoided during implementation of the Project. For this purpose, such safety measures as installation of fences and caution signs shall be taken.

(2) Supply Matters

Local materials that are adequate in quality and available in sufficient quantity shall be used for the Project as practical as possible. During implementation of the Project, quality of the locally procured materials shall be examined in a proper manner with sufficient frequency in order to confirm that they satisfy the requirements of the technical specifications of the Project.

2-2-4-3 Scope of Works

When this Project is carried out as the Japan's Grant Aid project, the outline of the scope of work between Japan and Mongolia is as described as follows. The cost to be borne by the Mongolian side was estimated as shown in Appendix-5 "Cost Estimation for the Work Borne By the Recipient Country".

Table 2-6 Scope of Works

No.	Description of Works	Japanese Side	Mongolian Side
1.	To secure land		X
2.	To clear, level and reclaim the site when needed		X
3.	To construct gates and fences in and around the site if not existing		X
4.	Any addition, or deletion, or removal, or change, or restoration, or the like, required for the Project, to any part of the existing buildings, structures, foundations, utility services, mechanical and electrical facilities including but not limited to the below. - Removal/restoration of doors or enlargement of openings for entry of new transmitters and associated equipment into their final locations. - Provision of floor/wall openings and restoration/finishing of the openings. - Provision and restoration of partition, sealing etc. - Provision or extension of floor cable ducts, vertical ducts and their covers. - Reinforcement of the floor structures as well as floor leveling and finishing for the new transmitter room. - Provision of lighting and heating system, ventilation and air conditioning system.		X
5.	Removal of any equipment or material which becomes unnecessary in connection with implementation of the Project.		X
6.	Shortwave Transmission equipment.	X	
7.	Shortwave Antenna equipment.	X	
8.	STL equipment and antenna for Ulaanbaatar transmission station. - Transmitter, receiver, antenna, power supply, coaxial cable - Procurement and erection of antenna supporting pole, installation of STL equipment	X	X
9.	STL system for Altai and Murun transmission station		X
10.	Power distribution system for supplied equipment	X	
11.	Emergency diesel engine generator at Altai transmission station	X	
12.	Spare Parts for supplied equipment	X	
13.	Grounding system for supplied equipment	X	
14.	Power supply system, waterworks and drainage system		X
15.	Removal of existing short-wave antennas, feeders, structures at Altai and Murun transmission station.		X
16.	Removal of any underground or aboveground obstacles for installation of new equipment.		X
17.	Provision of temporary indoor/outdoor storage and working space for new equipment.		X
18.	Soft Component (training program) - Basic operation manual, various record form - Assignment of counterparts for the program	X	X

2-2-4-4 Consultant Supervision

The consulting services shall be rendered in accordance with the guidelines as set forth for the Japanese Grant Aid projects. Government of Mongolia and a Japanese consultant will enter into an agreement for provision of the consulting services. Such agreement is subject to approval of Ministry of Foreign Affairs of Japan prior to its execution. The scope of the services to be provided by the consultant shall be as stated below.

1) Work in Japan

- Final confirmation of the contents and scope of the Project
- Preparation of tender documents
- Assistance in tendering and tender evaluation
- Assistance in contract negotiation and contracting
- Review and approval of the documents, such as shop drawings and construction drawings, to be submitted by the contractor
- Review and approval of the test and inspection documents as well as issuance of the test and inspection certificates, as required under the contract
- Witness at the shop test and inspection and witness at the inspection before shipment
- Explanations and reporting to the concerned organizations, when and as reuired

2) Work in Mongolia

- Review and approval of the detailed implementation schedules
- Work progress monitoring
- Safety monitoring
- Quality monitoring
- Review and approval of the test and inspection plan and related documents
- Witness during installation and commissioning
- Assistance in witness at the final inspection and in issuance of the completion certificate
- Preparation of monthly reports and reporting
- Issuance of progress and payment certificates
- Review and approval of as-built drawings and documents
- Defect liability inspection (to be conducted at the time of a lapse of defect liability period of one year)
- Report to the concerned organizations

The consultant will check, inspect, and administrate adequacy of procurement and installation work, monitor the implementation schedule, and inspect adequacy of specified products, equipment, and materials. During the construction period, the

consultant will assign one (1) resident engineer for each construction site in order to assure time and quality of works contained in the Project. These engineers will be responsible for work listed in item 2) above.

The Project is composed of various works, such as transmitting equipment, antenna systems, foundation structures, etc. In order to adequately supervise these works, the consultant will dispatch engineers to the Project sites, as and when required.

2-2-4-5 Procurement Plan

(1) Procurement Sources

As for the transmitting equipment procured under the Project, consideration is made to quality (that is, reliability and stability) of the equipment, procurement lead-time (or delivery time), and convenience on the side of the implementing agency concerning operation and maintenance of the transmitting systems. In addition, availability of quality after-sale service from manufacturers of the transmitting equipment is vital in maintaining the equipment in good working conditions. Since all the requirements can be fully satisfied by procuring the equipment in Japan, it is judged that the equipment should be procured in Japan. The implementing agency expressed his strong interest in such a procurement policy at various opportunities during site surveys.

Locally available products such as STL antenna towers (poles of simple construction), cements, aggregates, reinforcing bars and lumber, will be procured in Mongolia.

(2) Procurement of Spare Parts

Spare parts of adequate quantity and kind for the transmitting systems shall be selected to satisfy the requirements of operation and maintenance of the systems for three years.

(3) Procurement Plan

The contractor shall be fully responsible for design, procurement, manufacturing, painting, test and inspection at factory, packing, transportation and installation of the transmitting equipment and materials in accordance with technical specifications of the Project. The contractor shall hand-over the completed transmitting systems to the implementing agency, only after confirming that all the equipment and materials fully satisfy the requirements for functions and performance of the transmitting sytems.

The contractor shall also obtain permits for inland transportation and construction, prepare necessary documents in connection with site works, and fully coordinate with the implementing agency on various aspects of the site work.

Site work shall be conducted on the basis of the following policy:

1) Preliminary Site Survey

Site conditions that may influence quality and progress of construction work are more or less different from each other at the three transmitting stations. For this reason, the contractor shall be required to examine site conditions, inland transportation routes, availability of local construction equipment and labor, etc. by making preliminary site surveys at each transmitting station before commencement of construction work.

The contractor shall also check for progress and quality of the work that falls on the responsibility of the Mongolian side and report to the implementing agency and the consultant.

2) Installation Work

Pre-wiring work inside the transmitting equipment shall be done as practical as possible before shipment from Japan in order to minimize the site installation period and to avoid incorrect wire connections that may occur at site.

It is planned that the contractor shall be obliged to provide the staff at each transmission station with on-the-job training for operation and maintenance of the equipment during installation and/or commissioning of the transmitting equipment.

(4) Procurement Sources

List of procurement sources are as shown below.

Table 2-7 List of Procurement Sources

No.	Equipment and Material	Japan	Mongolia
1.	Shortwave Transmitter	X	
2.	Control Panel	X	
3.	Power Supply (for the equipment supplied)	X	
4.	Shortwave Transmission Antenna	X	
5.	Structural Component of the Antenna	X	
6.	Feeders	X	
7.	Reserve Transmitter	X	
8.	Emergency Power Supply Equipment	X	
9.	Automatic Voltage Regulator	X	
10.	Spare Parts	X	
11.	STL Unit and Antenna	X	
12.	Pole for STL Antenna		X
13.	Cement, Aggregate, Reinforcement Bar		X
14.	Lubricating Oil, Fuel Oil		X

(5) Transportation Plan

Assuming transportation from Japan, the most efficient and reliable transportation route will go through China. This route departs from a port in Japan and then arrives at the

New Port of Tianjin where cargo will be unloaded from the ship. Then, it will be surface transported through Beijing, Datong and arrive in Ulaanbaatar. In this route, it is important to ascertain reservation of China Railway's freighter trains in advance. Freighters passing China are generally not subject to disinfections inspection if shipments are transported by containers and not opened from the origin to the destination. Therefore, fumigation of the containers are not considered in the Project. After arriving in Ulaanbaatar, most equipment and materials will be transported to the site by trucks. For precision parts, air transport will be necessary.

2-2-4-6 Quality Control Plan

For the transmitting equipment procured under the Project, required function and performance of the equipment shall be satisfied by making tests and inspections, as stated in "2-2-2-6 Test and Inspection of Equipment and Materials".

As the equipment, such as antennas and feeders, is installed under a severe natural environment, it is necessary to build equipment foundations of robust construction. As concrete plays a vital role to the strength of the foundations, methods of quality control with respect to the concrete work are stated as below.

