# Chapter 2

# Contents of the Project

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## 2-1 Basic Concept of the Project

### 2-1-1 Primary Goal and Project Objectives

In 1994, the Ethiopian government announced its intention to develop the Education Sector Development Program (ESDP) to implement educational reform programs in an effort to reconstruct the education system of Ethiopia that had been neglected during civil wars and political turmoil.

The Ethiopian government began drafting the ESDP in 1997 and completed the Action Plan in June 1999 for a 5-year period between 1997/98 and 2001/02.

The ESDP emphasized the enhancement of elementary education and set the following six objectives:

① Improvement of low enrollment ratio (to raise elementary school enrollment ratio to 50% by 2000)
② Enhancement of educational services in remote areas and for girls (to raise the enrollment ratio of girls to 45%)
③ Provision of high-quality education (to distribute textbooks to individual students, upgrade school facilities, enhance teachers training)
④ Rationalization of the inefficient educational system (to optimize the school operations by reviewing educational programs, and to decrease dropouts and repeaters)
⑤ Securing of adequate fund
⑥ Enhancement of the planning/management capabilities

To meet these objectives, various activities are being carried out, including the construction/renovation of elementary school buildings, in-service training of teaching staff, development of curricula, publishing of textbooks, development of educational media, training of educational administrators, and promotion of community participation.

As part of the above activities, educational media are being developed to provide educational services for the following purposes:

① To complement face-to-face education.
② To educate the public about the necessity of the education for girls.

③ To provide learning opportunities and access for dropouts, young people, and adults.

④ To train teachers, promote literacy, and provide lifelong education.

The Mid Term Review of ESDP conducted in March 2001 reported that the elementary school enrollment ratio had reached 51% in 2000. In the review, the Ethiopian government expressed its intent to emphasize the qualitative improvement of education by in-service training of teachers, easing overcrowded classrooms, distributing textbooks to individual students, and promoting reeducation of those who left school before graduation.

The ESDP-II (2002/02 – 2004/05) to be launched in FY 2002/03 aims to further increase the elementary school enrollment ratio to 65%.

In view of these circumstances, this project will focus on one of the ESDP objectives, "the enhancement of educational services in remote areas and for girls," as its Overall Goal and intend to assist the production of educational radio and TV programs in local languages in each region, as well as the enhancement of access, quality, equality, and efficiency of education as the Project Purpose.

### 2-1-2 Outline of the Project

In order to achieve the above-mentioned objectives, this project intends to carry out the following inputs and activities:

【Inputs】

Japanese Side:

[ Equipment ]

- Radio program production equipment
- TV program production equipment

Ethiopian Side:

[ Facilities ]

- Preparation of Radio Studio Building for 8 sites (EMA, Gambella, Harar, Addis Ababa, Mizan Teferi, Semera, Alemaya, Dire Dawa)

- Preparation of TV Studio Building for 2 sites (EMA & Mekelle)
- Securing of Radio transmitting facilities to broadcast programs produced at each radio studio.
- Securing of TV transmitting facilities to broadcast programs produced at EMA & Mekelle.

[ Personnel ]

- Engineers & Technicians for operation and maintenance of Radio program production equipment
- Engineers & Technicians for operation and maintenance of TV program production equipment
- Radio program producers
- TV program producers

【Activities】

(1) To consolidate Radio and TV program production and broadcasting systems at EMA and each Regional Education Bureau.
To examine the optimum project contents and scale and to draft a basic design.

(2) To employ engineers/technicians and maintenance staff.
To train engineers/technicians and maintenance staff.
To allocate funds for operation and maintenance of equipment

(3) To employ program production staff.
To train the production staff.
To allocate funds for program production.

The following outputs are expected to obtain through above Inputs and Activities.

【Outputs】

(1) Environment (facilities) necessary for producing educational broadcasting programs will be prepared at central (EMA) and regional levels (Regional Education Bureaus).

(2) Capabilities of the program production staff at each Regional Education Bureau will be enhanced.

(3) More programs will be produced in local languages at the respective Regional Education Bureaus.

## 2-2 Basic Design of the Requested Japanese Assistance

### 2-2-1 Design Policies

(1) Basic Policies on the Scope of Assistance

Requested project sites from the Ethiopian side are as follows. Contents of the request consist of the procurement of educational radio program production equipment for eight radio studios and educational TV program production equipment for two TV studios respectively.

Radio Studios:

| | |
|---|---|
| Educational Media Agency (EMA) | EMA 2 studios |
| Addis Ababa Education Bureau | Addis Ababa Studio |
| Afar Regional Education Bureau | Semera Studio |
| Oromia Regional Education Bureau | Alemaya Studio |
| Dire Dawa Regional Education Bureau | Dire Dawa Studio |
| Gambella Regional Education Bureau | Gambella Studio |
| Harar Regional Education Bureau | Harar Studio |
| SNNP Regional Education Bureau | Mizan Teferi Studio |

TV Studios:

| | |
|---|---|
| Educational Media Agency (EMA) | EMA TV studio |
| Tigray Regional Education Bureau | Mekelle TV Studio |

1) Necessity for Producing Educational Programs

The Ethiopian government carried out educational reform according to the Sector Development Program announced in 1994. Through the reform, the educational administration was decentralized, and much of the authority regarding the implementation of the programs in elementary and secondary education was transferred to the Regional Education Bureaus (REB).

Educational radio programs have been produced and broadcasted on a national network for some time. As decentralization progresses, based on the following

policies set by the Ethiopian government, efforts are now being made to produce and broadcast radio programs according to the curriculum of each region, incorporating its unique culture, customs, and languages in order to fortify the effects of elementary education.

Currently, educational radio programs for elementary schools are being produced and broadcasted by each Regional Education Bureau, and radio programs for secondary schools by EMA.

① Whatever educational media infrastructure existed within the newly formed region, during the decentralization, remains the sole property of that region.

② Each region has the right to use its media infrastructure for its educational program development purposes.

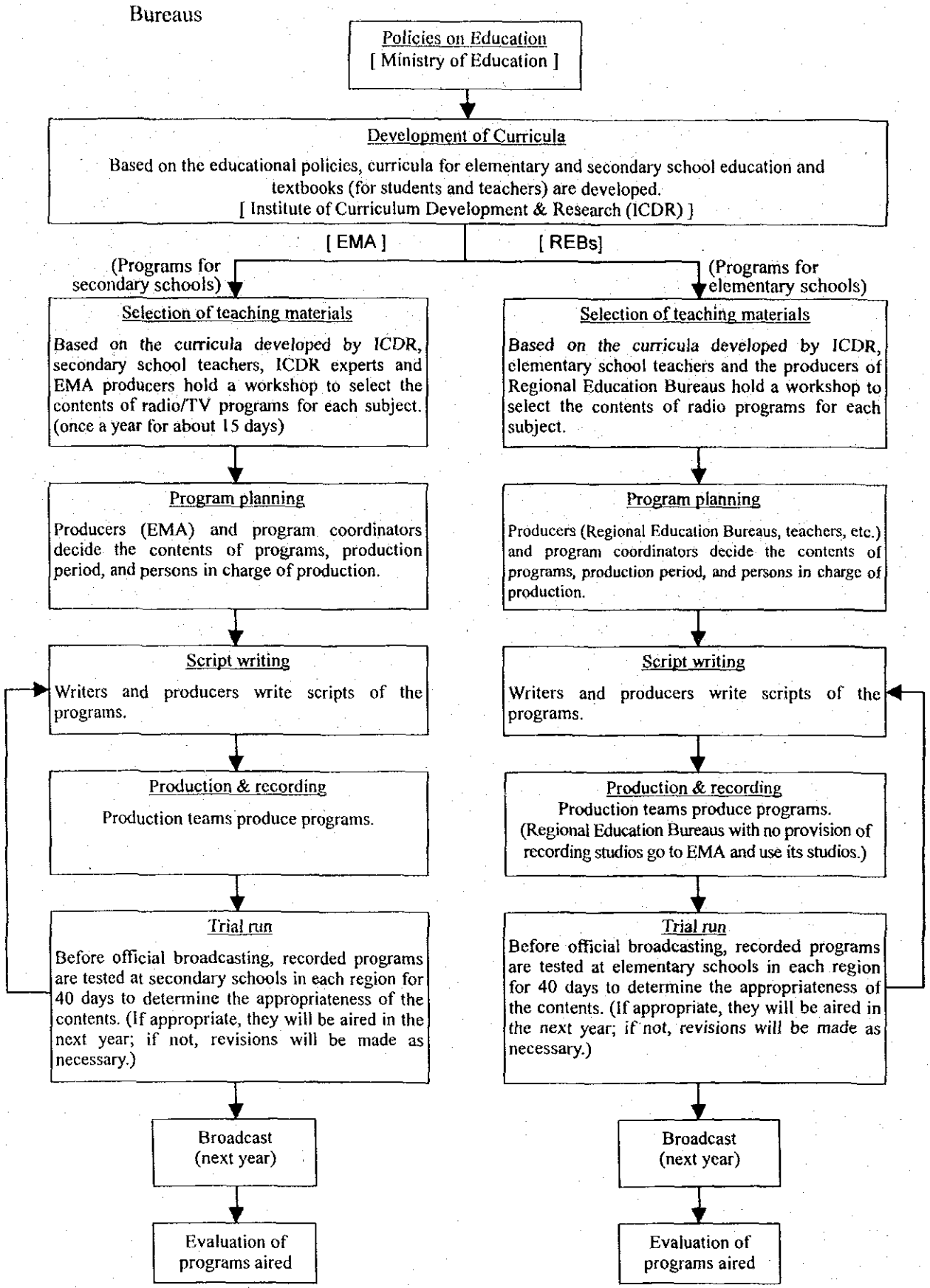
③ Programs for elementary school pupils should be made in local languages as much as possible.

