

Tentative Plan of Training Activities (Jan.1998 - Mar.1999)

Course title	1998.Jan.~Mar.			1998.Apr.~1999.Mar		
	Contents of course activities	Machinery, Equipments		Contents of course activities	Machinery, Equipments	
Planning & Investigation Course	-Entering into Ethiopia and set up office.	-Electric and electro magnetic exploration equipment	2sets	-Built up curriculum.	-Water level detector	2sets
	-Data collection on topography, geology and hydrogeology.	-Water quality analysis equipment	2sets	-Preparation of training fields, text and materials.	-Water quality analysis kit	2sets
	-Set up of computer and geophysical survey equipment.	-Stereoscope	2sets	-Training of instructor.	-Automatic water level detector	2sets
		-GPS	2sets	-Start of the course in the beginning of 1999.	-Altimeter	2sets
		-Walky talky	2sets			
		-Computer	3sets			
		-Station wagon & pick up	2nos.			
		-Clinometer and blanton compass	2sets			
Mechanical Maintenance Technology Course	-Discuss with the counterparts on the content of training in detail and make decision	-Word processor or computer	1	-Train counterpart according to decided content of the training make text book and educational materials such as video tape, slide films etc.	-Word processor or computer	
		-papers	1		-papers	
		-stationaries	1		-stationaries	
					-video camera	
					-camera	
					-video casset	
					-films	
					-printing equipment for making text book	

Course title	1998. Jan. ~ Mar.		1998. Apr. ~ 1999. Mar.	
	Contents of course activities	Machinery, Equipments	Contents of course activities	Machinery, Equipments
<u>Drilling Technology Course</u>	<u>Design of Arrangement Layout, Construction</u> ① <u>Drilling pin-point in Center, Rig-arrange of MWR</u> ② <u>Stock Area of Casings. Drill-pipes, Drilling Tools, Mud-materials, Drilling Rig, Others.</u> ③ <u>Partation for Stock of small parts inside of existing Work-shop</u>	Jan. Feb. Mar. (3 months) ─────────── (MWR-Rig arrangement to rent, Providing of materials, Casings, Rig-maintenance Assign of Driller and Trainee.) ───────────	<u>Drilling for Training and 1st Demonstration in KALITI TRAINING CENTER in depth about 150 m, Logging, casing - lowering, Developing, Pumping-Testing, completing, Construction of water supply plumbing for Center including water Tank and Diesel Generator etc.</u>	April ~ Jun '98 ─────────── Drilling Rig from MWR, Drilling Materials Pipes, Tools, Drilling Mudp. Air-Compressor, Dries pipes, Mud material, E. Submersible Motor pump, Pump testing Equipment, Water Supply Tank & Tower, Plumbing pipes
			Curriculum Development starts in begining of rain season upto the end of 1998. (Dec.) (procurement of Drilling Rig and Materials by JICA)	─────────── Jun. Dec. '98 (6 months) Apr. sept. Transportation (4 month) ─────────── oct. Jan. '99 Checking & Rig-up, (2 months) Preparation in Feb Mar, '99 KALITI Center, and Transportation to Model Area.

Course Title	January - March 1998		April 1998 - March 1999	
	Contents of Course Activities	Machinery and Equipment	Contents of Course Activities	Machinery and Equipment
Extension Promotion Officer Course	<ol style="list-style-type: none"> To form a core staff team responsible for the organisation and implementation of training seminar for extension promotion officer To review the past training programmes, especially content and methods of training To collect necessary information and data for development of course curriculum as well as selection of training approach To formulate an basic outline of training curriculum for extension promotion officer 	<ul style="list-style-type: none"> - Desk Top Computer with printer, scanner and other necessary attachments for the internet - Over Head Projector(OHP) with screen - Video Deck and Projector and Monitor - Photography machine - Station Wagon 	<ol style="list-style-type: none"> To identify necessary teaching materials To collect and review the existing teaching materials To identify course topics for which development of teaching materials are required. To conduct a series of discussion and in-house studies for the development of teaching materials To prepare the teaching materials To conduct in-house practice of training To finalise course curriculum with training materials 	<ul style="list-style-type: none"> - Video Camera - Photo-Camera - Duplicating machine - Binder (for the production of text book)