Since factories that can supply ready-mixed concrete do not exist near the sites, cast-in place concrete will be adopted for all concrete foundations. Bearing this in mind, the contractor shall propose his quality control plan that conforms to the drawings and specifications to be set forth by the consultant and shall receive approval for the proposed plan from the consultant, prior to the commencement of each work.

Results of the test and inspection as a part of the quality control, as well as any other related work data, shall be recorded and reported to the consultant for approval. Major inspection items and inspection methods for the concrete work are as shown in the tables below.

Table 2-8 Test and Inspection of the Material

Material	Control Item	Inspection Method	Action by
Cement	• Composition, Specific gravity, Aggregation	• Factory Test Certificate	Manufacturer
Sand/Gravel/ Crushed Stone	• Grading • Specific gravity, Hygroscopic Coefficient • Alkali reaction	• Sieve analysis • Specific gravity & Hygroscopic analysis • Alkali reaction test	Third party lab Third party lab Third party lab
Water	• Hydrogen-ion Concentration	• Physics and chemical tests	Third party lab
Admixture (AE agent, AE water reducing agent)	• Composition	• Physics and chemical tests	Manufacturer
Reinforcement Bars	• Composition • Shape • Yield point, Tensile strength	• Mill sheet • Physics and chemical tests • Measurement, Visual check • Tension Test	Manufacturer Contractor Manufacturer

Table 2-9 Inspection Items during Design Mix

Inspection Item	Inspection Method	Action by
Estimate strength	• Compression test	Third party laboratory
Slump	• Slump test	Installation contractor
Temperature	• Temperature gauge measurement	Installation contractor
Air volume	• Manometer measurement	Installation contractor
Chloride volume	• Simplified chloride measurement	Installation contractor

Table 2-10 Inspection Items before Placing Concrete

Inspection Item	Inspection Method	Action by
Time from mixing to completion of placing concrete	• Time keeping	Installation contractor
Slump	• Slump test	Installation contractor
Temperature	• Temperature gauge measurement	Installation contractor
Air volume	• Manometer measurement	Installation contractor
Chloride volume	• Simplified chloride measurement	Installation contractor
Arrangement & Cover of Re-bar	• Tape measurement	Installation contractor

Table 2-11 Inspection Items after Placing Concrete

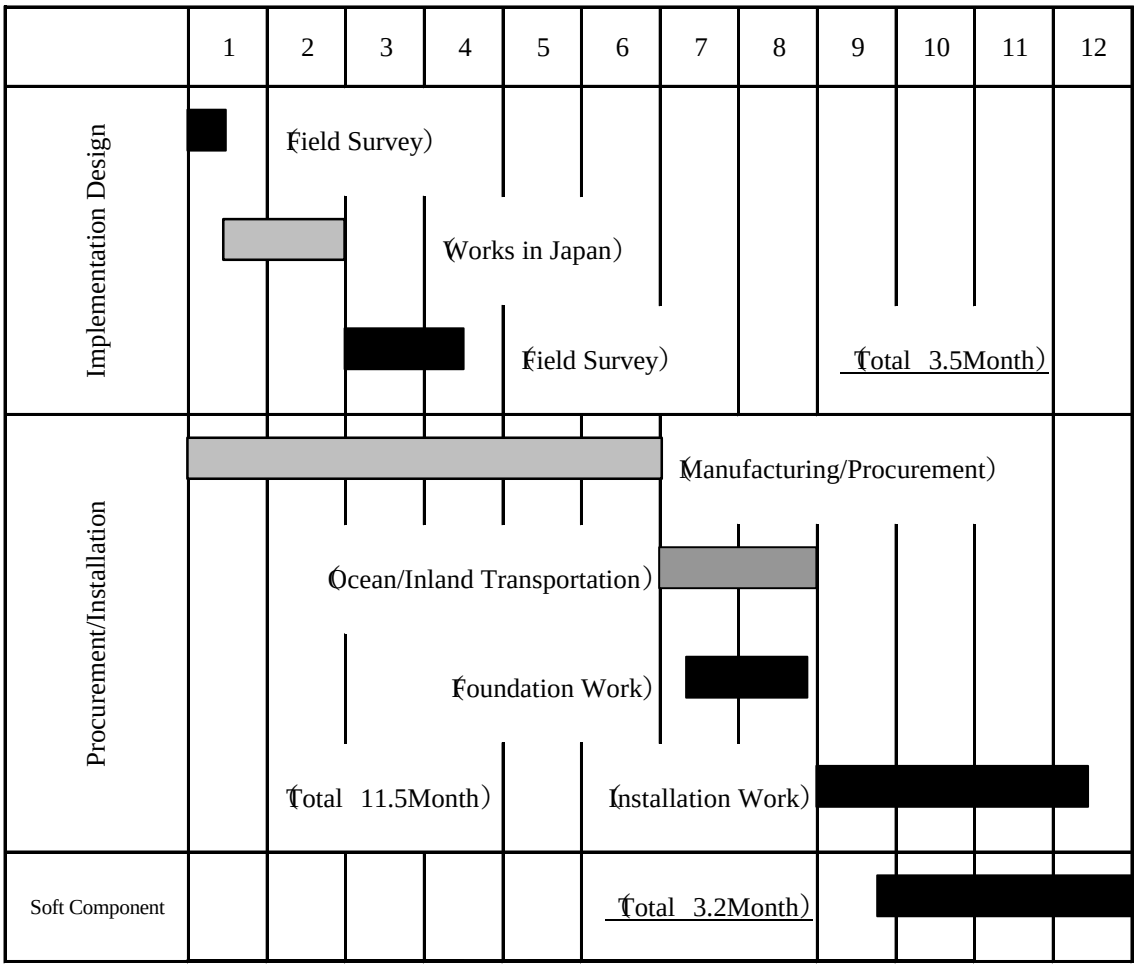
Inspection Item	Inspection Method	Action by
Compression strength	• Compression test (7d, 14d, 28d)	Third party laboratory
Tolerance	• Scale & level measurement	Installation contractor
Surface finish	• Visual check	Installation contractor

2-2-4-7 Implementation Schedule

Implementation schedule deemed as rational and practical for the Project is shown in the Figure 2-3.

It is to be noted that site work cannot be practically carried out in winter when the lowest temperature may reach about -40 degrees Celsius; therefore, any outdoor work in winter should be avoided.

Figure 2-3 Implementation Schedule



2-3 Obligation of the Recipient Country

It was confirmed between the Governments of Japan and Mongolia that the Government of Mongolia should execute the following measures when this Project is implemented according to the Grant Aid scheme of the Government of Japan:

(1) Obligations Confirmed to be within the Scope of the Recipient Country

1) Land Acquisition

As the equipment and materials procured under the Project will be installed in the existing transmitting stations, acquisition of any land for the Project will not be required. Basically, no specific formality needs to be taken.

Should acquisition of any part of the land be required, the Mongolian side shall proceed with any formalities related to the land acquisition.

2) Permission Regarding Radio Wave Law

Application formalities for acquiring the approval in connection with the radio wave transmission based on Mongolia "Radio Wave Law" shall be the obligation of the Mongolian side.

Radio wave transmission approval shall be obtained before starting operation of the transmitting equipment procured under the Project.

3) Formalities Regarding the Environmental Regulation

In case that any approval or formalities are required under the Mongolian “Environmental Impact Assessment Law”, the Government of Mongolia shall be responsible for the application or formalities.

4) Tax Exemption and Prompt Execution of Customs

The Mongolian side shall exempt Japanese juridical and physical nationals engaged in the Project from custom duties, internal taxes including VAT, and other physical levies which may be imposed in Mongolia regarding the procurement of equipment, materials and services under the verified contract.

To ensure prompt execution of unloading, customs clearance at the port of disembarkation, and internal transportation of the products purchased under the Project, the Mongolian side shall take all necessary measures.

5) Accord of Facilities

To accord Japanese nationals, whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work, the Mongolian side shall be responsible for provision of abovementioned facilities.

6) Issuance of a Banking Arrangement and an Authorization to Pay

The government of the recipient country or its designated authority should open an account in the name of the government of the recipient country in a bank in Japan.

Furthermore, the government of the recipient country should bear an advising commission of an "Authorization to Pay" and payment commissions to the above mentioned bank in Japan.

(2) Scope of the Work by the Government of Mongolia

The main subject of the obligations of the Mongolian side described in "2-2-4-3 Scope of Works" is explained hereunder.

1) Leveling of Site and Access Road

Areas for unloading and access roads for transport of the supplied equipment and materials shall be leveled in advance of the commencement of installation work.

2) Installation of Fence Around the Site

Fences at the site boundaries at the transmitting stations shall be improved in advance of the commencement of installation work. However, in the case the existing fences are considered appropriate, additional fence work is not necessary.

