

## **Supporting Document 13.1**

### **Selection of Projects for F/S**

#### **A : Selection of Projects for F/S (First Step)**

##### **(1) Candidate Priority Projects**

The candidate priority projects were selected through discussion between ETC and Study Team.

Forty-six (46) priority areas have been proposed by ETC out of various projects planned under the 8<sup>th</sup> Telecommunications Development Plan for F/S by JICA Study Team. Additional 8 projects have also been proposed by JICA Study Team considering the Categories 2 to 4 below.

Candidate priority projects are listed in S.Table 13.1-1.

The candidate priority projects were selected through discussion between ETC and JICA Study Team. The proposed projects are categorized as follows;

- 1) Urban area/regional major town designated by the government for development (out of 8<sup>th</sup> Telecommunications Program). This includes:
  - New development of telecommunications
  - Capacity upgrade for clearing the waiting applicant
  - Rehabilitation of the existing network (OSP)
- 2) Minimization of digital divide by providing telecommunication services in rural area
- 3) Construction of major telecom infrastructure
- 4) Improvement of QoS (Quality of Service), and efficient operation of ETC

##### **(2) Selection of Projects for F/S**

As the first step, the following criteria are applied for the selection of project category:

- Government priority/urgency
- Improvement of the QOS/ Customer satisfaction
- Efficiency improvement of ETC
- Social benefit

Based on the above criteria, the evaluated results are summarized in S.Table 13.1-3.

Evaluation is based on absolute “score system” with the maximum 5 points for each criterion and the following view points are taken into consideration.

##### 1) Government Policy/Urgency:

Points on this criterion are evaluated by examining the conformity with the government policy such as Telecommunications Policy and National ICT Policy.

##### 2) Improvement of the QoS:

This criterion evaluates the contribution of the project in improving the telecommunications service quality, in terms of the reduction of fault occurrence probability, shortening of restoration time, improvement on call completion rate, and reduction of waiting time for subscriber connection, and accordingly giving the satisfaction to the customer.

##### 3) Efficiency improvement of ETC:

Higher score is given for the project category which is able to improve efficiency of the work in ETC and to improve cost performance.

##### 4) Social Benefit:

Points for this criterion are given depending on the level of social benefit that the project category is capable of providing. The level of social benefits can be evaluated for instance by the population of those that benefit from the Tele-access.

5) Technology Transfer:.

Higher score is given for the project category, which enforces transfer of technologies and skills that would later be applied to other future projects.

From the S.Table 13.1-3, following projects are the potential candidates for the F/S.

A: F/S for the development of telecommunication service for urban or regional town [from 8<sup>th</sup> development program]

B: F/S on a rural telecommunication system & introduction of PCOs in a selected area

D: F/S on a selected major national backbone transmission system

National backbone transmission system between Addis Ababa – Nazareth section is selected as the candidate for the F/S, since a heavy traffic will be loaded especially on the existing microwave link connecting Addis Ababa - Mt. Furi. Taking into account the increasing traffic and security of transmission network of a fiber optic transmission system is planned for Addis Ababa and Nazareth section, which is used as the part of backbone transmission system connecting for end PCs and local switches located along the route.

**B: Selection of Projects for F/S (Second Step)**

The list of 46 priority project areas have been further refined through the deep discussion and area-by-area evaluation by ETC and Study Team, and has been replaced by the highly priority projects of 23 areas. However, Debre Ziet is to be inclusive to Addis Ababa zone under the Master Plan. Accordingly 22 candidate towns/zone are to be further evaluated for the selection of one/two F/S objectives.

List of high priority project is shown in S.Table 13.1-2.

This study covers the whole nation including the major regional towns and rural areas. It is required that the ETC expands telecommunications network in rural area where 85% of the total population resides.

S.Table 13.2-1 shows the evaluation results. Addis Ababa, Nazareth, Mekele, and Bahir Dar are the towns highly ranked, which become possible candidates as the objectives of the F/S. While, ETC recommended 4 towns of Mekele, Bahir Dar, Dire Dawa and Awassa.

It would not be appropriate, due to the size of the city, to consider Addis Ababa as a typical model of the regional major towns where M/P has placed the program of further expansion of telecommunications network.

Thus, given the ground objective of the F/S which is to transfer technology and skills in order for the ETC to carry out nation wide expansion of telecommunications network by itself, proposal by the Study Team is as follows;

In Nazareth, existing fixed telephone network has enough capacity to cover all the waiting applicants, and mobile telephone is already in service. Bahir Dar and Mekele have more waiting applicants to limited existing facilities and are selected as areas for the F/S.

The final decision for determining the final candidates will be made through discussions between the Study Team and the ETC, before the commencement of the F/S.

The following shows the details of the evaluation criteria used for the candidate selection.