Educational TV programs are produced and broadcasted in English for secondary school students by EMA.

The demarcations between EMA and Regional Education Bureaus with regard to program production are as follows:

| | Radio Programs | | TV programs |
|---|---|---|---|
| | Elementary schools education | Secondary school education | Secondary school education |
| EMA | ○ | ○ | ○ |
| Regional Education Bureaus | ○ | – | – |

2) Educational Program Production Flow Chart at EMA and Regional Education Bureaus



3) Broadcasting System

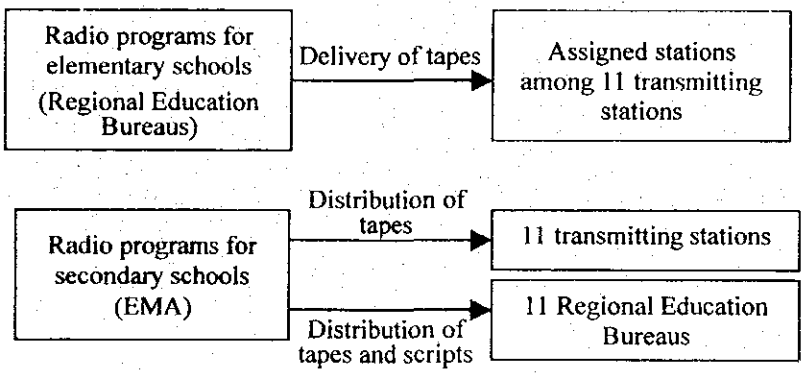
(a) Radio programs

Radio programs that were produced for elementary school pupils at each Regional Education Bureau will be brought into one of 11 transmitting stations situated throughout the country and aired according to the broadcasting schedule.

Secondary school radio programs produced at EMA :

① Will be copied on 11 tapes and distributed to the 11 transmitting stations.

② Will be also copied and sent to each Regional Education Bureau along with the scripts prior to broadcasting for syllabus planning.




The Table 2-2-1 outlines the status of each transmitting station:

## Table 2-2-1 Status of Transmitting Stations

| Transmitting Station | Where Used | Frequency (kHz) | Output | Status of Transmitter | Year Installed |
|---|---|---|---|---|---|
| 1. Mekelle *1) (Tigray Region) | Tigray REB | 549 | 1kW | Has not been operating since 1999 due to expansion work of Mekelle Airport (being relocated) | 1981 |
| | | 1251 | 10kW | | 1995 |
| | | 1044 | 10kW | (Future plan) | — |
| 2. Gondar (Amhara Region) | Amhara REB | 630 | 1kW | Operating | 1997 |
| | | 972 | 10kW | Operating | 1997 |
| | | 1332 | 10kW | (Future plan) | — |
| 3. Bahar Dar (Amhara Region) | Amhara REB | 774 | 1kW | Operating | 1981 |
| | | 1179 | 10kW | Operating | 1995 |
| | | 1305 | 10kW | (Future plan) | — |
| 4. Dese (Amhara Region) | Amhara and Afar REBs | 657 | 1kW | Operating | 1981 |
| | | 1161 | 10kW | Operating | 1995 |
| | | 1017 | 10kW | (Future plan) | — |
| 5. Debre Maricos (Amhara Region) | Amhara and Benishangul REBs | 612 | 1kW | Operating | 1981 |
| | | 1116 | 10kW | Operating | 1995 |
| | | 927 | 10kW | (Future plan) | — |
| 6. Legadadi (Oromia Region) | Oromia and Addis Ababa REBs | 720 | 1kW | Operating | 1981 |
| | | 1188 | 10kW | Operating | 1995 |
| | | 1404 | 10kW | (Future plan) | — |
| 7. Alemaya *2) (Oromia Region) | Oromia, Dire Dawa and Harar REBs | 567 | 1kW | Operating | 1981 |
| | | 1287 | 10kW | Out of order | 1995 |
| | | 1476 | 10kW | (Future plan) | — |
| 8. Ghimbi (Oromia Region) | Oromia and Gambella REBs | 540 | 1kW | Operating | 1981 |
| | | 1215 | 10kW | Operating | 1995 |
| | | 1494 | 10kW | (Future plan) | — |
| 9. Robe (Oromia Region) | Oromia REB | 801 | 1kW | Operating | 1981 |
| | | 1260 | 10kW | Operating | 1995 |
| | | 1440 | 10kW | (Future plan) | — |
| 10. Gore (Oromia Region) | Oromia, Gambella and SNNP REBs | 756 | 1kW | Operating | 1981 |
| | | 1143 | 10kW | Operating | 1995 |
| | | 1422 | 10kW | (Future plan) | — |
| 11. Sodo (SNNP Region) | SNNP REB | 738 | 1kW | Operating | 1971 |
| | | 1233 | 10kW | Operating | 1995 |
| | | 918 | 10kW | (Future plan) | — |
| 12. Godie *3) (Somali Region) | — | 594 | 1kW | Under construction | — |
| | | 855 | 10kW | Under construction | — |
| | | 1062 | 10kW | (Future plan) | — |

*1) Mekelle Station : Was situated near Mekelle Airport but forced to move to another location due to a war against Eritrea, which necessitated the expansion of the airport for fighter planes. The new station is currently being built in the suburb of Mekelle.

*2) Alemaya Station : Uses only 1kW transmitter, as its 10kW transmitter is broken.

*3) Godie Station : Currently under construction and to be completed in 2002.

Although the Ministry of Education (MOE) plans to have each region establish its own transmitting stations, regional disparities exist at present. (Oromia has five and Amhara has four stations whereas Dire Dawa, Afar, Gambella, Benishangul, Somali and some other regions have no stations.)

Because not all regions have their own transmitting stations, two to three Regional Education Bureaus use two transmitters in the station commonly and share the timetable to broadcast their programs.

(b) Radio Broadcasting Schedule (refer to Table 2-2-2)

Twelve 15-minute programs per day (60 programs per week) are aired from 8:00 a.m. to 12:15 p.m. Monday through Friday.

As most elementary schools operate in two shifts (morning and afternoon), morning programs are rebraodcasted between 12:30 and 16:45 in the afternoon.

Each station conducts two channel operation by means of one 10kW and one 1kW transmitters thus capable of broadcasting 120 programs per week (60 programs/week × 2 transmitters).

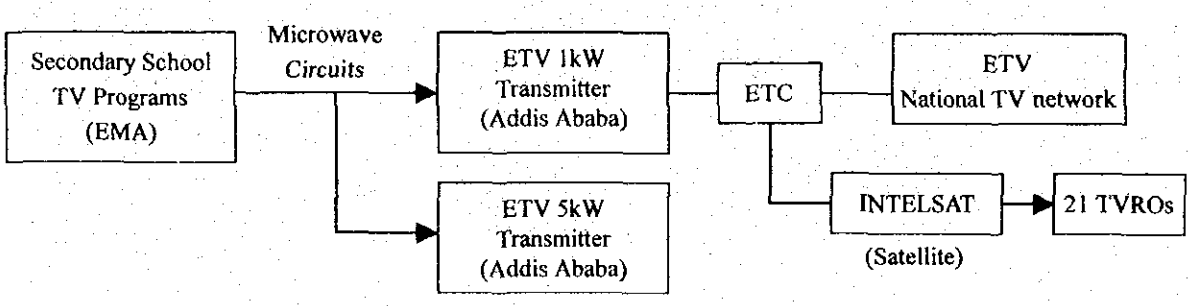
Table 2-2-2 Programs for Elementary/Secondary School Students

| | | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|
| 1st Shift | 8:00 – 8:40 | 1st subject | 1st subject | 1st subject | 1st subject | 1st subject |
| | | 2nd subject | 2nd subject | 2nd subject | 2nd subject | 2nd subject |
| | 8:40 – 9:20 | 3rd subject | 3rd subject | 3rd subject | 3rd subject | 3rd subject |
| | | 4th subject | 4th subject | 4th subject | 4th subject | 4th subject |
| | 9:20 – 10:00 | 5th subject | 5th subject | 5th subject | 5th subject | 5th subject |
| | | 6th subject | 6th subject | 6th subject | 6th subject | 6th subject |
| | 10:15 – 10:55 | 7th subject | 7th subject | 7th subject | 7th subject | 7th subject |
| | | 8th subject | 8th subject | 8th subject | 8th subject | 8th subject |
| | 10:55 – 11:35 | 9th subject | 9th subject | 9th subject | 9th subject | 9th subject |
| | | 10th subject | 10th subject | 10th subject | 10th subject | 10th subject |
| | 11:35 – 12:15 | 11th subject | 11th subject | 11th subject | 11th subject | 11th subject |
| | | 12th subject | 12th subject | 12th subject | 12th subject | 12th subject |

| | | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|
| 2nd Shift | 12:30 - 13:10 | | | | | |
| | 13:10 - 13:50 | | | | | |
| | 13:50 - 14:30 | Rebroadcasting of *morning programs* | | | | |
| | 14:45 - 15:25 | | | | | |
| | 1:25 - 16:05 | | | | | |
| | 16:05 - 16:45 | | | | | |

(c) TV Programs

Secondary school TV programs produced at EMA are broadcasted via the national network of Ethiopia National Television (ETV) and the TVRO equipment of Ethiopia Telecom (ETC).




(d) TV Broadcasting Schedule

From Monday through Friday for three hours per day from 10:55 a.m. to 12:30 p.m. and from 12:30 p.m. to 13:50p.m, TV programs for secondary schools are broadcasted.