3) Use of the Existing Utilities

Existing utilities at the transmitting stations, such as electricity, waterworks and sewage shall be drawn to the point where it is specified at site in advance of the commencement of installation work.

4) Repair and Modification of the Existing Buildings

Repair and modification of the buildings that are considered necessary at the existing transmitting stations shall be carried out in advance of the commencement of installation work (refer to Table 2-4-1 for details of the works).

5) Removal of Facility which Becomes Unnecessary after the Completion of the Project

Any items of facilities that will become unnecessary in connection with the implementation of the Project shall be removed in advance of the commencement of installation work.

6) Studio-to-Link (STL) Systems

Existing STL systems at the Murun and Altai transmitting stations shall be kept in good working conditions before and after the completion of the Project.

7) Removal of the Existing Antenna

Existing shortwave antennas, feeders, structures, etc. at the Altai and Murun transmitting stations shall be removed in advance of the commencement of installation work of the Project.

8) Removal of any Obstacles

Any underground or aboveground items or equipment and materials that may become obstacles for installation of the new equipment of the Project shall be removed in advance of the commencement of installation work.

9) Provision of a Temporary Storage and Working Space

Temporary storage area and working space with adequate safety and security shall be secured in advance of the commencement of installation work.

10) Installation of STL Equipment, and Procurement / Installation of Antenna Tower

STL equipment procured under the Project shall be installed by the Mongolian side in accordance with the project implementation schedule.

Similarly, antenna towers that are required for the antennas procured under the Project shall be supplied and installed by the Mongolian side in accordance with project implementation schedule.

(3) Cost to be Borne by the Recipient Country

The cost to be borne by the Mongolia side in case of extension of Japanese Grant Aid is roughly calculated as in the table below. For detail, refer “Appendix-5 Cost Estimation Borne by the Recipient Country”.

Table 2-12 Mongolia's Contribution

Project Components	Cost (Million Yen)
1. Ulaanbaatar Transmission Station	
1) Building Repair Work	1.9
2) STL-related Work	0.5
3) Improvement of Infrastructure at the Existing Station	0.2
Subtotal	2.6
2. Altai Transmission Station	
1) Building Repair Work	0.5
2) Emergency Diesel Generator –related Work	0.2
3) Improvement of Infrastructure at the Existing Stations	0.1
4) Removal of the existing antenna	0.5
Subtotal	1.3
3. Murun Transmission Station	
1) Building Repair Work	0.4
2) Improvement of Infrastructure at the Existing Stations	0.1
3) Removal of the existing antenna	0.5
Subtotal	1.0
Total	4.9

2-4 Project Operation Plan

2-4-1 Operation, Maintenance and Management at the Existing Stations

At MRTV, Radio and Television Technical Center of Transmission System (MRTC) is in charge of operation and maintenance of the transmitting systems. At each of the Ulaanbaatar, Altai and Murun transmitting stations under the supervision by MRTC, a chief engineer under the directions of the station manager supervises engineers in charge of transmitting systems, power supply systems, instrumentation, etc. Though on-air hours are 17 every day, the stations actually employ the around-the-clock work system with three shifts. The numbers of staffs involved in these shifts vary depending on scale of the stations, but each shift usually comprises 3 to 4 persons who are engaged in operation, maintenance and management of the systems.

Actual operation of the transmitting systems is carried out in accordance with a simple operation manual specified by MRTC. Check sheets currently in use at the Ulaanbaatar station for maintenance and inspection include such forms as operation records, fault records, fault cause analysis / fault clearance records, regular inspection and maintenance records, parts use records, transmission quality rating records, and part stock control tables, which have been filled out and stored in accordance with the specified procedures. Although it was not made clear during the site survey as to how these forms were managed and to determine whether they were effectively used or not, it is safe to say that a basic system to handle the entire operation of the transmitting systems has already been established.

2-4-2 Operation and Maintenance for the New SW Transmitting System

At the Ulaanbaatar transmitting station, the existing 100kW transmitter system installed in 1979 is still in use even though its output power is inevitably reduced to be about a half of the rated output due to deterioration, etc. Further, existing 50kW and 250kW shortwave transmitting systems are also in operation. Thanks to the presence of the operation, maintenance and management systems for the existing shortwave transmitting systems, it will not be necessary to take any special measures such as assignment of additional staffs to this station when a new 50kW shortwave transmitting system is installed. It is therefore judged that the existing operation and maintenance system can sufficiently handle it.

At each of the Altai and Murun stations, a 12kW shortwave transmitting system installed in 1975 had been in operation until 1997. As the staff that was in charge of operation and maintenance of the transmitting system is still enrolled at the stations, no new personnel will be required to operate and maintain the 10kW shortwave transmitting systems when installed at these stations. It is judged that the existing operation and maintenance system can sufficiently handle the new transmitters.

As stated above, it is considered that no special arrangements or methods for operation and maintenance will be required for installation of Japan-made shortwave transmitting systems at these three stations.

2-4-3 Skills for Operation of the New SW Transmitting Systems

The staffs at the existing transmitting stations have been engaged for many years in operation of the shortwave transmitting systems provided by the former Soviet Union and have taken basic and systematic education and training. Therefore, they have already acquired basic techniques and skills required for operation and maintenance of the transmitting systems and are supposed to be able to flexibly apply their skills to operation and maintenance of the new equipment.

Though there may be some differences in design concepts, basic performance and basic structures between the shortwave transmitting systems made in the former Soviet Union and those made in Japan, basic characteristics or requirements associated with the shortwave transmission are similar. It seems therefore that the staffs can apply their skills to the new transmitters.

It is to be noted, however, that the shortwave transmitting systems to be introduced in this Project adopt the latest technology and differ from the Russian shortwave transmitters designed and manufactured decades ago. The latter appears to be comparatively old-fashioned and energy consuming. Therefore, it is indispensable for the staffs to master minimum skills required for the operation and maintenance of the shortwave transmitting systems to be employed in this Project. For this reason, it is

desirable to introduce a “soft component” training program into this Project to fulfill this goal, as mentioned below.

2-4-4 Expected Operation and Maintenance Cost

Thus, expected electricity charge per year will amount to 71,875,800Tgs (about 8.05 million yen) for three stations, as a result of implementation of the Project. Annual cost saving in electricity charge will come to 27,331,200 Tg. (about 3.06 million yen), as compared with the electricity charge calculated on the assumption that the existing transmitters will be continuously operated. For calculations, refer to Appendix 6(5).

When the Project is implemented, procurement of spare parts will become a financial burden on the Mongolian implementing agency. The first three years upon completion of the Project will not present any procurement problem as spare parts for thee years’ operation will be provided under the Project. The implementing agency will be responsible for procurement of the spare parts by using self-sponsored funds for the subsequent years. Replacement cycles for the spare parts will vary depending on the type of spare parts; power tetrodes, which are a key component of the transmitter, may require a replacement for every three years. Assumed cost for procurement of the spare parts for every three years is approximately 18 million yen; namely 6 million yen on the average for each year. This indicates that annual cost saving in electricity charge alone accounts for about 51% of the procurement cost for the spare parts.

In this way, it appears that the O&M cost arising from the implementation of the Project will not become a bid burden on the side of the Mongolian implementing agency and will be within its financial capability.

2-5 Scheme of Soft Component

(1) Necessity of the Soft Component and Expected Effects

To enable the staffs at the three transmitting stations to operate and maintain the new transmitting systems pertinently, a basic operation and maintenance manual and basic record forms (or check sheets) for operation and maintenance which are based on the shortwave transmitting systems made in Japan are indispensable.

For this purpose, it is desirable to prepare a capacity building framework in the form of the soft component training program.

It is expectable that the following direct effects are produced by introduction of the soft component training program.

1) Operation and maintenance of the supplied shortwave transmitting systems can be performed smoothly, contributing to early realization of the effects expected to be brought by the Project, resulting in sustainability of the Project.

2) Frequency of technical failures or accidents of the supplied shortwave transmitting systems can be lowered to the minimum extent.
3) By learning the technology on energy-saving operation, the electricity expense can be reduced.

(2) Contents of Soft Component

The contents of activity of this soft component are as follows.

1) Preparation of Basic Operation and Maintenance Manual

The basic manual with regard to operation and maintenance of the shortwave transmitting systems is prepared, so that the staffs in charge of operation and maintenance at each transmitting station can master basic methods and procedures for planned operation and maintenance.

2) Preparation of Various Record Forms

Various record formats or check sheets with regard to operation and maintenance of shortwave transmitting systems are prepared, so that the staffs in charge of operation and maintenance at each transmitting station can master basic methods of how to take various records and how to analyze, organize and store those records.

The personnel who are required to be involved in the soft component program are as follows.