Evaluation is based on “score system” with the maximum 5 points for each criterion. Projects with highest scores are selected for consultation with ETC and determined for F/S.

**(1) Government Priority/Urgency:**

Projects for governmental policy or urgency are scored in five steps from the lowest 1 to the highest 5.

**(2) Waiting Applicants**

Priority for project implementation is placed on towns with more waiting applicants. Score corresponding to the amount of waiting applicants is distributed for evaluation as follows:

1: 1000 or less, 2: 1001-2000, 3: 2001-3000, 4: 3001-4000, 5: 4001 or more

**(3) Idle Capacity**

New subscriber connections are possible in existing switching with idle capacities (switching capacity – subscribers). Score corresponding to the amount of idle capacity is distributed for evaluation as follows:

1: 1000 or less, 2: 1001-2000, 3: 2001-3000, 4: 3001-4000, 5: 4001 or more

**(4) Demand Fulfillment**

Towns with lowest demand fulfillment rate will score the maximum 5 for evaluation. Rate = [current subscribers] / [subscribers at existing facilities + waiting applicants]

1: 0.81 or more, 2: 0.80-0.71, 3: 0.70-0.61, 4: 0.60-0.51, 5: 0.5 or less

**(5) Other Investment**

Regions with largest public investment per capita (in Birr) in road, electricity and other infrastructure and with advanced regional development will score the maximum 5. (Aspect of Development Issues in Ethiopia, IDR-Addis Ababa University, November 1999.)

1: 1000 or less, 2: 1001-2000, 3: 2001-3000, 4: 3001-4000, 5: 4001 or more

**(6) Transportation and Telecommunications Cost**

Towns are scored from the lowest 1 to the highest 5 in accordance with the per-person average expenditure on transportation and telecommunications.

Reference: Revised Report on the 1995/96 Household Income, Consumption and Expenditure Survey, June 1998, Central Statistical Authority)

1: 40 Birr or less, 2: 41-50 Birr, 3: 51-60 Birr, 4: 61-70 Birr, 5: 71 Birr or more

**S.Table 13.1-1 List of Candidate Priority Project**

(A) Feasibility Study for the development of telecommunication service for urban or regional town [from 8th development]												
(B) Study on a rural telecommunication system & introduction of PCOs in a selected rural area.												
(C) Feasibility study for the introduction of integrated network management system in Ethiopia.												
(D) Feasibility Study on a selected major national backbone transmission system.												
(E) Feasibility Study for the establishment of outside plant maintenance center (OPMC).												
(F) Preparation of manual for telecommunication civil construction work.												
(G) Feasibility study on the expansion of Internet service in Ethiopia												
(H) Feasibility study for the introduction of integrated customer service support system.												
(I) Feasibility study for the introduction of computerized work/project management system in ETC.												
No	Code No.	Region	EX.Name	Population ('000)	Switch (Exist)		Subs.	Waiting	Planned		Access Planned	
					Digital	Analog			Switch (LU)	WLL	Wire	
<b>(A) 8th Telecommunications Development Plan</b>												
1	4	N.R	Mekele	120	6,000	5,000	7,637	5,890	15,000	2,000	15,000	
2	4	N.R	Adwa	30	2,000	1,000	984	950	2,000		2,700	
3	4	N.R	Adigrat	46	2,000	2,000	1,930	296	2,000		2,000	
4	4	N.R	Axum	34	2,000	2,000	1,975	118	2,000		2,000	
5	4	N.R	Shire(Endasel	31	2,000	1,000	951	1,111	2,000		500	
6	4	N.R	Maichew	5	2,000		941	276			500	
7	3	N.E.R	Humera	18	1,000		200	1,437			3,000	
8	3	N.E.R	Dessie	120	4,911	2,600	5,972	85	2,000		2,000	
9	3	N.E.R	Combolcha	49	3,000		2,282	0	5,000		3,000	
10	3	N.E.R	Woldia	30	2,304		1,653	0	1,000		1,500	
11	3	N.E.R	Assaita	18	2,304		521	0			1,000	
12	1	N.E.R	Debre Brahan	48	4,000		2,440	232			1,000	
13	8	N.W.R	Bahir Dar	119	7,168		5,632	5,075	6,000	2,000	7,000	
14	8	N.W.R	Gonder	139	7,168		4,841	2,998	4,000		4,500	
15	8	N.W.R	Debre Mariko	61	4,096		2,156	1,199			3,000	
16	8	N.W.R	Debre Tabour	28	3,000		1,077	612			3,000	
17	8	N.W.R	Dangla	19	2,000		440	635			2,000	
18	8	N.W.R	Finote Selam	17	2,000		178	474			3,600	
19	8	N.W.R	Chagni	22	500		316	222			500	
20	8	N.W.R	Motta	22	500		415	573			500	
21	5	E.R	Dire Dawa	204	14,336		9,356	284	4,000	2,000	10,000	
22	5	E.R	Harar	94	5,000	2,600	5,393	877	8,000		6,000	
23	5	E.R	Jijiga	81	2,000	2,000	2,261	297	4,000		3,000	
24	5	E.R	AsebeTeferi	23	2,000		987	71			5,000	
25	5	E.R	Gode	51	256		164	252	1,000		1,500	
26	6	S.R	Shashemene	64	5,000	1,800	3,852	683	2,000		6,000	
27	6	S.R	Awassa	85	5,000	2,000	5,307	2,631	6,000	2,000	11,000	
28	6	S.R	Dilla	42	4,000	2,000	2,176	584			6,000	
29	6	S.R	Hossana	39	2,000	2,000	1,785	0			2,000	
30	6	S.R	Alba Minch	49	4,000		1,729	133			3,000	
31	6	S.R	Walaita Sodo	44	4,000	2,000	1,533	132			6,000	
32	6	S.R	Yirgalem	30	2,000		650	411			500	
33	6	S.R	Moyale	13	536		521	0	2,000		3,000	
34	6	S.R	Kibre Mengist	25	2,000		372	300			500	
35	7	S.W.R	Jimma	110	8,192		5,109	1,405			3,000	
36	7	S.W.R	Gambella	23	3,840		775	34			1,500	
37	7	S.W.R	Mizan Teferi	13	2,000		496	590			500	
38	2	S.E.R	Nazareth	158	16,256		10,281	2,829	2,000		7,000	
39	1	S.E.R	Debre Zeit	91	8,192		3,761	2,967			3,000	
40	6	S.E.R	Zway	25	3,000	2,000	1,152	555			3,000	
41	2	S.E.R	Assela	59	4,096		2,250	1,179			500	
42	6	S.E.R	Goba	35	4,000		1,137	41			1,500	
43	7	W.R	Nekempte	58	4,092		2,758	110			500	
44	7	W.R	Ghimbi	25	3,000		727	535			2,000	
45	7	W.R	Assosa	14	4,022		863	89			2,500	
46	1	AAZ	Addis Ababa	2,640	265,165	50,000	207,495	84,728	50,000	30,000	200,000	