Course Title	January - March 1998		April 1998 - March 1999	
	Contents of Course Activities	Machinery and Equipment	Contents of Course Activities	Machinery and Equipment
Preparation of activities for model areas	<ol style="list-style-type: none"> 1. To form a core staff team responsible for the organisation and implementation of experimental activities in selected areas 2. To identify responsible officer in charge of this activity in the respective regional governments and related government 3. To exchange views on the experimental activities 4. To formulate work plan for selecting the specific area, undertaking necessary research activities, etc. 	<ul style="list-style-type: none"> - Dcsk Top Computer with printer, scanner and other neccssary equipment for the internet usc - Over Head Projector(OHP) with screen - Video Deck, Projector and Monitor - Photocopy machine - Station wagon 	<p>Based on the work plan prepared in the previous period,</p> <p>A. Collection of Necessary information and data for selecting specific areas</p> <ol style="list-style-type: none"> 1. To collect and review existing documents and research papers relating to selected and broad areas of Sheshemene and Alamata. 2. To formulate draft rescarch framework to conduct socio-conomic as well as hydrogeographical survey which may provide the basis for determining the specific arca for this activities. 3. To conduct reconnaissanc survey on two broad areas 	<ul style="list-style-type: none"> - Video camera - Photo camera - Slide Projector with lighting box - Binding machine

			<p>4. To identify resource personnel or research institute who may actually conduct the survey,</p> <p>5. To conduct consultative meeting for finalising research guidelines</p> <p>6. To conduct socio-economic survey in two areas</p> <p>7. To analyze collected information and data</p> <p>8. To systemise the research results</p> <p>9. To write up research paper</p> <p>10. To print the research paper</p> <p>B. Preparation of possible activities in the specific areas</p>	
--	--	--	--	--

6. 第1次長期調査結果報告

団 員

- 神田 道男 (団長・JICA 社会開発協力部長)
丸尾 祐治 (団員・JICA 国際協力専門員)
鹿野 勝彦 (団員・金沢大学文学部教授)
二宮 雅信 (団員・国連地域開発センター研究員)
神 潤 (団員・元エティオピア事務所企画調査員)
湊 直信 (団員・FASID 事業部次長)
平口 章夫 (団員・FASID 事業部)

報告内容

長期調査員チーム(神田 JICA 社会開発協力部長)は、6月5日より29日までエティオピアにおける地下水開発・水供給訓練計画に関する調査のため、エティオピア経済開発協力省、水資源省、水井戸掘削事業団(WWDE)等と協議及び現地視察等を行った。調査結果の概要は以下のとおり。

1. 本件協力の実施体制

6月27日、本調査の総括として経済開発協力省主催による本件協力に係る議論を行うための関係機関合同会議が開催された。しかしながら、同会議において、本件協力の核となる予定の WWDE と水資源省の間での意見調整が難航し、最終合意に至らなかった。理由は以下のとおり。

- (1) 昨年8月の新政権樹立に際し、水資源開発公社、上下水道庁、天然資源環境保護省水資源開発・洪水防御局が統合され、水資源省として新たに発足した。しかし、WWDE は統合されず首相府傘下の機関として存続された。
- (2) 統合に伴い、水資源省が水資源開発に係る政策担当官庁であることが明確化されたこともあり、本件協力に関しても水資源省が関与していくことにつき、両機関(水資源省、WWDE) は原則的に合意するに至った。
- (3) これに関連し、調査員チーム側は、本件協力が当初 WWDE より要請がなされたものであること、水資源省が設立後日が浅く、水井戸掘削に係る技術を保有していないことなどから、水資源省を監督機関、WWDE を実施機関とする実施体制を確立していくことにつき具体的な提案を行った。
- (4) 本提案に対して、両機関が本件プロジェクトに関与していくことについては改めて原則が確認されたものの、水資源省側からは同省が今後は実施機関としても主体的に取り組んでいく方針であり、係る基本政策は首相府からも了解を取り付け済みのところである旨強く主張するところがあった。