1) Japanese Staff (two persons required: each responsible for each of the following assignments)
   a) Preparation of Basic Operation and Maintenance Manual (3.2 months)
   b) Preparation of Various Record Formats for Operation and Maintenance (2.2 months)

2) Mongolian Staff (two persons required: each responsible for each of the following assignments)
   a) Interpreter and Assistant 1 (1.0 months)
   b) Interpreter and Assistant 2 (1.0 months)

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3 PROJECT EVALUATION AND RECOMMENDATIONS

3-1 Project Effect

Effects (or result) expected to be achieved by carrying out the Project can be classified into direct effects and indirect effects as stated below.

3-1-1 Direct Effects by the Project

(1) Recovery of the quickly decreasing broadcasting service area will offer an information gathering measure to the residents who reside in remote areas, through the radio broadcasting. Current total service area of the radio broadcasting brought by short, medium, and long waves can cover only about 65% of the total population and 47% of the total land area. The above ratios can be recovered to 94% of the population and 93% of the land area.

(2) At the existing radio transmitting stations, electricity expense alone occupies about 80% of operation and maintenance expenses. The electricity expense can be reduced by installation of the power-saving short wave transmitting equipment. For instance, in order to cover the same service area of the present operation, the electricity expense of 27.3 million Tg. (about 38%) is reduced for-the-year.

(3) The installation of the up-to-date transmitting equipment at the three (3) transmitting stations, and the reinforcement of program transmission system for the Ulaanbaatar transmitting station will improve stability and reliability of program transmission, thus enabling to foment the trust of the listener in the radio broadcasting.

(4) Technology transfer to the Mongolian side will be accomplished by the “soft component” training program regarding operation and maintenance of the transmitting equipment, and by instruction on the initial operation of the equipment, etc.

3-1-2 Indirect Effects by the Project

The residents in the remote areas will be able to listen to the radio broadcasting; therefore, the following needs will be fulfilled, resulting in induction of the expected effects.

(1) Efficient economic activity is promoted by timely information provided to the residents regarding trends of demands, prices of agriculture and stock-raising products, and information on dealing the products.

(2) By promptly providing information on natural disaster forecast to the residents, it will help them to take necessary measures that may contribute to repress economical losses of agriculture and livestock farming.

(3) Improvement of educational level of the residents, especially to the youth, is expected by providing the opportunity of education.

3-2 Recommendations

The above-stated direct and indirect effects are expected to be brought by the Project; and it will contribute to the improvement of Basic Human Needs (BHN) for the residents in the remote provinces. It is judged that the validity of carrying out the Project by the grant aid is high. However, the following needs to be taken care of during the implementation of the Project; some recommendations or the proposed solutions are stated below.

(1) Even by switching-over of the transmission frequencies, it is predicted that, periodically, the predetermined service area can not be fully secured due to intrinsic characteristics of the short wave using ionosphere reflection. Therefore, it is necessary to utilize medium wave or long wave as backup measures for of the short wave. In other words, temporary operation of the existing medium wave or long wave transmitting systems must be assumed. Therefore, the Mongolian side is expected to perform an adequate operation and maintenance of the existing medium wave and long wave transmitting systems in order to secure the continuous utilization of those systems.

(2) Introduction of the soft component concerning the operation and maintenance of transmitting system and initial operation instruction of the system shall be implemented by the Project. The Mongolian side shall establish the framework that can enable smooth transition to the made-in-Japan equipment. Such transition shall be accomplished not only by merely utilizing these opportunities, but also by performing in-house and continuous educational training.

(3) It is also important to make programs attractive for the listeners of radio broadcast, as a measure for enhancing the effect of the Project implementation. For example, promotion of technical cooperation, by dispatching Japanese program production specialist(s), is expected to be effective.

APPENDICES

APPENDICES

APPENDIX 1

MEMBERS OF THE STUDY TEAM

APPENDIX - 1 Member List of the Study Team

1-1 Basic Design Study

(1)	Team Leader	Satoshi NAKANO	Deputy Director, Third Project Management Division, Grant Aid Management Department, Japan International Cooperation Agency
(2)	Grant Aid Cooperation	Kouji TODA	Grant Aid Division Bureau of Economic Cooperation, Ministry of Foreign Affairs
(3)	Technical Advisor	Hirokazu ASHIZAWA	Broadcasting Technology Division, Information and Communications Policy Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications
(4)	Project Coordinator	Masato NAKANE	East, Central Asia, and the Caucasus Division, Regional Department II、 Japan International Cooperation Agency
(5)	Chief Consultant	Takashi KASAI	Project Management Division, Pacific Consultants International
(6)	Broadcasting Planner	Hisashi MATSUDA	Project Management Division, Pacific Consultants International
(7)	Transmitting Facilities Planner	Yukio TOYOSHIMA	Project Management Division, Pacific Consultants International
(8)	Antenna Facilities Planner	Shinichi HOSODA	Nissoken Architects/Engineers
(9)	Procurement Planner / Cost Estimator	Masaki NIMIYA	Project Management Division, Pacific Consultants International
(10)	Interpreter	Sanae ABIKO	Pacific Consultants International

1-2 Draft Basic Design Explanation

1)	Team Leader	Akira Shimizu	Assistant Resident Representative Mongolia Office, Japan International Cooperation Agency
2)	Chief Consultant	Takashi KASAI	Project Management Division, Pacific Consultants International
3)	Broadcasting Planner	Hisashi MATSUDA	Project Management Division, Pacific Consultants International
4)	Antenna Facilities Planner	Shinichi HOSODA	Nissoken Architects/Engineers
5)	Interpreter	Sanae ABIKO	Pacific Consultants International

APPENDIX 2

STUDY SCHEDULE

APPENDIX-2 Study Schedule

Study Schedule (Actual for Basic Design Study Mission)

The Project for Rehabilitation of Radio Broadcasting Network in Mongolia

No.	Date	Day	Government Members				Consultants			Stay	
			Team Leader	**Project Coordinator**	**Technical Advisor**	**Grant Aid Cooperation**	**Group A Chief Consultant, Interpreter**	**Group B Transmitting Facilities. Planner, Antenna Facilities. Planner, Procurement Planner/Cost**	**Broadcasting Planner**	Gov. Member Group A	Group B
			Mr. NAKANO	Mr. NAKANE	Mr. ASHIZAWA	Mr. TODA					
1	Jun-23	Sat	Narita 10:00 (JL951) --Seoul 12:20							ソウル	
2	Jun-24	Sun	Seoul 14:05(OM302)—Ulaanbaatar 17:15							ウランバートル	
3	Jun-25	Mon	Courtesy call and explanation of the Inception Report to JICA Office, Ministry of Foreign Affairs (MOFA), Ministry of Finance and Economy (MOFE)							ウランバートル	
4	Jun-26	Tue	Courtesy call and explanation of the Inception Report to Japanese Embassy (EOJ), Mongolian Radio & Television (MRTV) and requesting Answer to the Questionnaire							ウランバートル	
5	Jun-27	Wed	Field Survey (Ulaanbaatar Transmitting Station), Data Collection							ウランバートル	
6	Jun-28	Thu	Field Survey (Ulaanbaatar Broadcasting Station), Data Collection							ウランバートル	
7	Jun-29	Fri	Discussion with MRTV (Regarding the Status of Request)							ウランバートル	
8	Jun-30	Sat	Internal Meeting							ウランバートル	
9	Jul-1	Sun	UB 07:40 (OM571) --Murun 09:10 Survey and Data Collection (Murun Transmitting Station)	UB 09:00 (OM301) –Seoul 12:00 Seoul 15:30 (JD252) --Narita 17:45			UB 07:40 (OM571) —Murun 09:10 Field Survey and Data Collection (Murun Transmitting Station)		Analysis of Data	Murun	
10	Jul-2	Mon	Field Survey and Data Collection (Murun Transmitting Station)				Field Survey and Data Collection (Murun Broadcasting Station)		Survey of Normadism	Murun	
11	Jul-3	Tue	Survey of power plant, Murun 14:40 (OM572) --UB 16:10				Same as Team Leader	Survey of Trans. Route, Receiving Conditions, Social Environment (Murun - Erdenet)	Survey of Radio Listeners	UB	Erdenet
12	Jul-4	Wed	Discussion on Draft Minutes of Discussion with MRTV, MOI, MOFE				Same as Team Leader	Survey of Trans. Route, Receiving Conditions, Social Environment (Erdenet - UB)	Data Collection	Ulaanbaatar	
13	Jul-5	Thu	Signing of the Minutes, Reporting to EOJ and JICA Office				Signing of the Minutes, Reporting to EOJ and JICA Office		Discussion on Broadcasting Plan	Ulaanbaatar	
14	Jul-6	Fri	UB 10:30 (OM301) --Seoul 13:30 Seoul 18:10 (JD250) --Narita 20:25				Follow up the Answers to the Questionnaire, Data Collection		Survey on Normadism (UB East)	UB (Consultants)	