**S.Table 13.1-2 List of High Priority Project**

(A) Feasibility Study for the development of telecommunication service for urban or regional town [from 8th development program].									
(B) Study on a rural telecommunication system & introduction of PCOs in a selected rural area.									
(C) Feasibility study for the introduction of integrated network management system in Ethiopia.									
(D) Feasibility Study on a selected major national backbone transmission system.									
(E) Feasibility Study for the establishment of outside plant maintenance center (OPMC).									
(F) Preparation of manual for telecommunication civil construction work.									
(G) Feasibility study on the expansion of Internet service in Ethiopia									
(H) Feasibility study for the introduction of integrated customer service support system.									
(I) Feasibility study for the introduction of computerized work/project management system									
No	Region	EX.Name	Population ('000)	Switch (Exist)		Subs.	Planned	Access Planned	
				Digital	Analog		Switch (LU)	WLL	Wire
<b>(A) 8th Telecommunications Development Plan</b>									
1	N.R	Mekele	120	6,000	5,000	7,637	15,000	2,000	15,000
2	N.R	Adwa	30	2,000	1,000	984	2,000		2,700
3	N.R	Adigrat	46	2,000	2,000	1,930	2,000		2,000
4	N.R	Axum	34	2,000	2,000	1,975	2,000		2,000
5	N.E.R	Dessie	120	4,000	2,600	5,972	2,000		2,000
6	N.E.R	Combolcha	49	3,000		2,282	5,000		3,000
7	N.E.R	Woldia	30	2,304		1,653	1,000		1,500
8	N.W.R	Bahir Dar	119	7,168		5,632	6,000	2,000	7,000
9	N.W.R	Gonder	139	7,168		4,841	4,000		4,500
10	N.W.R	Debre Mariko	61	4,096		2,156			3,000
11	N.W.R	Debre Tabour	28	3,000		1,077			3,000
12	E.R	Dire Dawa	204	14,336		9,356	4,000	2,000	10,000
13	E.R	Harar	94	5,000	2,600	5,393	8,000		6,000
14	E.R	Jijiga	81	2,000	2,000	1,911	4,000		3,000
15	E.R	Gode	51	256		164	1,000		1,500
16	S.R	Shashemene	64	5,000	1,800	3,852	2,000		6,000
17	S.R	Awassa	85	5,000	2,000	5,307	6,000	2,000	11,000
18	S.R	Dilla	42	4,000	2,000	2,176			6,000
19	S.R	Moyale	13	536		521	2,000		3,000
20	S.W.R	Jimma	110	8,192		5,109			3,000
21	S.E.R	Nazareth	158	16,256		10,281	2,000		7,000
22	AAZ	Addis Ababa	2,640	262,777	50,000	159,381	50,000	30,000	200,000

S.Table 13.1-3 Selection of Project Category for F/S.