- (5) これに対し、WWDE 側は、本件は、そもそもは同機関からの要請に基づくものであること、水資源省が実施機関としての能力を現在保有していないことから、実施機関としては WWDE を据え置くことが不可欠である旨主張したことから、実施体制に係る合意が得られなかった。
- (6) このような状況下、経済開発協力省は、本問題を取りあえず首相府の判断に委ねることとした。
- (7) これに関し、調査員チームとしては、エティオピア側より水資源省を本件プロジェクトの実施機関とする場合には、その旨及び実施体制の具体的中身について本件実施協議調査団派遣に先立って改めて追加プロポーザルとして提出させること、及びその場合といえども水資源省の実施能力にもかんがみ WWDE の参画確保を行うことが必要と考えている。

2. 今後の方向性

我が国は、WWDE に対し有償資金協力、無償資金協力、専門家派遣、協力隊等様々な形態で支援してきており、着実に我が国の技術移転がなされてきている。他方、水資源省は昨年関係省庁統合により発足した組織であり、井戸掘削の分野における実施能力に疑問が残るところである。このような状況のなかで、本件協力を実現するためには、WWDE の参画が望ましいものとする。

水資源開発は当国の最重要課題であり、我が国としても本件につき積極的に取り組んでいくことが肝要と考えるが、実施体制の確立は本件協力に必要不可欠である。

現状においては、水資源省の参画がほぼ必至の状況にあることから、改めてエティオピア側における実施体制の確立・調整問題の検討、及び本件プロジェクト内容の再確認等が必要と思われる。このため実施協議調査団派遣に先立って本作業に係る長期調査員の派遣が必要と考える。

7. プロジェクト実施機関変更の経緯

平成9年5月19日
JICA社協2課

エチオピア地下水開発・水供給訓練計画 実施機関変更の経緯

1. エチオピア側の当初の要請は、井戸掘削事業団 (Water Well Drilling Enterprise: WWDE) を責任機関及び実施機関とする井戸掘削技術者の養成に対する協力であった。
2. 平成7年5月の基礎調査、及び平成7年8月の事前調査において、掘削技術のみならず、井戸掘削計画調査から、井戸建設後のメンテナンス、井戸の運営を中心とする住民を巻き込んでの普及活動までを幅広く含むプロジェクトとすることを日本側より提案し、エチオピア側と合意した。
このため、井戸掘削のみを業務するWWDEに加え、アディス・アベバを除く全国の給水事業を管轄する上下水道公社 (Water Supply and Sewerage Authority: WSSA) も併せて実施機関とすることとなった。また、普及活動の対象地域として4つの州 (ティグレ州、アムハラ州、オロミア州、南部民族州) が候補としてあげられた。
なお、プロジェクトの実施主体はWWDEであることが確認された。
3. 平成8年3月に、地下水開発・水供給を担当するWSSA及び他の2機関が統合され、水資源省が設立された (WWDEは統合されず、首相府傘下の機関として存続)。同省が水資源開発に係る政策官庁であることが明確化された形である。
4. 平成8年6月の長期調査においては、水資源省の設立を受けて、水資源省を本プロジェクトの責任機関とすることでは合意したが、実施機関も水資源省とするのか、WWDEとするのか、双方とするのかについてエチオピア側関係機関の間で意見がまとまらなかった。
日本側は、水資源省の技術的な実施能力 (新設されたばかりであり、政策官庁としての性格が強い) が疑問であることから、井戸掘削のノウハウを有するWWDEの参画が望ましい旨主張。エチオピア側で引き続き調整することとなった。
なお、普及活動の対象州はティグレ州、南部民族州の2州とすることで合意した。
また、水資源省を責任機関とする場合、当初の要請内容 (WWDEが責任機関) と異なるところ、エチオピア側より外交ルートで要請書を再提出してもらう必要がある旨調査団より説明した。
5. 長期調査時に日本側から提示したミニッツ案をもとに、水資源省が改訂要請書案を作成し、JICA事務所を通じてJICA本部宛送付された。これに対して実施体制につき当方より修正を依頼。最終的に、水資源省がWWDE及び地方政府との関係を保ちながらプロジェクトを実施することが明記され、併せて技術訓練部分についてはWWDEが行うことが明確化されたところ、日本側としても問題はなく、同改訂要請書案に同意した。
6. 平成8年10月21日付けで、同改訂要請書が水資源省から経済開発協力省に対し提出された。同要請書が経済開発協力省から日本大使館に発出され次第、実施協議調査団を派遣すべく (12/15～12/28の予定) 準備を開始した。
7. 平成8年11月27日、JICA事務所より、経済開発協力省としては改訂要請書を発出できないとしている旨連絡がなされた。これは、平成8年9月にメレス首相が訪日した際にエチオピア側から提出された対日要請案件に本件が含まれておらず、首相府から経済開発協力省に対して別途指示もなされなかったことから、エチオピア政府として本件要請は取り下げたとの認識であるとの説明がなされた由である。