The programs on mathematics, physics, chemistry, and biology are aired Monday morning, and the same programs are rebroadcasted in other time slots. Until June 2001, TV programs were only for ninth graders, but programs for tenth graders are also produced and broadcasted starting in September 2001. (refer to Table 2-2-3 (1) & (2))

## Table 2-2-3 (1) Weekly Broadcast Schedule of Educational TV Programs

(Grade 9)

(2000/2001)

| School hours | TV broadcast time | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|
| 10:55 – 11:35 | 10:55 | | | | | |
| | 11:00 – 11:15 | Mathematics | Physics (rerun) | Chemistry (rerun) | Biology (rerun) | Mathematics (rerun) |
| | 11:20 – 11:35 | Physics | Chemistry (rerun) | Biology (rerun) | Mathematics (rerun) | Physics (rerun) |
| 11:35 – 12:30 | 11:40 – 11:55 | Chemistry | Biology (rerun) | Mathematics (rerun) | Physics (rerun) | Chemistry (rerun) |
| | 12:00 – 12:15 | Biology | Mathematics (rerun) | Physics (rerun) | Chemistry (rerun) | Biology (rerun) |
| 12:15 – 12:30 | Recess | | | | | |
| 12:30 – 13:10 | 12:35 – 12:50 | Mathematics (rerun) | Physics (rerun) | Chemistry (rerun) | Biology (rerun) | Mathematics (rerun) |
| | 12:55 – 13:10 | Physics (rerun) | Chemistry (rerun) | Biology (rerun) | Mathematics (rerun) | Physics (rerun) |
| 13:10 – 13:50 | 13:15 – 13:30 | Chemistry (rerun) | Biology (rerun) | Mathematics (rerun) | Physics (rerun) | Chemistry (rerun) |
| | 13:35 – 13:50 | Biology (rerun) | Mathematics (rerun) | Physics (rerun) | Chemistry (rerun) | Biology (rerun) |

* (rerun): rebroadcasting

### Yearly Broadcast Schedule

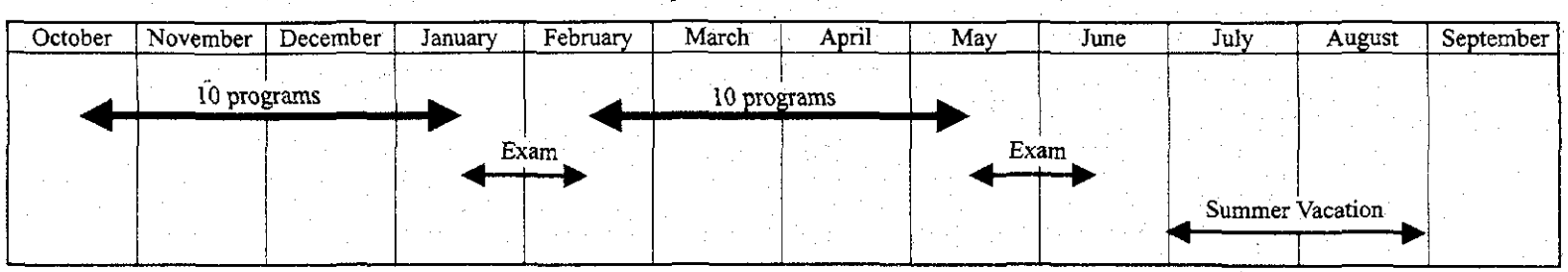


Table 2-2-3 (2) Weekly Broadcast Schedule (Tentative) of Educational TV Programs

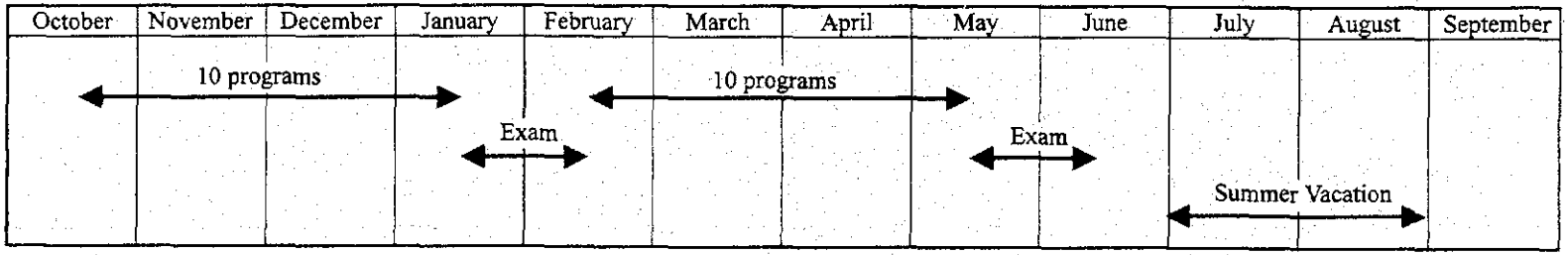
(Grades 9 and 10)

(2001/2002)

| School hours | TV broadcast time | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|
| 10:55 – 11:35 | 10:55 | | | | | |
| | 11:00 – 11:15 | Mathematics G9 | Physics G10 (rerun) | Chemistry G9 (rerun) | Biology G10 (rerun) | Mathematics G9 (rerun) |
| | 11:20 – 11:35 | Physics G9 | Chemistry G10 (rerun) | Biology G9 (rerun) | Mathematics G10 (rerun) | Physics G9 (rerun) |
| 11:35 – 12:30 | 11:40 – 11:55 | Chemistry G9 | Biology G10 (rerun) | Mathematics G9 (rerun) | Physics G10 (rerun) | Chemistry G9 (rerun) |
| | 12:00 – 12:15 | Biology G9 | Mathematics G10 (rerun) | Physics G9 (rerun) | Chemistry G10 (rerun) | Biology G9 (rerun) |
| 12:15 – 12:30 | Recess | | | | | |
| 12:30 – 13:10 | 12:35 – 12:50 | Mathematics G10 | Physics G9 (rerun) | Chemistry G10 (rerun) | Biology G9 (rerun) | Mathematics G10 (rerun) |
| | 12:55 – 13:10 | Physics G10 | Chemistry G9 (rerun) | Biology G10 (rerun) | Mathematics G9 (rerun) | Physics G10 (rerun) |
| 13:10 – 13:50 | 13:15 – 13:30 | Chemistry G10 | Biology G9 (rerun) | Mathematics G10 (rerun) | Physics G9 (rerun) | Chemistry G10 (rerun) |
| | 13:35 – 13:50 | Biology G10 | Mathematics G9 (rerun) | Physics G10 (rerun) | Chemistry G9 (rerun) | Biology G10 (rerun) |

* (rerun): rebroadcasting

Yearly Broadcast Schedule



4) Problems Faced by EMA and Regional Education Bureaus

[Production of Educational Radio Programs]

(a) EMA Radio Studio

The EMA plays a central role in the broadcasting of educational TV/radio programs and is required to produce 572 radio programs in English mainly for elementary and secondary schools each year using two radio studios.

Studio No. 1 is equipped with the latest radio production equipment that was donated by USAID in 2000. Studio No. 2, on the other hand, is not functioning adequately, as it uses superannuated equipment for which spare parts are not available.

Difference in program quality is obvious between programs produced in the two studios. Improvement of equipment in Studio No. 2 is necessary for producing programs of good quality uniform to that of Studio No. 1.

(b) Regional Education Bureaus without Studio Facilities

Presently, production teams of five Regional Education Bureaus without studio facilities (Afar, Dire Dawa, Harar, Gambella, and Addis Ababa) go to EMA and use its studios to produce radio programs while experiencing certain difficulties as described below:

a) Operation Condition of EMA Radio Studios

EMA produces educational programs mostly for elementary and secondary school students using its two studios as follows:

Studio No. 1: 130 IRI (Interactive Radio Instruction) programs (15 minutes each) are produced for elementary school pupils in English annually.

156 non-formal programs (20 minutes each) are produced for elementary school dropouts annually.

Studio No. 2: 120 (15munites each) programs for secondary schools, 91 (15munites each) Out of Youth School programs, and 75 (15munites each) programs for teachers are produced annually.

EMA occupies both studios almost every day for ten months each year, leaving only two months for other regions to use the facilities. As each region takes one month to produce programs, only up to two regions can use the studios per year. This means that each region without studio facilities is given access to the studios in EMA only once in three years.

b) Problems in Production

① Performers

When using the EMA studios to produce programs, the production crew must travel with performers consisting of teachers and students who have to take time off school for at least 30 days. Lower-grade pupils need to be accompanied by their parents in case of sickness, etc., which makes it difficult to find performers with parental consent.

In addition, accidents can occur during long journeys. In fact, two teachers were killed in 2000.

② Production Cost

About 20 members in the production team comprising production coordinators, producer, and performers (teachers and pupils), are required to travel to the EMA studio for program production. Furthermore, as schoolchildren need to be accompanied by their parents, a total of 25 people travel to EMA, for each one of whom the REB has to bear the transportation, perdiem, and accommodation expenses, in addition to production cost.

③ Problems in Production

Language barriers often create communication gaps between the regional production staff and the EMA operators who cannot comprehend scripts or instructions written or given in local languages. This leads to inefficiency in production and to less than satisfactory program quality compared to the time spent.