The Project for Rehabilitation of Radio Broadcasting Network in Mongolia

Study Schedule (Actual for Basic Design Study Mission)

No.	Date	Day	Consultants Pacific Consultants International, Nissoken Architects/Engineers						Accommodation
			Chief Consultant	**Transmitting Facilities Planner**	**Antenna Facilities Planner**	**Broadcasting Planner**	**Procurement Planner /Cost Estimator**	**Interpreter**	
15	Jul-7	Sat	Survey on Construction Conditions, Preparation of Sub-contracting the Soil Investigation						Ulaanbaatar
16	Jul-8	Sun	Analysis of Collected Data						Ulaanbaatar
17	Jul-9	Mon	Discussion with MRTC (Follow up on Answer to the Questionnaire)			Survey on Normadism (UB South)	Survey on Construction Companies	Same as Chief Consultant	Ulaanbaatar
18	Jul-10	Tue	Discussion with Mongolian Radio & Television Technical Center of Transmission System (MRTC), Radio Wave Supervision Office			Survey on Normadism (UB West)	Survey on Trans. Companies	Same as Chief Consultant	Ulaanbaatar
19	Jul-11	Wed	Detail Survey of Program Production, Broadcasting				Survey of Procurement Conditions	Same as Chief Consultant	Ulaanbaatar
20	Jul-12	Thu	Detail Survey of Program Production, Broadcasting				Survey on Construction Companies	Same as Chief Consultant	Ulaanbaatar
21	Jul-13	Fri	Analysis of Collected Data, Consideration of Remaining Survey Items & Schedule				Survey on Trans. Companies	Same as Chief Consultant	Ulaanbaatar
22	Jul-14	Sat	Discussion with MRTV (Follow up on Answer to the Questionnaire)			UB 08:45 (OM903) -Kanku 12:45 Kanku 14:45 (JL344) -Tokyo 16:00	Preparation of Travel		Ulaanbaatar / Broadcast Planner leave for JPN
23	Jul-15	Sun	Survey on Broadcast Utilization (UB to Arvaikheer)	Survey on Receiving Conditions (UB to Arvaikheer)			Survey of Trans. Route (UB to Arvaikheer)	Same as Chief Consultant	Arvaikheer
24	Jul-16	Mon	Survey on Broadcast Utilization (Arvaikheer to Bayankhongol)	Survey of Receiving Conditions (Arvaikheer to Bayankhongol)			Survey of Trans. Route (Arvaikheer to Bayankhongol)	Same as Chief Consultant	Bayankhongol
25	Jul-17	Tue	Survey of Broadcast Utilization (Bayankhongol to Altai)	Survey of Receiving Conditions (Bayankhongol to Altai)			Survey of Trans. Route (Bayankhongol to Altai)	Same as Chief Consultant	Altai

The Project for Rehabilitation of Radio Broadcasting Network in Mongolia

Study Schedule (Actual for Basic Design Study Mission)

No.	Date	Day	Consultants Pacific Consultants International, Nissoken Architects/Engineers						Accommodation
			Chief Consultant	**Transmitting Facilities Planner**	**Antenna Facilities Planner**	**Broadcasting Planner**	**Procurement Planner /Cost Estimator**	**Interpreter**	
26	Jul-18	Wed	Survey on Altai Transmitting Station, Collection of Data				Survey of Construction Situations	Same as Chief Consultant	Altai
27	Jul-19	Thu	Survey on Altai Transmitting Station, Travel (Altai 18:05(OM552) to UB 21:00)				Survey of Construction Situations, Travel (same as Chief Consultant)	Same as Chief Consultant	Ulaanbaatar
28	Jul-20	Fri	Discussion with the Counterpart of the Answer to the Questionnaire, Discussion with MOI (Allocation of Frequency)				Same as Chief Consultant		Ulaanbaatar
29	Jul-21	Sat	Analysis of Data, Study of Draft Conclusion of the Concept (Interim)				Same as Chief Consultant		Ulaanbaatar
30	Jul-22	**Sun**	Analysis of Data				Same as Chief Consultant		Ulaanbaatar
31	Jul-23	Mon	Discussion with the Counterpart, Confirmation of the Answers to the Questionnaire				Survey of Procurement Conditions	Same as Chief Consultant	Ulaanbaatar
32	Jul-24	Tue	Survey on Ulaanbaatar Transmitting Station, Confirmation of Answers to the Questionnaire, Survey on Meteorological and Soil Conditions				Survey on Trans. Companies	Same as Chief Consultant	Ulaanbaatar
33	Jul-25	Wed	Survey on Ulaanbaatar Transmitting Station, Confirmation of Answers to the Questionnaire, Survey on Meteorological and Soil Conditions				Same as Chief Consultant		Ulaanbaatar
34	Jul-26	Thu	Survey on Radio Wave Supervision Facility, Analysis of Data				Same as Chief Consultant		Ulaanbaatar
35	Jul-27	Fri	Draft Conclusion of the Survey Results (Interim)				Same as Chief Consultant		Ulaanbaatar
36	Jul-28	Sat	Draft Conclusion of the Survey Results (Interim)				Same as Chief Consultant		Ulaanbaatar

Study Schedule (Actual for Basic Design Study Mission)

No.	Date	Day	Consultants Pacific Consultants International, Nissoken Architects/Engineers						Accommodation
			Chief Consultant	**Transmitting Facilities Planner**	**Antenna Facilities Planner**	**Broadcasting Planner**	**Procurement Planner /Cost Estimator**	**Interpreter**	
37	Jul-29	**Sun**	Preparation of Survey Result Summary (Interim)				Same as Chief Consultant		Ulaanbaatar
38	Jul-30	Mon	Draft Conclusion of the Survey Results (Interim)				Same as Chief Consultant		Ulaanbaatar
39	Jul-31	Tue	Reporting to EOJ, JICA Office, MOFE, MOI, MRTV				Same as Chief Consultant		Ulaanbaatar
40	Aug-1	Wed	Ulaanbaatar 08:45 (OM903) –Kanku 12:45、 Kanku 14:45 (JL344) –Haneda 16:00				Same as Chief Consultant		—

Dec. 6, 2001

The Project for Improvement of Shortwave Radio Broadcasting Network
Actual Itinerary for Draft Report Explanation Mission

No.	Date	Day	Officials	Consultant Members				Accommodation
			JICA Mr. Shimizu (Team Leader)	Mr. Kasai (Chief)	Mr. Matsuda (Broadcasting)	Mr. Hosoda (Antenna)	Ms. Abiko (Interpreter)	
1	Nov. 19	Mon.		Narita 1355 (KE704) → Seoul 1635 Seoul 2035 (OM904) → Ulaanbaatar 2310				Ulaanbaatar
2	Nov. 20	Tue	10:00 Courteous call to JICA 11:00 Courteous call to Embassy of Japan 14:30 Courteous call to MOFE 15:30 Courteous call to MOI (the JICA team joined by Mr. Fujishiro of MOFA of Japan) 16:30 Courteous call to MRTV (the JICA team joined by Mr. Fujishiro of MOFA of Japan)					Ulaanbaatar
3	Nov. 21	Wed	Discussions with MRTV on the draft Minutes of Discussions and on the results of domestic studies and analysis)					Ulaanbaatar
4	Nov. 22	Thu		Discussions with MRTV (on system configuration and layout)				Ulaanbaatar
5	Nov. 23	Fri		Discussions with MRTV (on equipment and materials as well as on the scope of work)				Ulaanbaatar
6	Nov. 24	Sat	Site survey (Ulaanbaatar station)					Ulaanbaatar
7	Nov. 25	Sun		Internal meeting				Ulaanbaatar
8	Nov. 26	Mon		Preparatory works (National Holiday of Mongolia)				Ulaanbaatar
9	Nov. 27	Tue		Discussions with MRTV (on the implementation plan and operation plan)				Ulaanbaatar
10	Nov. 28	Wed		Preparation of Record of Technical Discussions				Ulaanbaatar
11	Nov. 29	Thu		Discussions with MRTV (on the detailed scope of work by the Mongolian side)				Ulaanbaatar
12	Nov. 30	Fri	Discussions with MOFE, MOI and MRTV on the draft minutes of discussions					Ulaanbaatar
13	Dec. 1	Sat		Internal meeting				Ulaanbaatar
14	Dec. 2	Sun		Internal meeting				Ulaanbaatar
15	Dec. 3	Mon	15:00 Signing of the minutes of discussions					Ulaanbaatar
16	Dec. 4	Tue	14:30 Report to JICA 15:30 Report to Embassy of Japan					Ulaanbaatar
17	Dec. 5	Wed		Ulaanbaatar 0900 (OM301) -- Seoul 1310 Seoul 1530 (JD252) --Narita 1740				