8. さらに平成8年12月6日付外務公電にて、経済開発協力大臣より、本件要請がメレス首相訪日時の対日要請案件に含まれなかったのは、公共企業体は外国援助を直接受けられない旨政策が変更されたため、WWDE（公共企業体）を実施機関とすることはできず、さらに水資源省からの改訂要請書はプロジェクトの整合性、財政負担、経済効果、便益等の言及がないため審査の対象とはできないとの発言があった旨連絡がなされた。

同公電を受けて、改訂要請書が発出される目途が立たないため、技協課と協議の上実施協議調査団の派遣を中止した。

9. これ以降、水資源省が経済開発協力省の求めるライン（WWDEを実施機関から削除するとともに、プロジェクトの整合性、財政負担等を明記する）に沿って、再度改訂要請書の作成を進めてきた。

10. 平成9年2月24日、JICA事務所より、改訂要請書が水資源省内部で了承され、水資源大臣が経済開発協力省及び首相府と、水資源省から経済開発省に要請書を提出した場合に、日本側に発出されるかどうか調整を行っている旨報告がなされた。

11. 平成9年2月28日、JICA事務所より、水資源省及び経済開発協力省は、本プロジェクトの日本側への要請については問題ないという認識であるも、首相府の了解はまだ得られていない旨連絡がなされた。

12. 平成9年3月10日、JICA事務所より、大使館からメレス首相宛、本プロジェクトの実施を求める内容の書簡が発出された旨連絡がなされた。

13. 平成9年3月21日、大使館より外務公電にて、経済開発協力省より改訂要請書が大使館宛発出された旨連絡がなされた。

同改訂要請書においてはWWDEが削除され、水資源省が州政府と調整しつつプロジェクトを実施する体制となっている。

以上

MINUTES OF MEETING
BETWEEN
JAPANESE SUPPLEMENTARY STUDY TEAM AND
AUTHORITIES CONCERNED OF THE GOVERNMENT
OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ON JAPANESE TECHNICAL COOPERATION
FOR
THE GROUNDWATER DEVELOPMENT AND WATER SUPPLY
TRAINING PROJECT

Pursuant to the enclosed letter Ref.BC7 3.7.9/25 dated 21 March 1997 addressed to the Embassy of Japan, the Japanese Supplementary Study Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency and headed by Dr. Yuji Maruo visited the Federal Democratic Republic of Ethiopia from June 23rd to July 5th, 1997 for the purpose of working out the details of the technical cooperation program concerning the Groundwater Development and Water Supply Training Project (hereinafter referred to as "the Project") in the Federal Democratic Republic of Ethiopia.

During its stay, the Team exchanged views and had a series of discussions with the authorities concerned of the Government of the Federal Democratic Republic of Ethiopia with respect to the preferable measures to be taken by both governments for the smooth implementation of the Project.

As a result of the discussions, the Team and the Ethiopian authorities concerned agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

Addis Ababa, July 4th, 1997

丸尾祐治

Dr. Yuji Maruo
Leader
Supplementary Study Team
Japan International
Cooperation Agency
Japan



Ato Shiferaw Jarso
Minister
Ministry of Water Resources
Federal Democratic Republic
of Ethiopia

ATTACHED DOCUMENT

I. OUTLINE OF THE PROJECT

1. Title of the Project

The Project will be referred to as "the Groundwater Development and Water Supply Training Project".