(c) Regional Education Bureaus with Existing Studios

Of the project sites, Oromia and SNNP regions have their own studios, but are

experiencing certain problems as below.

a) Oromia Regional Education Bureau (Alemaya Studio)

Oromia Region has the largest land area (353,007km$^2$) and population (21,046,000) in Ethiopia, taking up about 32% of the total land and 35% of the entire population. The Oromia Regional Education Bureau is planning to establish recording studios in four of the twelve zones within the region. Three studios have already been built in Gimbi, Sendafa, and Goba zones, where educational programs are being produced. The Alemaya zone has a transmitting station but no recording studio, for which the plan was made to procure radio program production equipment.

| Production Studio | Transmitting Station | Service Area (Zone) |
|---|---|---|
| Gimbi Studio | Gimbi Station<br>Gole Station | Mirab Wellega<br>East Wellega<br>Illulatbor |
| Sendafa Studio | Legadadi Station<br>Alemaya Station | Jimma<br>Mirab Shewa<br>Semen Shewa<br>Misrak Shewa |
| Goba Studio | Robe Station | Borene<br>Arssi |
| Alemaya Studio<br>(project site) | Alemaya Station | Mirabe Harrge<br>Misrak Harerge<br>Bale |

At Gimbi, Sendafa, and Goba Studios, the following programs are being produced for elementary school pupils (G-1 to G-8) in Kambatinga, Hadinga, Debrenga, Orominga, and other local languages.

<u>Subjects</u>

Orominga : 28 programs
English : 28 programs
Social studies : 28 programs
Science : 28 programs
Geography : 28 programs
Biology : 28 programs

Numbers of programs produced at each studio annually are shown below.

| | |
|---|---|
| Gimbi Studio | : 224 programs |
| Sendafa Studio | : 336 programs |
| Goba Studio | : 224 programs |

Each studio is in full operation for eight to ten months each year and not available for rent.

Most of the residents of the Alemaya zone are Muslims, having a distinct culture from the rest of Oromia Region which is largely Christian. Therefore, educational programs for this zone need to be produced differently even under the same subjects.

The number of elementary school pupils in the Alemaya zone is about 538,500 accounting for about 23% of the total enrollment in the zone (2,341,195).

Alemaya is about 500 kilometers away from Sendafa Studio, the closest one among the three studios mentioned above. Considering the operation condition of above three studios, producing programs for the Alemaya zone at three studios is not feasible.

b) SNNP Regional Education Bureau (Mizan Teferi Studio)

SNNP Regional Education Bureau established a recording studio in Sodo in 1998 and is producing the educational programs there in nine languages, which are used primarily in the elementary schools in seven zones within SNNP excluding the Bench Maji and Kafa Shaka zones.

From the standpoint of equitable access to education, SNNP Regional Education Bureau is planning to produce programs in four other languages (Kafa, Maji, Bench and Shaka) used in the Bench Maji and Kafa Shaka zones, the elementary school enrollment of which is around 165,000, accounting for 12% of the total enrollment in SNNP Region.

However, Sodo Studio can produce the programs in up to nine languages at the present capacity. The studio would need to be expanded if programs were to be produced in additional four languages.

Considering the fact that Sodo Studio is about 850 kilometers away from Bench Maji and Kafa Shaka zones, it will be more efficient to build a

radio studio in Mizan Teferi, the center of Bench Maji and Kafa Shaka zones, than expanding Sodo Studio.

| Zone in SNNP Region | Elementary school enrollment | Place of production |
|---|---|---|
| Gurage Zone | 187,647 | Educational programs to be produced in Sodo Studio |
| Hadiya Zone | 157,839 | |
| Tembaro Zone | 109,673 | |
| Sidama Zone | 341,432 | |
| Gedeo Zone | 68,732 | |
| Semen Zone | 347,373 | |
| Debub Omo Zone | 23,629 | |
| Kafa Shake Zone | 109,148 | Educational programs to be produced in Mizan Teferi Studio (plan) |
| Bench Maji Zone | 56,016 | |

(Source: Education Statistics Annual Abstract 1992 E.C (1999／2000))

[Educational TV Production]

(a) EMA TV Studio

Educational TV programs in Ethiopia are broadcasted in English, which is the language that secondary schools throughout the country are required to use by EMA.

Because of aged equipment, however, production of TV programs became impossible, and educational broadcasting was suspended in 1998. EMA staff later repaired certain equipment and procured TV cameras on its own account to resume broadcasting in 2000.

Yet, as is the case with radio equipment, spare parts of many TV program production equipment are not available, which will inevitably lead to another suspension in one to two years.

Although EMA is required to produce 120 TV programs per year, it is impossible unless the production equipment is renewed, as it takes too much time to maintain and repair the existing equipment.

(b) Tigray Regional Education Bureau (Mekelle TV Studio)

Tigray Regional Education Bureau has a plan to "produce educational TV

programs in Tigrigna language for seventh and eighth graders of elementary schools by supplementing radio programs with visual aid provided by TV programs for enhanced educational effects."

However, public peace was disturbed by the conflict with Eritrea during the preliminary study of this project, and consequently Mekelle TV studio was once excluded from the project sites. As the situation is such that the construction of the studio, for which the Ethiopian side is responsible, is considerably delayed with no prospect of completion.

Although the request was made for full-scale TV production equipment (same scale as that of the EMA TV studio), employment of TV production staff, operators, and maintenance technicians, as well as the appropriation of fund for operation and maintenance of equipment after the implementation of the project, have yet to be finalized. It is necessary to make the concrete Operation Plan immediately.

5) Program Production Plan at each studio after the Project Implementation

After the implementation of the project, EMA and each Regional Education Bureau are planning to produce educational programs as follows:

(a) EMA

a) Radio Programs

<u>Secondary School Programs (G-9 to G-12)</u>

- Subjects

  Amharic (15 min.) : 20 programs
  English (15 min.) : 20 programs for each grade
  Geography (15 min.) : 20 programs for each grade
  History (15 min.) : 20 programs for each grade
  Biology (15 min.) : 20 programs for each grade (cassette tapes)
  Chemistry (15 min.) : 20 programs for each grade (cassette tapes)

  * All subjects except Amharic will be produced in English.

- Production schedule

  G-9 : 1999－2000 G-11 : 2001－2002
  G-10 : 2000－2001 G-12 : 2002－2003

English IRI (Interactive Radio Instruction) programs for elementary schools (G-1 to G-8)

- Subject: English (15 min.): 130 cassette tapes for each grade
- Production schedule

| | |
|---|---|
| G-1: 2000－2001 | G-5: 2004－2005 |
| G-2: 2001－2002 | G-6: 2005－2006 |
| G-3: 2002－2003 | G-7: 2006－2007 |
| G-4: 2003－2004 | G-8: 2007－2008 |

Programs for teachers

- Subjects

| | |
|---|---|
| Teacher's education (Amharic) | : 26 programs |
| Teacher's education (English) | : 26 programs |
| Pedagogy (English) | : 26 programs |
| Psychology (English) | : 26 programs |
| English | : 26 programs |

- Production schedule: 130 programs in 2 years (26 × 5 subjects)

Out of School Youth Program

Elementary school graduates (for G-9 to G-12)

- Subjects

| | |
|---|---|
| English | : 26 programs |
| Amharic | : 26 programs |
| Biology | : 26 programs |
| Chemistry | : 26 programs |
| Geography | : 26 programs |
| History | : 26 programs |
| Mathematics | : 26 programs |

- Production schedule: 182 programs in 2 years (26 × 7 subjects)

Teacher training distance program

- Programs for obtaining teacher's license (upper grades of elementary school) and diploma: 48 programs (cassette tapes)
  Produced in Amharic, English, Oromo, Tigray languages
  (48 × 4 languages = 192 programs)

- Production schedule: 2001 – 2004 (including printed textbooks)

Non-formal Programs (3 subjects per year, contents renewed annually)

- Subjects

  Health (20 min.) : 52 programs

  Civics (20 min.) : 52 programs

  Environmental issues (20 min.) : 52 programs
- Production schedule: programs for 3 subjects to be produced each year ($3 \times 52 = 156$/year)

b) TV production schedule

Secondary School Programs(G-9 to G-12)

(Programs for G-11 and 12 will be produced after the curriculum revision in 2001.)

- Subjects (language: English)

  English (15 min.) : 20 programs for each grade (video cassette)

  Mathematics (15 min.) : 20 programs for each grade

  Physics (15 min.) : 20 programs for each grade

  Biology (15 min.) : 20 programs for each grade

  Chemistry (15 min.) : 20 programs for each grade
- Production schedule : 100 programs per year ($20 \times 5$ subjects)

  G-9: 1999－2000 G-11: 2001－2002

  G-10: 2000－2001 G-12: 2002－2003

For Teachers

- Subject: Teacher English Skill Upgrading Program

  20 programs per year (joint production with Addis Ababa University)

(b) Afar Regional Education Bureau (Semera Studio)

Elementary School (G-1 to G-6)

- Subjects

  Afaregna (15 min.) : 24 programs

  Amharic (15 min.) : 24 programs

Science (15 min.) : 24 programs (in Afaregna)
Social studies (15 min.) : 24 programs (in Afaregna)
English (15 min.) : 24 programs

Elementary Schools (G-7 and G-8)

- Subjects
  Afaregna (15 min.) : 24 programs
  Amharic (15 min.) : 24 programs
  Social studies (15 min.) : 24 programs (in Afaregna)
  Biology (15 min.) : 24 programs (in Afaregna)
  Chemistry (15 min.) : 24 programs (in Afaregna)
- Production schedule: programs for two grades to be produced per year
  (5 subjects × 24 × 2 grades = 240 programs/year)

(c) SNNP Regional Education Bureau (Mizan Teferi Studio)

Elementary School (G-1 to G-6)

Languages: Kafa, Maji, Benchi, Shaka

- Subjects
  Environmental science (15 min.) : 28 programs
  Science (15 min.) : 28 programs
  Social studies (15 min.) : 28 programs
- Production schedule: programs for one grade to be produced per year
  (3 subjects × 28 × 4 languages × 1 grade = 336/year)
  (Biology will be added in the future.)