APPENDIX 3

LIST OF PERSONS CONCERNED IN THE RECIPIENT COUNTRY

APPENDIX-3 List of Persons Concerned in the Recipient Country

A. Basic Design Study Mission

1. Embassy of Japan

H. FUKASAWA	First Secretary

2. JICA Office

K. MATSUMOTO	Resident Representative
A. SHIMIZU	Assistant Resident Representative

3. Ministry of Foreign Affairs (MOFA)

Gulgou	Deputy Director

4. Ministry of Finance and Economy (MOFE)

N. Amarsaikhan	Director
L. Nasanbuyan	Officer

5. Ministry of Infrastructure (MOI)

J. Sereetel	Director
G. Basanjav	Deputy Director
L. Banzragch	Senior Officer
T. Narmandakh	Senior Officer

6. Mongolia Radio and Television (MRTV)

B. Ganbold	Governor (MRTV)
B. Purevdash	Director (MRTV)
G. Tsooj	General Engineer (MRTV)
O. Gankhuu	General Engineer (MRTV)
T. Gantumur	Director (MRTC)
Z. Tsedenbaljir	Chief Engineer (MRTC)
S. Enkhjargal	Staff of Int. Relation Dep. (MRTV)
D. Bayasgalan	Senior Engineer (MRTC)

7. Mongolia Post and Telecommunication Authority (PTA)

G. Battur	Director General

8. Mongolian Governmental Regulator Agency, State Control Authority for Infrastructure

U. Tsogzolmaa	Director (Radio Frequency Supervision)

9. Ulaanbaatar Hydro and Meteorology Institute

Dagvadorj	Officer

10. Murun Radio Station

L. Gerelmaa	Chief
G. Dolgormaa	Engineer
J. Rentsendorj	Advisor (Engineering)

11. Murun Weather Station

Dasjdorj	Engineer

12. Altai Aimag

N. Janchivdorj	Governor
T. Battsagaan	Manager, Construction/Planning

13. Altai Radio Station

Badamjunai	Chief

14. Altai Weather Station

Monhjargal	Chief
Unurmaa	Accountant

15. Private Companies

D. Enkhbat	Director, Mongolian Express Co., LTD.
D. Enkhbayar	Sales Manager, IFFC
Ts. Enkhsaikhan	Tariff Manger, Mongolian Trans Co., LTD.
N. Enkhriima	Vice Director, Tuushin Co., LTD.
D. Dorjsuren	Director, TD & J International Company
G. Gambold	Director, Mongolian Engineering Construction
Company	
Ch. Dorjderem	Bridge Construction Co., Ltd.

16. National University of Mongolia Faulty of Earth Science

Prof. Gonchicsumalaa

B. Draft Report Explanation Mission

17. Embassy of Japan

H. FUKASAWA	First Secretary
H. FUJIMOTO	Second Secretary

18. JICA Office

K. MATSUMOTO	Resident Representative
A. SHIMIZU	Assistant Resident Representative

19. Ministry of Finanî and Economy (MOFE)

N. Amarsaikhan	Director
G. Davaajargal	Deputy Director
L. Nasanbuyan	Officer
L. Chuluun	Officer

20. Ministry of Infrastructure (MOI)

J. Sereetel	Director
G. Basanjav	Deputy Director
L. Banzragch	Senior Officer

21. Mongolia Radio and Television (MRTV)

B. Ganbold	Governor (MRTV)
B. Purevdash	Director (MRTV)
G. Tsooj	General Engineer (MRTV)
O. Gankhuu	General Engineer (MRTV)
T. Gantumur	Director (MRTC)
Z. Tsedenbaljir	Chief Engineer (MRTC)
S. Enkhjargal	Staff of Int. Relation Dep. (MRTV)
D. Bayasgalan	Senior Engineer (MRTC)

APPENDIX 4

MINUTES OF DISCUSSIONS

(1) Minutes of Discussions on July 5, 2001

(2) Minutes of Discussions on December 3, 2001

Minutes of Discussions
on the Basic Design Study
on the Project for Rehabilitation of Radio Broadcasting Network
in Mongolia

In response to a request from the Government of Mongolia, the Government of Japan decided to conduct a Basic Design Study on the Project for Rehabilitation of Radio Broadcasting Network (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA") .

JICA dispatched to Mongolia the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Satoshi Nakano, Deputy Director of the Third Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from June 24 to July 6, 2001.

The Team held discussions with the officials concerned of the Government of Mongolia and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Ulaanbaatar, July 5, 2001

Satoshi NAKANO
Leader
Basic Design Study Team
Japan International Cooperation Agency

Urtnasan ULAMBAYAR
Vice Minister
Ministry of Infrastructure
Mongolia

Baasanjav GANBOLD
President, CEO
Mongolian Radio and Television

Khosbayar AMARSAIKHAN
Director General
Department of Economic Cooperation
Management and Coordination
Ministry of Finance and Economy
Mongolia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to rehabilitate the domestic short-wave broadcasting network by installing new short-wave transmitters, etc.

2. Project Sites

The Project sites are located in Ulaanbaatar, Altai and Murun as shown in Annex-1.

3. Responsible Organization and Implementing Agency

The responsible organization is the Ministry of Infrastructure.

The implementing agency is the Mongolian Radio and Television(MRTV).

The organization chart of the implementing agency is shown in Annex-2.

4. Items requested by the Government of Mongolia

After discussions with the Team, the following items shown in Annex-3 were finally requested by the Mongolian side.

JICA will assess the appropriateness of the request, especially on the Murun Transmitting Station, and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

5-1. The Mongolian side understands the Japan's Grant Aid scheme explained by the Team, as described in Annex-4.

5-2. The Mongolian side will take the necessary measures, as described in Annex-5, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the Study

6-1. The consultants will proceed to further studies in Mongolia until August 1, 2001.

6-2. JICA will prepare the draft report in English and dispatch a mission to Mongolia in order to explain its contents around November, 2001.

6-3. In case that the contents of the report is accepted in principle by the Government of Mongolia, JICA will complete the final report and send it to the Government of Mongolia by March, 2002.

7. Other Relevant Issues

7-1. The Mongolian side confirmed that the Mongolian Radio and Television(MRTV) will not be privatized in the foreseeable future.

7-2. The Mongolian side shall ensure enough budget and personnel to operate and maintain the equipment after the completion of the Project.

7-3. The Mongolian side shall obtain necessary permits required to operate the new equipment prior to commencement of the Project.

7-4. The Mongolian side shall exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes including VAT, and other physical levies which may be imposed in Mongolia regarding the procurement of equipment, materials and services under the verified contracts.

7-5. The Mongolian side shall confirm the requirement of the Mongolian Law on Environmental Impact Assessment related to the Project, and shall take the necessary actions to obtain the formal approval from the Ministry of Nature and Environment prior to the commencement of the Project.

7-6. For the sake of the technology transfer on sustainable operation and maintenance, the Mongolian side pointed out the need for technical training of counterpart personnel in Japan. They also understood that another official request on technical cooperation should be submitted through the JICA Mongolia Office.

7-7. The Mongolian side requested the consultant services for operation and maintenance on the short-wave transmitting equipment as one of the component of the Grant Aid.

7-8. The Mongolian side shall complete the repair work in the transmitting stations, by its own expense, necessary for the installation of the short-wave transmitting equipment before its delivery.