Project	Category	Specific Selection Criteria					Total Score	Rank
		Government Priority / Urgency	Improvement of QoS	Efficiency Improvement	Social Benefit	Technology Transfer		
A F/S for the development of telecommunication service for urban or regional town [from 8th development program].	1	5	5	3	4	5	22	1
B F/S on a rural telecommunication system & introduction of PCOs in a selected rural area.	2	5	2	2	5	5	19	3
C F/S for the introduction of integrated network management system in Ethiopia.	4	2	4	4	2	2	14	7
D F/S on a selected major national backbone transmission system.	3	5	4	3	4	5	21	2
E F/S for the establishment of outside plant maintenance center (OPMC).	4	2	5	5	2	4	18	4
F Preparation of manual for telecommunication civil construction work.	4	2	1	4	1	5	13	8
G F/S on the expansion of Internet service in Ethiopia	1	4	2	2	4	3	15	5
H F/S for the introduction of integrated customer service support system.	4	2	4	5	2	2	15	5
I F/S for introduction of computerized work/project management system in ETC.	4	2	3	4	2	2	13	8

Table 13.2-1 Results of Selection of Potential Town

No.	Code No.	Region	EX.Name	Population ('000)	Switch		Subs.	Waiters	Planned Switch (LU)	Access		Gov't Policy	Waiters	Idle SW Cap.	Demand Fulfillment	Other Investment	Expenditure Transport	Total Score
					Digital	Analog				WLL	Wire							
(A) 8th Telecommunications Development Plan																		
1	4	N.R	Mekele	120	6,000	5,000	7,637	5,890	15,000	2,000	15,000	5	5	4	4	2	2	22
2	4	N.R	Adwa	30	2,000	1,000	984	950	2,000		2,700	4	1	3	4	2	2	16
3	4	N.R	Adigrat	46	2,000	2,000	1,930	296	2,000		2,000	4	1	3	1	2	2	13
4	4	N.R	Axum	34	2,000	2,000	1,975	118	2,000		2,000	4	1	3	1	2	2	13
5	3	N.E.R	Dessie	120	4,000	2,600	5,972	85	2,000		2,000	4	1	1	1	1	1	9
6	3	N.E.R	Combolcha	49	3,000		2,282	0	5,000		3,000	4	1	1	1	1	2	10
7	3	N.E.R	Woldia	30	2,304		1,653	0	1,000		1,500	4	1	1	1	1	2	10
8	6	N.W.R	Bahir Dar	119	7,168		5,632	5,075	6,000	2,000	7,000	4	5	2	4	1	3	19
9	6	N.W.R	Gonder	139	7,168		4,841	2,998	4,000		4,500	4	3	3	3	1	2	16
10	6	N.W.R	Debre Marikos	61	4,096		2,156	1,199			3,000	3	2	2	3	1	2	13
11	6	N.W.R	Debre Tabour	28	3,000		1,077	612			3,000	3	1	2	3	1	2	12
12	5	E.R	Dire Dawa	204	14,336		9,356	284	4,000	2,000	10,000	5	1	5	1	4	3	19
13	5	E.R	Harar	94	5,000	2,600	5,393	877	8,000		6,000	4	1	3	1	4	5	18
14	5	E.R	Jijiga	81	2,000	2,000	1,911	297	4,000		3,000	4	1	3	1	1	2	12
15	5	E.R	Gode	51	256		164	252	1,000		1,500	4	1	1	5	1	2	14
16	6	S.R	Shashemene	64	5,000	1,800	3,852	684	2,000		6,000	4	1	3	1	1	2	12
17	6	S.R	Awassa	85	5,000	2,000	5,307	2,431	6,000	2,000	11,000	5	3	2	3	1	2	16
18	6	S.R	Dilla	42	4,000	2,000	2,176	584			6,000	3	1	4	2	1	2	13
19	6	S.R	Moyale	13	536		521	0	2,000		3,000	4	1	1	1	1	2	10
20	7	S.W.R	Jimma	110	8,192		5,109	1,405			3,000	3	2	4	2	1	3	15
21	2	S.E.R	Nazareth	158	16,256		10,281	2,829	2,000		7,000	4	3	5	2	1	5	20
22	1	AAZ	Addis Ababa	2,640	262,777	50,000	159,381	75,109	50,000	30,000	200,000	5	5	5	3	5	5	28