(d) Addis Ababa Education Bureau (Addis Ababa Studio)

Elementary School (G-1 to G-4)

- Subjects
  English (15 min.) : 28 programs
  Amharic (15 min.) : 28 programs
  Environmental science (15 min.) : 28 programs (Amharic)

Elementary School (G-5 to G-8)

- Subjects

| | |
|---|---|
| English (15 min.) | : 28 programs |
| Amharic (15 min.) | : 28 programs |
| Science (15 min.) | : 28 programs (Amharic) |
| Social studies (15 min.) | : 28 programs (Amharic) |

- Production schedule: programs for two grades to be produced per year
  (4 subjects × 28 × 2 grades = 224/year)

For the General Public (Saturdays and Sundays)

| | |
|---|---|
| Current topics (15 min.) | : 226 programs (Amharic) |
| Technological innovation (15 min.) | : 226 programs (Amharic) |
| Social issues (15 min.) | : 226 programs (Amharic) |
| Gender issues (15 min.) | : 226 programs (Amharic) |

- Production schedule: 226 programs (4 subjects) to be produced per year

(e) Gambella Regional Education Bureau (Gambella Studio)

Elementary School (G-1 to G-8)

- Subjects

| | |
|---|---|
| Anua language (15 min.) | : 28 programs |
| Nueregna (15 min.) | : 28 programs |
| Social studies (15 min.) | : 28 programs (Anua) |
| Social studies (15 min.) | : 28 programs (Nueregna) |
| Science (15 min.) | : 28 programs (Anua) |
| Science (15 min.) | : 28 programs (Nueregna) |

- Production schedule: programs for two grades to be produced per year
  (6 subjects × 28 × 2 grades = 336/year)

(f) Harar Regional Education Bureau (Harar Studio)

Elementary school (G-1 to G-4)

- Subjects

| | |
|---|---|
| Hararli language (15 min.) | : 28 programs |
| Environmental science (15 min.) | : 28 programs (in Hararli) |
| Social studies (15 min.) | : 28 programs (in Hararli) |

Elementary school (G-5 to G-8)

- Subjects

  Hararli language (15 min.) : 28 programs
  Science (15 min.) : 28 programs (in Hararli)
  Social studies (15 min.) : 28 programs (in Hararli)

- Production schedule: programs for two grades to be produced per year (3 subjects × 28 × 2 grades = 168/year)

General Public (Saturdays and Sundays)

- Subjects

  Health (15 min.) : 52 programs
  Gender issues (15 min.) : 52 programs
  Current topics (15 min.) : 52 programs

- Production schedule: 78 programs (3 subjects) to be produced per year (156 in 2 years)

(g) Dire Dawa Regional Education Bureau (Dire Dawa Studio)

Elementary school (G-1 to G-4)

- Subjects

  Oromigna (15 min.) : 28 programs
  Amharic (15 min.) : 28 programs
  Somali language (15 min.) : 28 programs
  Environment science (15 min.) : 28 programs

Elementary school (G-5 to G-8)

- Subjects

  Oromigna (15 min.) : 28 programs
  Amharic (15 min.) : 28 programs
  Somali language (15 min.) : 28 programs
  Social studies (15 min.) : 28 programs
  Science (15 min.) : 28 programs
  Biology (15 min.) : 28 programs

- Production schedule: programs for two grades to be produced per year (6 subjects × 28 × 2 grades = 336year)

(h) Oromia Regional Education Bureau (Alemaya Studio)

Elementary school (G-1 to G-4)

- Subjects

| | |
|---|---|
| Oromigna (15 min.) | : 28 programs |
| English (15 min.) | : 28 programs |
| Environmental studies (15 min.) | : 28 programs |
| Social studies (15 min.) | : 28 programs |

Elementary school (G-5 to G-8)

- Subjects

| | |
|---|---|
| Oromigna (15 min.) | : 28 programs |
| English (15 min.) | : 28 programs |
| Science (15 min.) | : 28 programs |
| Social studies (15 min.) | : 28 programs |
| Geography (15 min.) | : 28 programs |
| Biology (15 min.) | : 28 programs |

- Production schedule: programs for two grades to be produced per year
  (6 subjects × 28 × 2 grades = 336year)

6) Scope of Assistance at each Site

To summarize the above, the annual production schedule of EMA and the Regional Education Bureaus is shown in Table 2-2-4:

Table 2-2-4 (1) Annual Production Schedule of Radio Programs

| Radio Programs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary school | Secondary school | Teachers | Distant education | Non-formal | General public | Diploma teacher's training | Total |
| EMA | 130 (IRI) | 120 | 75 | 91 | 156 | 226 | 192 | 990 |
| Afar Regional Education Bureau (Semera Studio) | 240 | — | — | — | — | — | — | 240 |
| SNNP Regional Education Bureau (Mizan Teferi Studio) | 336 | — | — | — | — | — | — | 336 |
| Addis Ababa Education Bureau (Addis Ababa Studio) | 224 | — | — | — | — | 226 | — | 450 |
| Gambella Regional Education Bureau (Gambella Studio) | 336 | — | — | — | — | — | — | 336 |
| Harar Regional Education Bureau (Harar Studio) | 168 | — | — | — | — | 78 | — | 246 |
| Dire Dawa Regional Education Bureau (Dire Dawa Studio) | 336 | — | — | — | — | — | — | 336 |
| Oromia Regional Education Bureau (Alemaya Studio) | 336 | — | — | — | — | — | — | 336 |

Table 2-2-4 (2) Annual Production Schedule of TV Programs

| TV Programs | | | | |
|---|---|---|---|---|
| | Elementary school | Junior high school | Teachers | Total |
| EMA | — | 100 | 20 | 120 |
| Tigray Regional Education Bureau (Mekelle Studio) | 20 (For G7~G8) | — | — | 20 |

Considering the fact that each region is planning to produce more than 200 programs annually and that EMA and regional recording studios are almost fully occupied, it would be impossible for the regions to produce educational programs as planned without own production equipment.

In order to eliminate regional disparities in education opportunities, quality, equality, and efficiency of education by broadcasting educational programs, each region needs to be equipped with its own production facilities.

However, as the construction of Mekelle TV studio is not likely to be completed in the near future, minimum TV equipment will be procured there, which will be shared in some sections of the existing radio studio of Tigray Regional Education Bureau.

In view of the above, the scope of assistance for each project site will be as follows:

- EMA : Procurement of radio and TV production equipment
- Semera Studio : Procurement of radio production equipment
- Mizan Teferi Studio : Procurement of radio production equipment
- Gambella Studio : Procurement of radio production equipment
- Harar Studio : Procurement of radio production equipment
- Dire Dawa Studio : Procurement of radio production equipment
- Alemaya Studio : Procurement of radio production equipment
- Addis Ababa Studio : Procurement of radio production equipment
- Mekelle Studio : Procurement of minimum TV production equipment

Although the request included the procurement of equipment for the two radio studios (Studio No. 1 and No. 2) of EMA, Studio No. 1 is excluded from this project, as state-of-the-art radio program production equipment was provided for Studio No. 1 by

USAID in 2000.

(2) Basic Policies on Site Selection

1) Status of Project Sites

Table 2-2-5 shows the present situation of each project site.

Table 2-2-5 (1) Present Status of Radio Studio Sites

| | EMA Radio Studio | Addis Ababa Education Bureau |
|---|---|---|
| 1. Project Site | EMA Head Office | Addis Ababa |
| 2. Address | Addis Ababa, P.O. Box 3025 | — |
| 3. Latitude/longitude | Lat. 09° 00' 47" N<br>Long. 38° 44' 32" E | Lat. 09° 01' 04" N<br>Long. 38° 44' 29" E |
| 4. Altitude | 2,346m | 2,380m |
| 5. Topography/soil condition | Flat/Normal | Slope/Normal |
| 6. Present status | The building was initially constructed as a technical school in 1942 and later renovated into two radio studios and one TV studio in 1966.<br>Radio studios are installed with styrene foam boards to improve their acoustic characteristics, and curtains are hung all around the rooms for sound absorption.<br><br>• Studio No. 1: Floor Area 31.85m$^2$ (7m×4.55m)<br>Sub-control Room: Floor Area 16.24 m$^2$ (3.6m×4.55m)<br>This studio has been upgraded with IRI production equipment donated by USAID in FY 2000/2001.<br><br>Equipment donated by USAID<br>Sound mixer (STUDER 962 model) 1 set<br>CD player (TASCAM CD-RW2000) 1 set<br>CD player (MALANZ CDPXE500) 1 set<br>Cassette tape recorder (TASCAM 122MARK3) 1 set<br>CD editor (PROTCOLS) 1 set<br><br>• Studio No. 2: Floor Area 31.85m$^2$ (7m×4.55m)<br>Sub-control Room: Floor Area 16.24m$^2$ (3.6m×4.55m)<br>This studio is equipped with one 8-ch sound mixer, three open-reel tape recorders, one cassette tape recorder, and three microphones, some of which are superannuated beyond repair due to unavailability of spare parts. Procurement of equipment comparable to that of Studio No. 1 is necessary.<br><br>• Duplication Room<br>One set each of cassette tape duplicating machine (OTARI DP-8-74H) and cassette printer (SONY CCP-13B) were donated by USAID to make copies of IRI programs to be distributed to elementary schools.<br>The project will install a CD duplicating device in this room. | A 3-storied building situated in Addis Ababa City about one kilometer north of EMA head office was built initially as an elementary school but is now vacant and will be used as a radio studio. The 300-meter access road to the site is a narrow stone-paved road, allowing only 4WD vehicles. Therefore, equipment will be carried in either by pickup truck or manpower.<br><br>Site area: 4000m$^2$<br>Total floor area: 448 m$^2$<br>Ground floor: 2 rooms (7m×8m, 56m$^2$/room)<br>To be used as a radio studio and sub-control room.<br>1st floor: 3 rooms (7m×8m, 56m$^2$/room)<br>To be used as a CD editing/duplicating room, maintenance room, and library.<br>2nd floor: 3 rooms (7m×8m, 56m$^2$/room) To be used as offices.<br><br>Stairs (15 meters) are built to connect the entrance gate to the building on a slope. Thus, the equipment needs to be carried in by manpower. |
| 7. Works to be carried out by the Ethiopian side | • Remove of existing equipment from Sub-control Room of Radio Studio No.2 | • Renovate the 1st floor into a radio studio and sub-control room.<br>• Renovate the 2nd floor room into CD editing/duplicating room and maintenance room.<br>• Install ground connection to the equipment.<br>• Install service lines of commercial electric power, water, telephone, and other facilities. |
| 8. Appropriations | Above works can be carried out by the EMA staff, thus requiring no additional funding | Addis Ababa Education Bureau has appropriated 1 million Birr for the renovation work. |
| 9. Transmitting station for transmission of produced programs | Programs are broadcasted from 11 transmitting stations throughout Ethiopia. | Legadadi Transmitting Station (Oromia Region) |
| 10. Transportation of equipment/materials<br>• Access road | All access roads to the site are paved completely, allowing delivery by truck. | Trucks can approach up to 300 meters from the site, but 300-meter access road to the site only allows 4WD vehicles. |
| • When to become ready for delivery | Any time | Any time |