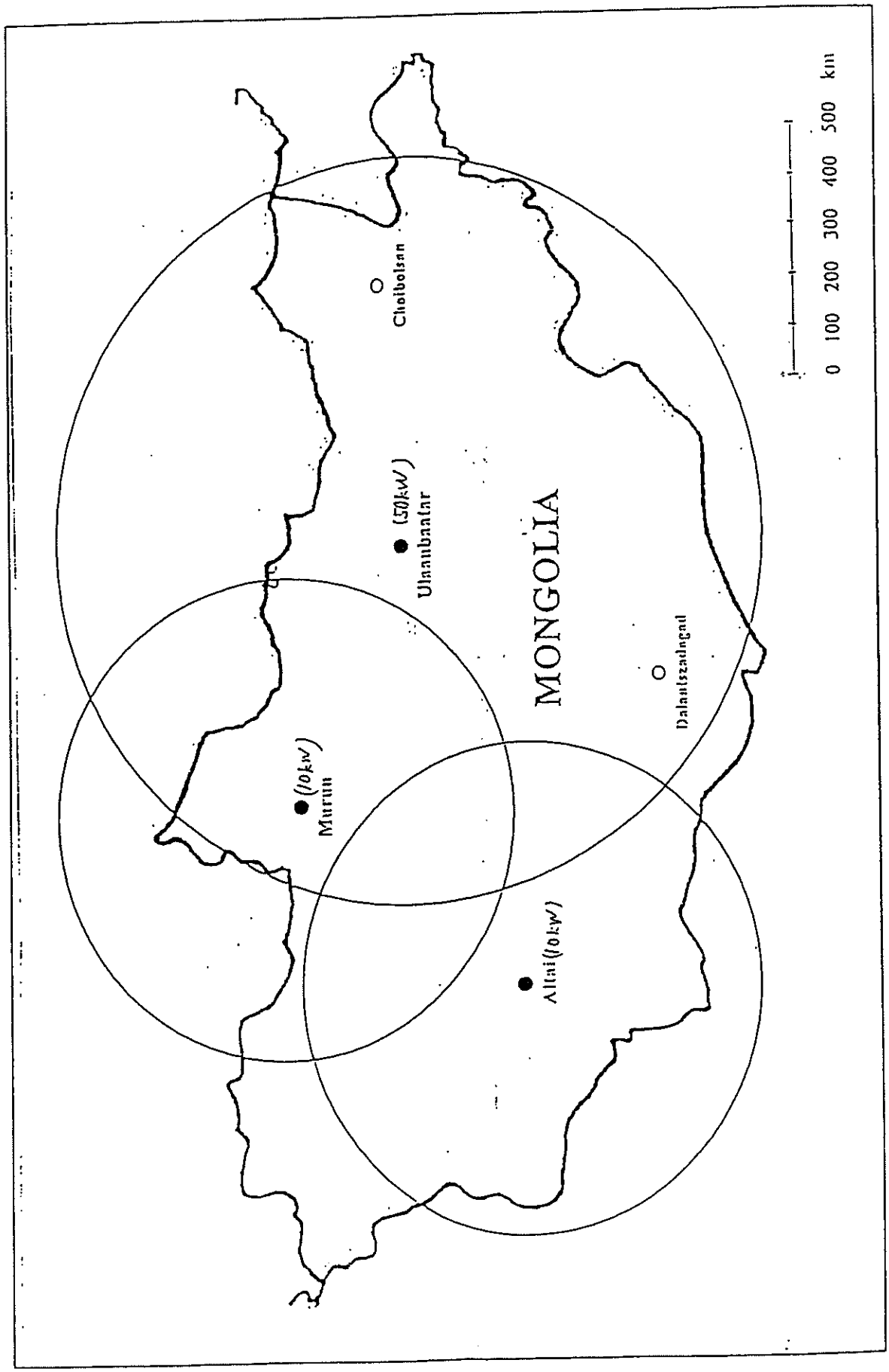
7-9. The Mongolian side shall complete necessary coordination with neighboring countries on radio interference prior to the Exchange of Notes concerning the Project, if needed.

7-10. The Mongolian side confirmed that they would take necessary measures to make all the nomads in Mongolia known that short-wave broadcasting was restarted before and after the completion of the Project.

7-11. In order to make the nomads in Mongolia known that the broadcasting network is rehabilitated by the Japan's Grant Aid, the Mongolian side confirmed that they would make such spot announcements in the short-wave broadcasting regularly and everyday after the completion of the Project.

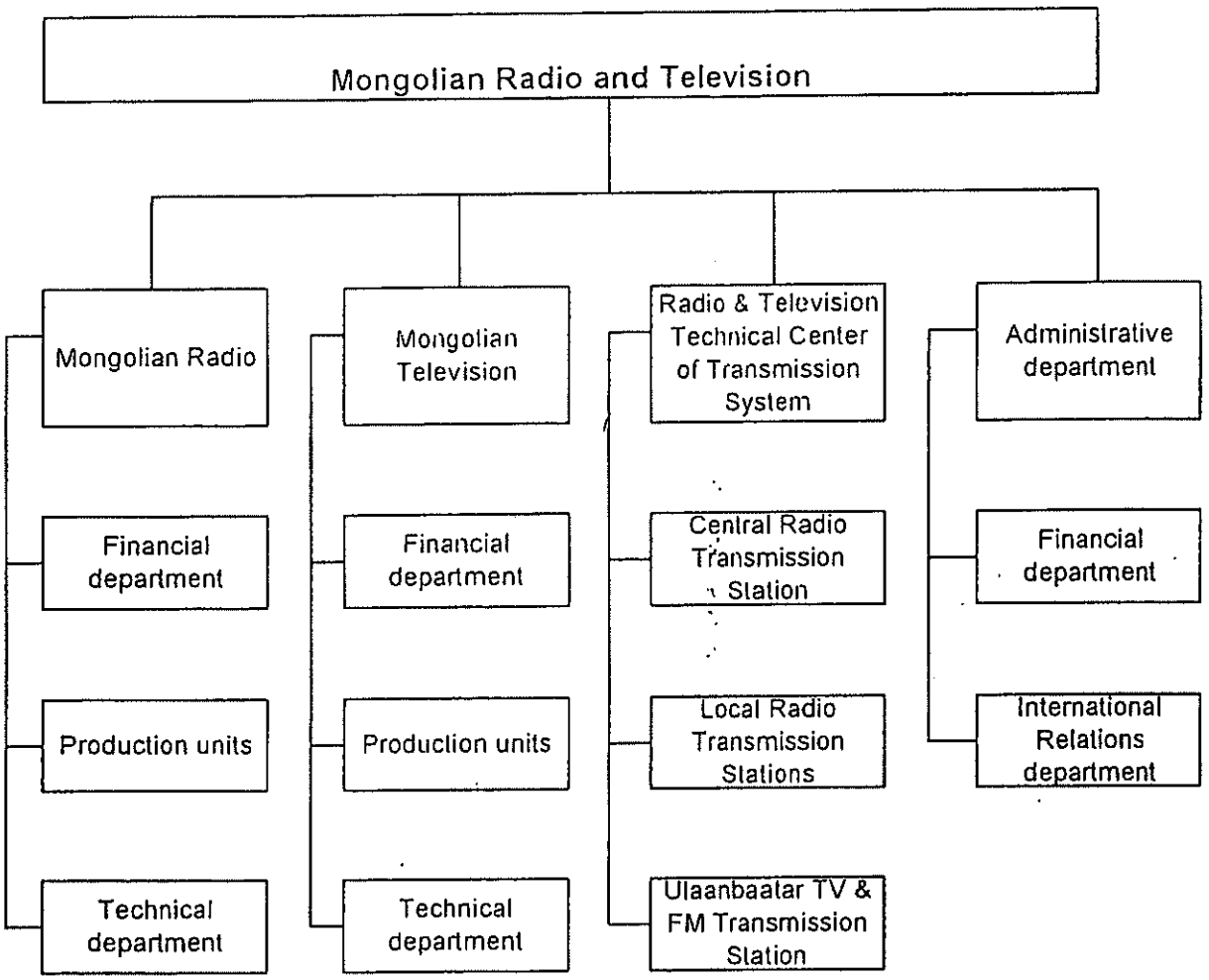
7-12. In order to secure fairness and competitiveness of the tender concerning the Project, the Mongolian side confirmed that the technical details of the Project that are discussed with the Team should be confidential to the third parties.

(Annex-1)


MONGOLIA
Choibolsan
(50kW)
Ulaanbaatar
Dalanzadgad
(10kW)
Murun
Altai(10kW)
0 100 200 300 400 500 km

(Annex-2)

ORGANIZATIONAL CHART OF MRTV



(Annex-3)

Items Requested by the Mongolian Side

Location (Transmitting Station)	Items
Ulaanbaatar	- 50kW short-wave transmitting equipment - AC power supply equipment for the transmitter - Wideband omni-directional short-wave transmitting antenna
Altai	- 10kW short-wave transmitting equipment - AC power supply equipment for the transmitter - Wideband omni-directional short-wave transmitting antenna
Murun	- 10kW short-wave transmitting equipment - AC power supply equipment for the transmitter - Wideband omni-directional short-wave transmitting antenna

(Annex-4)

JAPAN'S GRANT AID SCHEME

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid Scheme is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for the Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the smooth implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- Confirmation of items agreed upon by both parties concerning the basic concept of the

Project.
- Preparation of a Basic Design of the Project.
- Estimation of cost of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses registered consulting firms. JICA selects firms based on proposals submitted by interested firms. The firms selected carry out a Basic Design Study and write a report, based upon terms of reference set by JICA.

The consulting firms used for the Study are recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain its technical consistency.

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "verification" is deemed necessary to secure accountability to Japanese taxpayers.

5) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction,
b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
c) To secure buildings prior to the procurement in case the installation of the equipment,
d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the verified Contracts,
f) To accord Japanese nationals, whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

8) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.
b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(Annex-5)

Major Undertakings to be Taken by Each Government

NO	Items	To be covered by Grant Aid	To be covered by recipient side
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	a) Advising Commission of A/P		●
	b) Payment commission		●
5	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	a) Marine (Air) transportation of the products from Japan to the recipient country	●	
	b) Tax exemption and customs clearance of the products at the port of disembarkation		●
	c) Internal transportation from the port of disembarkation to the project site	●	
6	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
8	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
9	To bear all the expense, other than those to be borne by the Grant Aid, necessary for construction of the facilities		●
10	To coordinate and solve any issues related to the Project which may be raised from the third parties or inhabitants in the project area during implementation of the Project.		●

B/A : Banking Arrangement
A/P : Authorization to Pay

Minutes of Discussions
on the Basic Design Study
on the Project for Improvement of Shortwave Radio Broadcasting Network in Mongolia
(Explanation on Draft Report)

In June 2001, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Rehabilitation of Radio Broadcasting Network to Mongolia, and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult the Government of Mongolia on the components of the draft report, JICA sent to Mongolia the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Akira Shimizu, an Assistant Resident Representative of the JICA Mongolia Office, from November 19th to December 5th, 2001.

As a result of discussions, both sides confirmed the main items described on the attached sheets.

Ulaanbaatar, December 3, 2001

Akira SHIMIZU
Leader
Draft Report Explanation Study Team
Japan International Cooperation Agency

Javchig SEREETER
Director General
Policy and Coordination
Department of Roads Transport, Information, Communication and Tourism
Ministry of Infrastructure
Mongolia

Baasanjav GANBOLD
President, CEO
Mongolian Radio and Television

Khosbayar AMARSAIKHAN
Director General
Department of Economic Cooperation
Management and Coordination
Ministry of Finance and Economy
Mongolia

ATTACHMENT

1. Title of the Project

Both sides agreed that the Project title should be changed to "Improvement of Shortwave Radio Broadcasting Network".

2. Components of the Draft Report

The Mongolian side agreed and accepted the components and contents of the draft report explained by the Team.

3. Japan's Grant Aid Scheme

The Mongolian side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Mongolia as explained by the Team and described in Annex-4 and Annex-5 of the Minutes of Discussions signed by both parties on July 5th, 2001.

4. Schedule of the Study

JICA will complete the final report in accordance with the items confirmed by both sides and send it to the Government of Mongolia by March 2002.

5. Other Relevant Issues

5-1. The Mongolian side confirmed that they would take all the necessary measures in order to secure that the majority of nomads in Mongolia would listen to the short-wave broadcasting, which was reestablished by the Project, by publicity and making useful programs for nomads and so forth, based on the tentative schedule attached to the Minutes of Discussions.

5-2. Both sides confirmed that the Mongolian side should undertake the works that were described in the articles 5 and 7 of the Minutes of Discussions signed by both sides on July 5th, 2001.

5-3. The Mongolian side shall allocate necessary budget and personnel to carry out the Mongolian side's undertakings that are described in the chapter 3 of the Draft Final Report.

5-4. The Mongolian side shall establish the proper organization that is suitable for the operation and maintenance of new equipment, and assign sufficient number of staffs prior to the installation of the equipment. The Mongolian side shall also provide these related staffs with the opportunity of receiving necessary training.

Transition plan of existing Mongolian radio broadcasting network to shortwave wave broadscasting network.

№	Station Name	Type of the transmitter	LW, MW, SW	National radio broadcastig program №1 (per day 17 hour)				National radio broadcastig program №2 (per day 11 hour)			
				2003 year	2004 year	2005 year	2006 year	2003 year	2004 year	2005 year	2006 year
1	Ulaanbaatar	TLW-500	LW								
		TSW 100	SW								
		TSW 50	SW								
2	Altai	TLW-75x2	LW								
		TSW-10x2	SW								
3	Murun	TMW-75x2	LW								
		TSW-10x2	SW								
4	Dalanzadgad	TLW-75x2	LW								
5	Choibalsan	TLW-75x2	LW								
6	Ulgii	TLW-60	LW								
7	Sainshand	TSW-12	SW								

Remark: ▬▬ This line means broadcast station

PROPOSED PLAN FOR ANNOUNCEMENT DURING JAPANESS GRANT AID PROJECT ON IMPROVEMENT OF THE SHORTWAVE RADIO BROADCASTING NETWORK IN MONGOLIA

№	Type of media	Description	Person Responsible	Explanation
1	National Television	Broadcast program about the Project importance and interview with Japanese & Mongolian specialists on each occasion	Ts. Enkhbat	
2		A 30 second publicity spot about the Project Twice a week	Ts. Enkhbat	
3	National Radio	Broadcast program about the Project importance and interview with Japanese & Mongolian specialists on each occasion	B. Purevdash	
4		A 30 second publicity spot about the Project and the frequency on which people can listen/ three times a week	B. Purevdash	
5		Distance training about the transition to Shortwave Radio broadcasts	B.Purevdash	
6	Press	Announcement in national & local press once every 2 months	B. Purevdash	
7		Publication of an informational calendar	T.Gantumur	
8	Public notices	Placing notices in public transport, aimag and soum noticeboards.	B.Ganbaatar	
9	Radio retail outlets	Information included with radio receivers when sold	O.Gankhuu	

*Plan will be implemented after official exchanging of Notes between Governments.

APPENDIX 5

COST ESTIMATION BORNE BY THE RECIPIENT COUNTRY

APPENDIX-5

Cost Estimation for the Work Borne By the Recipient Country

As a prerequisite for realization of the Project, the Mongolian side needs to perform the work as stated in Chapter 2, Clause Obligations of Recipient Country by utilizing self-sponsored funds. The cost for the work is roughly estimated as follows:

(1) Ulaanbaatar Transmitting Station (2.6 million yen)

1) Building Repair Work (1.9 million yen)

   i) Removal of the existing transformers and any unused items of equipment located at the transformer rooms on the ground floor

   ii) Flattening and finishing of the floor face of the fan room and dummy load room at the ground floor

   iii) Sealing of the entrance door and upper louver at each room on the ground floor

   iv) Provision of openings as well as their finishing for penetration for ducts above entrance door on the ground floor

   v) Provision of openings on the wall as well as their reinforcement for mounting of air filters in the air intake room on the ground floor

   vi) Provision of openings on the wall as well as their finishing for mounting of air filters on the partition on the ground floor

   vii) Provision of openings on the passage door and mounting of the door on the ground floor

   viii) Provision of openings as well as their finishing for penetration for ducts on the first floor

   ix) Reinforcement and repair of the floor in the transmitter room on the first floor

   x) Provision of openings on the wall for exhaust ducts and mounting of duct supporting frame on the first floor

   xi) Widening of access route on the first floor

   xii) Temporary removal and restoration of the existing partition on the first floor

2) STL-related Work (0.5 million yen)

i) Supply and installation of antenna poles for STL

ii) Supply and installation of outdoor equipment rack for mounting of STL equipment at the relay station

iii) Installation of all STL equipment

3) Improvement of Infrastructure at the Existing Station (0.2 million yen)

i) Improvement of the land and access road and installation of fences

ii) Water and sewage, drainage, electricity, lighting, and ventilating and heating

(2) Altai Transmitting Station (1.3 million yen)

1) Building Repair Work (0.5 million yen)

i) Widening of access route

iii) Provision of openings on the wall for exhaust ducts

iv) Backfilling and finishing of the floor in the transmitter room

v) Addition of cable trench

2) Emergency Diesel Generator –related Work (0.2 million yen)

i) Removal of the existing diesel generator and associated equipment

ii) Provision of access route, openings on the wall, and excavation for the new foundation in the existing generator room

3) Improvement of Infrastructure at the Existing Stations (0.1 million yen)

i) Improvement of the land and access road and installation of fences

ii) Water and sewage, drainage, electricity, lighting, and ventilating and heating

4) Removal of existing 12kW short wave antenna (0.5 million yen)

(3) Murun Transmitting Station (1.0 million yen)

1) Building Repair Work (0.4 million yen)

i) Widening of access route

ii) Provision of openings on the wall for exhaust ducts

iii) Backfilling and finishing of the floor in the transmitter room

iv) Addition of cable trench

2) Improvement of Infrastructure at the Existing Stations (0.1 million yen)

i) Improvement of the land and access road and installation of fences

ii) Water and sewage, drainage, electricity, lighting, and ventilating and heating

3) Removal of existing 12kW short wave antenna (0.5 million yen)

Total cost for the three stations for the work to be borne by the recipient country amounts to 4.9 million yen. This amount is approximate and may vary depending on the scope of work, work items and their scale, and construction method.