Table 2-2-5 (2) Present Status of Radio Studio Sites

| | Afar Regional Education Bureau | Dire Dawa Regional Education Bureau |
|---|---|---|
| 1. Project Site | Semera | Dire Dawa |
| 2. Address | N/A | Higher 1 Kebele 23, Hariam Sefer |
| 3. Latitude/longitude | Lat. 11° 48' 02" N<br>Long. 41° 00' 12" E | Lat. 09° 40' 15" N<br>Long. 41° 55' 32" E |
| 4. Altitude | 449m | 1,012m |
| 5. Topography/soil condition | Flat/Sandy (desert) | Flat/Normal |
| 6. Present status | As part of the plan to transfer the regional capital from Asaita to Semera and develop the Semera district, construction of a radio studio is being planned, and the site has already been secured.<br>Site area: 10,000m$^2$(100m×100m)<br>The studio building will be of EMA-standard design.<br>Meteorological Agency building has already been constructed on the back side of the site. | A site is secured near Dire Dawa Airport. (Site area: 3,640m$^2$, currently a cactus field).<br>The site is surrounded by factories and a hospital, and power lines are installed to the site to run the equipment.<br>The access roads are paved to allow delivery of the equipment.<br>Construction work of the studio has yet to commence.<br>The studio building will be of EMA-standard design.<br><br>The site is about five kilometers away from Dire Dawa Regional Education Bureau. |
| 7. Works to be carried out by the Ethiopian side | • Construct a studio building of EMA-standard design (including fences).<br>• Install ground connection to the equipment.<br>• Install service lines of commercial electric power, water, telephone, and other facilities. | • Construct a studio building of EMA-standard design (including fences).<br>• Install service lines of commercial electric power, water, telephone, and other facilities. |
| 8. Appropriations | Public announcement was made on the June 8th 2001 edition of *The Ethiopian Herald* to invite tenders for the construction of the radio studio.<br>Currently, a successful bidder is being selected.<br>The construction work will take 365 days.<br>The regional government appropriated 1.5 million Birr for the construction work. | • Ethiopian Social Rehabilitation and Development Fund Dire Dawa Regional Office(ESRDFDDRO)will bear 100% of the construction cost (1.5 million Birr).<br>• The construction work will take 365 days. |
| 9. Transmitting station for transmission of produced programs | Dese Station (Amhara Region) | Alemaya Station (Oromia Region) |
| 10. Transportation of equipment/materials | | |
| • Access road | The site is situated about one kilometer into the desert from the main road connecting Addis Ababa and Djibouti. Although the roads are not paved, delivery by truck is possible. | Delivery by truck is possible although the roads are not paved. |
| • When to become ready for delivery | Delivery can take place any time, as it is located in a desert area with no rainy season. | Any time |

Table 2-2-5 (3) Present Status of Radio Studio Sites

| | Gambella Regional Education Bureau | Harar Regional Education Bureau |
|---|---|---|
| 1. Project Site | Gambella | Harar |
| 2. Address | Higher 1 Kebele 2 | Higher 2 Kebele 14 |
| 3. Latitude/longitude | Lat. 08° 15' 09" N<br>Long. 34° 32' 15" E | Lat. 09° 14' 23" N<br>Long. 42° 09' 45" E |
| 4. Altitude | 820m | 820m |
| 5. Topography/soil condition | Flat/Normal | Flat/Normal |
| 6. Present status | Site area: 2,000m$^2$ (100m×200m)<br>The studio building of EMA-standard design was constructed in November 1999 (spending 1.5 million Birr from the regional budget).<br>Water lines have been installed.<br>Commercial power lines have yet to be installed (the studio is about 200 meters away from the nearest electric power pole).<br>The access road to the studio is narrow (the last 100 meters are unpaved and muddy). To allow delivery by trucks, the road needs to be improved.<br>A radio transmitting station was also constructed in November 1999, spending one million Birr of regional budget. However, there is no prospect of raising additional funds for purchasing transmitting equipment.<br><br>The site is about five kilometers away from Gambella Regional Education Bureau. | A section of the existing one-storied building of Regional Public Relations Bureau in Harar city will be used as the radio studio. The building is made of concrete and provided with high ceiling structure (about 5 meters), which is suited for a recording studio.<br>The site is situated in downtown area and connected to paved roads to allow smooth delivery.<br>Radio studio : 25.65m$^2$ (5.7m×4.5m)<br>Sub-control room : 22.23m$^2$ (5.7m×3.9m)<br>CD editing/duplicating room : 22.23m$^2$ (5.7m×3.9m)<br>Maintenance room : 22.23m$^2$ (5.7m×3.9m)<br><br>The site is about one kilometer away from Harar Regional Education Bureau. |
| 7. Works to be carried out by the Ethiopian side | • Install service lines of commercial electric power, telephone, etc.<br>• Improve the access road (100-meter section to the site). | • Renovate three rooms of the existing building (radio studio, sub-control room, and CD editing/duplicating room).<br>• Install service lines of commercial electric power, water, telephone, etc. |
| 8. Appropriations | Power line installation has been ordered to the electric company.<br>No money has been appropriated for the improvement of the access road. | The renovation work has already been commenced by a local construction company (Yonis General Contractor) who made a successful bid and concluded a construction agreement with the regional government on January 20, 2001.<br>Construction period: 365 days<br>Construction cost: 291,918.48 Birr (paid by Harar regional government) |
| 9. Transmitting station for transmission of produced programs | Gore Station (Oromia Region) | Alemaya Station (Oromia Region) |
| 10. Transportation of equipment/materials<br>• Access road<br>• When to become ready for delivery | The narrow muddy road to the building (100 m) does not allow delivery by truck.<br><br>Any time | All access roads to the site are paved completely, allowing delivery by truck.<br><br>Any time |

## Table 2-2-5 (4) Present Status of Radio Studio Sites

| | Oromia Regional Education Bureau | SNNP Regional Education Bureau |
|---|---|---|
| 1. Project Site | Alemaya | Mizan Teferi |
| 2. Address | Higher Special Kebele 01 | Mizan Teferi P.O. Box 104 |
| 3. Latitude/longitude | Lat. 09° 29' 18" N<br>Long. 42° 02' 03" E | Lat. 06° 59' 31" N<br>Long. 35° 35' 29" E |
| 4. Altitude | 1,005m | 1,422m |
| 5. Topography/soil condition | Gentle Slope/Normal | Flat/Normal |
| 6. Present status | A site is secured in a eucalyptus field on the lakeside about two kilometers from the existing Alemaya Radio Transmitting Station halfway between Dire Dawa and Harar.<br>Site area: 2196m$^2$ (61m×36m)<br>Power lines are available on the site to run the equipment.<br>Delivery by truck is possible although access roads are not paved.<br>The studio building will be of EMA-standard design. | Three rooms in an existing one-storied building within the premises of Mizan Teferi Bench Maji Zone Education Bureau will be renovated into a radio studio, sub-control room, and CD editing/duplicating room. |
| 7. Works to be carried out by the Ethiopian side | • Construct a studio building of EMA-standard design (including fences).<br>• Install ground connection to the equipment.<br>• Install service lines of commercial electric power, water, telephone, and other facilities. | • Renovate existing facilities: 3 rooms (3m×4m、12m$^2$/room) Total: approx. 40m$^2$<br>• Install ducts for wiring the equipment.<br>• Install commercial power lines for the equipment. |
| 8. Appropriations | Construction cost is not appropriated.<br>*Construction period: 365 days* | Construction cost: 1800Birr/m$^2$×40 m$^2$=72,000 Birr<br>*No budget has been appropriated.* |
| 9. Transmitting station for transmission of produced programs | Alemaya Station (Oromia Region) | Sodo Station (SNNP Region), Gore Station (Oromia Region) |
| 10. Transportation of equipment/materials<br>• Access road<br>• When to become ready for delivery | Delivery by truck is possible although roads are not paved.<br>Any time | Delivery by truck is possible although roads are not paved.<br>Any time |

Table 2-2-5 (5) Present Status of TV Studio Sites

| | EMA TV Studio | Tigray Regional Education Bureau |
|---|---|---|
| 1. Project Site | EMA Head Office | Mekelle |
| 2. Address | Addis Ababa P.O. Box 3025 | N/A |
| 3. Latitude/longitude | Lat. 09° 00' 47" N<br>Long. 38° 44' 32" E | Lat. 13° 29' 15" N<br>Long. 39° 8' 20" E |
| 4. Altitude | 2,364m | 2,081m |
| 5. Topography/soil condition | Flat/Normal | Flat/Normal |
| 6. Present status | • TV Studio: 103.4m$^2$ (11m×9.4m) Ceiling height: 4m<br>The ceiling height is too low to install a new structure to hang lighting instruments (usually 8 to 10 meters are required), as the building was not constructed as a TV studio.<br>A pipe grid is installed on the ceiling, onto which lighting instruments are hung directly. The existing pipe grid will be used for the project.<br>• TV sub-control room: 56m$^2$ (8m×7m)<br>The equipment of this room consists of Japanese products such as by NEC, SONY etc., most of which, however, are not functioning properly due to aging. Thus, all the equipment needs to be renewed.<br>• Master control room: 10.5m$^2$ (3m×3.5m)<br>It is equipped with NEC program sending-out equipment. The equipment is impossible to maintain or repair, as the supply of spare parts has been discontinued because of expiry of running period. Frequent breakdowns result in interruption of broadcasting. | • If constructing a TV studio:<br>A TV studio will be built within the premises of the existing radio studio (100m×100m).<br>• If using the existing building:<br>The existing radio studio and sub-control room will be used in part for TV studio.<br>The room next to the radio studio will be used as a video editing room.<br>Service lines of commercial electricity and water have already been installed. |
| 7. Works to be carried out by the Ethiopian side | • Remove existing equipment in the Sub-Control Room, Rack Room, Master Control Room, and Video Tape Editing Room of the TV Studio.<br>• Expand and renovate the TV Master Control Room (4m×4.5m). | • If constructing a TV studio:<br>Design and construct a TV studio building.<br>• If using the existing radio studio:<br>Provide a through-hole for installing cables connecting the sub-control room and the video editing room. |
| 8. Appropriations | The above works can be carried out by the EMA staff, thus requiring no additional funds. | • If constructing a TV studio:<br>Appropriate fund for the construction work.<br>• If using the existing radio studio:<br>No appropriations will be necessary. |
| 9. Transmitting station for transmission of produced programs | Rent the TV broadcast networks of Ethiopian Television (ETV) and Ethiopian Telecom (ETC). | It is necessary to secure the TV transmitting facilities for transmission of produced TV programs. |
| 10. Transportation of equipment/materials | | |
| • Access road | All access roads to the site are paved completely, allowing delivery by truck. | All access roads to the site are paved completely, allowing delivery by truck. |
| • When to become ready for delivery | Any time | Any time |

2) Priority Sites

As the result of the site survey, it was confirmed that the following sites have completed the works to be done by the Ethiopian side which were agreed upon the Ethiopian side and Japanese side at the preliminary study in May 2000 consisting of: ① preparation of studio building in which the equipment will be installed, ② securing of the transmitting facilities for produced programs:

Radio Studio:

- EMA Radio Studio
- Gambella Radio Studio

TV Studio:

- EMA TV Studio

In case of utilization of the existing radio studio common to TV studio, Mekelle TV Studio will clear the first condition above, but does not secure the transmitting facilities for produced programs.

Regarding the other sites, preparatory works have progressed in some sites while little progress has been made in other sites since the preliminary study in May, 2000. (refer to Table 2-2-6)

[Radio Studios]

(a) Sites where a studio building is being constructed or renovated:

- Harar Radio Studio (modification of existing building)

  Yonis General and Harar Regional Development Bureau had concluded the contract for the modification work on January 20, 2001 and the modification work has already commenced.

  According to the Contract document, the contract amount is 287,393 Birr and the modification work will take 12 months and be completed on January 30, 2002.

- Semera Radio Studio (construction of studio building)

  Announcement to invite tenders for the studio construction was made public on The Ethiopia Herald on June 8, 2001. The successful bidder is now being selected and will be finalized in October 2001. The studio

building will be of EMA-standard design. The construction work will cost 1.5 million Birr, for which an appropriation has already been made.

(b) Sites where construction/renovation work has yet to commence, but appropriations have been made:

- Addis Ababa Radio Studio (modification of existing building)
  The existing building with a total floor area of 448m$^2$ (ground floor: 112 m$^2$, 1st floor: 168 m$^2$, 2nd floor: 168 m$^2$) needs to be renovated into a recording studio with interior finishing, proper sound-proofing and acoustic work.
  Local contractors have estimated the construction cost at one million Birr, for which an appropriation has already been made. Prompt drafting of construction schedule and commencement of the renovation work are urged.

- Dire Dawa Radio Studio (construction of studio building)
  An EMA-standard studio building will be constructed. The construction work will cost 1.5 million Birr, for which an appropriation has already been made.
  Prompt drafting of construction schedule and commencement of the construction work are urged.

(c) Site for which appropriations for studio renovation are needed:

- Mizan Teferi Radio Studio (modification of existing building)
  Although the total floor area of the existing building to be renovated is only 40m$^2$ (12m$^2$ × 3 rooms), the renovation work will include interior finishing, sound-proofing and acoustic work.
  Local contractors estimated the renovation cost at 85,000 Birr (2,150Birr/m$^2$ × 40m$^2$) and the construction period at 3 months.
  Prompt drafting of construction schedule and commencement of the construction work are urged.

(d) Site for which a land space for a studio building has been secured:

- Alemaya Radio Studio (construction of studio building)

A budgetary appropriation of 1.5 million Birr needs to be made for constructing an EMA-standard radio studio building.

Securing an appropriation and prompt drafting of construction schedule and commencement of the construction are urged.

[TV Studio]

- Mekelle Studio

The design of TV Studio building is different from the design of ordinary buildings.

It needs the special design know-how such as acoustic design, structural design, etc. and therefore takes longer time than the design of ordinary buildings.

Standard construction period of TV Studio building (1,000m$^2$) in Japan is shown below.

| | |
|---|---|
| Design Period | : minimum 6 months |
| Tender Period | : about 3 months |
| Construction Period | : minimum 12 months |

It takes minimum 21 months from design to completion.

There is no design company with enough skill to design TV Studio in Ethiopia.

If Tigray Education Bureau intends to construct TV Studio building by itself, it will take longer than 21 months.

In addition, construction cost depends on the scale of TV Studio but it will be minimum 10 million to 20 million Birr.

Considering the above factors, it is recommended and practical to share the existing Radio Studio building with TV Studio in this project.

Table 2-2-6 Necessary Measures on Preparation of Studio Building at Each Site

| Sites \ Items | Type of Studio Building | Appropriation | Expected period of Construction/modification Work (month) |
|---|---|---|---|
| Harar Radio Studio | Modification of Existing Building | 287,393 Birr (allocated) | Modification work period |
| Semera Radio Studio | Construction of EMA Standard Type | 1,500,000 Birr (allocated) | Construction work period |
| Addis Ababa Radio Studio | Modification of Existing Building | 1,000,000 Birr (allocated) | Design → Tender/Contract → Modification work period |
| Dire Dawa Radio Studio | Construction of EMA Standard Type | 1,500,000 Birr (allocated) | Tender/Contract → Construction work period |
| Mizan Teferi Radio Studio | Modification of Existing Building | 85,000 Birr (not allocated) | Design → Tender/Contract → Modification work period |
| Alemaya Radio Studio | Construction of EMA Standard Type | 1,500,000 Birr (not allocated) | Tender/Contract → Construction work period |
| Mekelle TV Studio | Construction of TV Studio | 10,000,000 ~ 20,000,000 Birr (not allocated) | Design → Tender/Contract → Construction work period |

3) Sites where the project can be implemented:

As mentioned above, the scope of works for the Ethiopian side for this project includes the preparation of studio buildings. Unless the buildings are in place, equipment cannot be installed. To this effect, the sites where the project can be implemented as of November, 2001 are:

① MA Radio Studio
② Gambella Radio Studio
③ EMA TV Studio

(3) Basic Policies on the Selection of Equipment

1) Basic Approach

In selecting equipment and designing program production systems, the project sites such as TV/radio studios of EMA and eight Regional Education Bureaus, were surveyed as well as the existing radio transmitting stations (Legadadi, Alemaya, etc.) and existing EMA-standard radio studio buildings (Sendafa, Dese, etc). Program production equipment of Ethiopian National TV and Ethiopian National Radio Stations were also inspected. Based on the above studies, the contents of the equipment to be procured were selected and the following guidelines were established:

(a) Selection of equipment and system configuration shall be in line with the objectives of this project and produce the optimum results in terms of cost vs. effect while taking into account the capabilities of the production staff of EMA and Regional Education Bureaus, as well as the number and the contents of the programs to be produced.

(b) In selecting equipment and system configuration, the present conditions and operating conditions of existing equipment and the technical capabilities of the local staff as well as easy and inexpensive maintenance, availability of spare parts, and expandability for the future, shall be taken into consideration.

(c) The system configuration shall be designed in such a way that new and existing equipment will operate in coordination as part of the whole system. In addition, installation of new equipment shall not require major work.

(d) Equipment to be selected shall conform to the following recommendations or standards:

a) Equipment related to radio communications (STL Microwave Link):
- ITU－R (International Telecommunication Union－R) Recommendations

b) Program production equipment (camera, video switcher, audio mixer, VTR, etc.):
- IEC (International Electromechanical Committee) Recommendations
- Recommendations of International Electrotechnical Commission (a related organization of ISO) for electronics and electric devices
- International standards with regard to video and audio signals used in broadcasting and telecommunications.

c) Standards and testing procedures for electronic devices used in the equipment to be procured:
- Japan Industrial Standard (JIS)
- Standard of Electronic Industries Association of Japan (EIAJ)

2) Guidelines for Selecting Equipment

(a) Selection of digital equipment

Most manufacturers of program production equipment have switched from analog to digital equipment. Ethiopian National TV and Radio Stations have begun using digital equipment as well.

Most of the existing equipment at EMA is analog, but most items are no longer available on the market. Thus, this project will procure mostly digital equipment for the following reasons:

(Merits adopting the digital equipment)
- Video and audio qualities are significantly better than those obtained by analog equipment.
- Various effects, which cannot be manipulated with analog equipment, can be added to the programs, thereby making them more interesting and stimulating to the viewers (students).
- Function and performance of digital equipment deteriorate more slowly

than analog equipment, thereby requiring less maintenance work and cost.

- Digital equipment is less expensive than analog equipment of equivalent specification.

(b) Selection of audio recording media

Open reel tapes currently being used are becoming harder to obtain, as the manufacturers are discontinuing their production.

Aside from open reel tapes, CD, DAT, and other audio recording media are now available.

This project will choose CD as the audio recording medium on account of;

a) Studio No.1 in EMA upgraded by USAID has already been installed with CD equipment.

b) The CD disc is the least expensive medium in Ethiopia.

Open-Reel Tape/DAT/CD Price Comparison

| | |
|---|---|
| Open reel tape (30 min.) | 120 Birr |
| DAT (30 min.) | 100 Birr |
| CD (60 min.) | 40 Birr |

(Data provided by distributors in Addis Ababa)

(c) Selection of professional type equipment

The audio/video equipment is generally graded as follows according to tits application.

a) Home type

Being used in homes

b) Industrial type

Being used widely in schools, companies for security purposed, etc.

c) Professional type

Being used mainly in production houses, broadcasting station on smaller scale, etc.

d) Broadcast type

Being used in major radio and TV Broadcasting stations, production companies, etc.

As technology advances, professional type equipment have now the performance comparable to that of broadcast type equipment commonly used in broadcasting stations for program production. They come in a variety of types and specifications and can be combined to build a complete system.

In fact, some program production companies and provincial FM, and community broadcasting stations in Japan are using professional type equipment to produce programs.

Spare parts for such devices are obtainable from distributors within Ethiopia.

3) Basic Requirement for the Equipment

(a) Reliability

All related equipment shall be made of common or compatible parts and have a consistent finish as much as possible to build a coordinated system suitable for its purposes.

a) Spare units and replacement parts shall be of a universal or compatible type.
b) System components shall be of a modular or solid state type.
c) Spare parts shall be guaranteed for10-year continuous supply.

(b) Safety

Maximum mechanical and electrical protection to ensure the safety of maintenance staff shall be provided.

a) Lighting instruments and other equipment that are hung in high places shall be installed with anti-fall mechanisms.
b) Racks, consoles, and monitor shelves, except for those that need to be moved around for servicing, shall be fixed on the floor.
c) Terminal connectors of the power source (220V 50Hz) shall properly be covered to prevent electric shock.

(c) Mechanical Requirements

a) Heights of the operating tables, monitor shelves, and control panels of equipment placed on racks shall be set to allow easy viewing and operation.

b) Opening and closing of doors and operating of control panels and switches shall be smooth and easy. Equipment to be housed in racks shall have guide rails or other fixtures to allow easy mounting and dismounting without damaging the connectors.

c) Air filters as necessary to equipment and instruments that use forced ventilation to prevent dust from entering shall be attached.

(4) Policies on Equipment Procurement

1) Status of Existing Equipment

(a) Existing Radio Program Production Equipment

- EMA Radio Studio No.2

| | | |
|---|---|---|
| Audio mixer | : | HARIS (made in U.S. A.) |
| Open reel tape recorder | : | OTARI (made in Japan) |
| Cassette tape recorder | : | TASCAM (made in Japan) |
| Microphone | : | Audio Techinca (made in Japan) |
| | | SHURE (made in U.S. A.) |

- EMA Radio Studio No.1 donated by USAID

| | | |
|---|---|---|
| Audio mixer | : | STUDER (made in Switzerland) |
| CD player | : | TASCAM (made in Japan) |
| Cassette tape recorder | : | TASCAM (made in Japan) |
| CD editing machine | : | PROTOOL (made in U.S. A.) |

(b) Existing TV Equipment

| | | |
|---|---|---|
| Color camera | : | NEC and JVC (made in Japan) |
| VTR | : | SONY (made in Japan) |
| Video switcher | : | NEC (made in Japan) |
| Audio mixer | : | TAMURA (made in Japan) |
| Microphone | : | SONY (made in Japan) |
| Lighting equipment | : | RDS (made in Japan) |

Equipment for master control room

: NEC (made in Japan)

Color monitor : SONY (made in Japan)

2) Agents

The following distributors have business relationships with EMA:

- Glorius PTV Co. (SONY Agent)
- Trade & Development Service International PLC (SONY Agent)
- Axis International
- Advanced Semiconductor (Europe) LTD
- Beta Electrical Control and Service Engineering

3) Procurement of Equipment

TV and radio program production equipment procured for this project is not manufactured in Ethiopia. As mentioned above, most of existing equipment procured are made in Japan, while some come from the United States and Switzerland.

It was confirmed through the survey that spare parts and units of these items are obtainable from the local agents of the manufacturers.

Therefore, the TV and radio production equipment for this project will be procured from Japan or third countries, countries in Europe or the United States.

(5) Policies on Customs Clearance Procedure

Every goods imported to Ethiopia shall be subject to taxation. The import taxes (the rates of which differ depending on the type of equipment; refer to Table 2-2-7) must be paid by the beneficiaries, who will need to make appropriations for such payment.

In this project, the Ministry of Education will pay duties on the equipment for the EMA, and respective Regional Education Bureaus will pay tariffs on their own equipment. The Ministry of Education is in charge of coordinating and managing the overall payment processes.

The customs clearance procedure is as follows:

When the equipment arrives at Djibouti Port, a local transport company will complete an import duties sheet and submit it to the customhouse along with a bill of lading, invoice, and packing list (at this point, the equipment is stored in the Ethiopian territory of Djibouti Port).

Based on these documents, the customhouse officials will inspect the equipment, calculate the tariff on each equipment item, the rate of which ranges from 5% to 80%, and notify the Ministry of Education of the total amount due.
The Ministry of Education will pay the duties to the customhouse in cash if it has enough reserves, or send a letter of intention to pay if it is short of cash.
Upon receiving cash or a letter of intention, the customhouse will issue an import permit to the local transport company, which will transfer the equipment to Ethiopia (however, the equipment will be retained in the bonded warehouse if the tariffs are not paid). The equipment carried into Ethiopia will be inspected again at the customhouse in Addis Ababa and then handed over to the owner (i.e. Ministry of Education).

The documents submitted to the customhouse will be sent to the Ministry of Revenue, which was recently organized in October 2001. Based on these documents, the Ministry of Financial and Economic Development will put the amount of tariffs paid by the Ministry of Education and the Regional Education Bureaus from their budgetary accounts to the account of internal revenues.

If these procedures are not completed within 30 days after the arrival of the equipment at Djibouti Port, the Djibouti Port Authority will charge the Ministry of Education and the Regional Education Bureaus extended storage fees from the 31st day (storage is free for the first 30days after the arrival of equipment). According to the rule, imported goods that have been stored more than 180 days will be put up to auction.

Table 2-2-7 Tariff Rates (Excerpt from 1993 publication)

| Item | Rate |
|---|---|
| Microphone, speaker, amplifier | 20% |
| Record player, cassette tape recorder, open reel recorder | 40% |
| VTR, camera | 80% |
| Audio recording tape, Video tape, Record | 40% |
| TV receiving set, TV monitor | 40% |
| Signal Generator, Fuse | 5% |

(6) Policies on Infrastructure

Voltage fluctuation of main power supply was observed at each project site as follows:

| | | |
|---|---|---|
| Voltage rating in Ethiopia | : | 220V |
| Voltage fluctuation | : | Min. 206V(EMA TV Studio) to Max. 244V(Gambella Regional Education Bureau)<br>(Voltage was measured at each site or Regional Education Bureau.)<br>Fluctuation range: between -6% and +12% of rating. |

To protect radio and TV program production equipment from the voltage fluctuation, automatic voltage regulators (AVR) need to be installed. AVR is a device that regulates voltage that fluctuates within ±15% of rating to supply stable voltage to electronic appliances.

On equipment that have built-in computers, uninterrupted power supply systems (UPS) will be installed individually to protect stored data during a power outage.

(7) Policies on Natural Environment

1) Temperature and Humidity

In Ethiopia, the rainy season is from July to September followed by the dry season between October and June. The average annual temperature is 16 - 17 °C in Addis Ababa with little fluctuation throughout the year.

However, extreme temperature variations exist among the regions due to differences in elevation. In lower areas, such as Afar and Gambella, temperature can go up to as high as 40-45°C.

Some professional type equipment are not guaranteed to operate at 45°C or above, while EMA-standard radio studios are not provided with air-conditioners. It is recommended that air-conditioners be installed in the sub-control rooms of Semera and Gambella Radio Studios.

2) Earthquake

No earthquake has been recorded in Ethiopia for the past 100 years.

Thus, quake-proofing will not be considered on the equipment.