2. Objective of the Project

(1) Overall goal

To supply enough and safe water by enhancing groundwater development and capacity building through appropriate water supply technologies training.

(2) Project purpose

To develop human resources for the improvement of groundwater development and water supply programs.

3. Outputs of the Project

(1) To conduct technical training for engineers, technicians and extension promotion officers.

(2) To establish model areas for experimental extension activities.

4. Activities of the Project

(1) To plan and conduct the training programs at the Addis Ababa Training Center

1) Technician training program

2) Professional training program

3) Extension promotion officers training program

(2) To plan and implement experimental activities in model areas.

1) To train well construction and maintenance teams.

2) To rehabilitate existing drilling rigs and related machineries.

3) To construct or rehabilitate wells in model areas.

4) To train extension promotion workers.

5) To promote extension activities in model areas.

mm

A

II. IMPLEMENTATION OF THE PROJECT

1. The Project will be implemented with the following two main activities

(1) Training of technical and professional staffs and extension promotion officers of the regional governments in the Addis Ababa Training Center. The Tentative Outline of the Training Courses is shown in ANNEX I.

(2) Following experimental extension activities in two model areas. Model areas shall be selected in two woredas in two regions.

1) Training of technical staff of the two regional governments for well construction and maintenance.

2) Construction and rehabilitation of water supply facilities in model areas.

3) Sustained management and maintenance of those facilities with local people.

4) Training of extension promotion workers.

5) Experimental extension activities.

2. Term of the Cooperation

The duration of the technical cooperation for the Project will be five(5) years, commencing from the date to be agreed upon between Japanese Implementation Study Team and Ethiopian Authorities concerned. The first three years will be mainly for technical training program in the Addis Ababa Training Center and preparation of experimental extension activities in model areas, while the remaining two years will be used for continuation of the technical training program and implementation of experimental extension activities.

III. MEASURES TO BE TAKEN BY THE JAPANESE SIDE

The Japanese side will take the following measures at its own expense.

1. Dispatch of Japanese Experts

(1) The Japanese side will dispatch long term experts in the following areas within the budget allocated to the technical cooperation;

1) Chief Advisor,

2) Coordinator,

3) Rural Water Supply,

4) Drilling Technology,

5) Mechanical Engineering,

6) Groundwater Development (Hydrogeology),

7) Regional / Local Social Development,

8) Women in Development.

Am

A

(2) Short-term experts required for the Project may be dispatched, when necessity arises.

2. Provision of Machinery and Equipment

The Japanese side will provide the equipment necessary for the effective and efficient implementation of the Project. The list of the main equipment is shown in ANNEX II. The equipment will become the property of the the Federal Democratic Republic of Ethiopia upon being delivered CIF to the Ethiopian authorities concerned at the borders and/or airports of disembarkation. The contents, specifications and quantity of the equipment to be provided in each year will be discussed, in principle, every year between Japanese experts and Ethiopian counterparts based on the annual plan within the allocated budget of the Japanese fiscal year.

3. Training of Ethiopian Counterpart Personnel in Japan

The Japanese side will receive two (2) or three (3) Ethiopian personnel connected with the Project for technical training in Japan each year during the term of cooperation within the budget allocated to the technical cooperation.

IV. MEASURES TO BE TAKEN BY THE ETHIOPIAN SIDE

The Ethiopian side will take the following measures at its own expense.

1. Provision of Land, Building and Facilities

The Ministry of Water Resources will provide land, building and facilities necessary for the administration of the Project and implementation of technical training program as shown in ANNEX III.

2 Assignment of Personnel

(1) The Ministry of Water Resources will assign necessary personnel for the administration of the Project and implementation of technical training program such as training instructors, workshop technicians and administrative staff as shown in the Tentative Personnel Assignment Plan (ANNEX IV).

(2) Assignment of necessary personnel for experimental extension activities will be discussed between the Japanese side and the two Regional Governments at the preparatory stage of those activities.

mm

A

3. Privileges, Exemptions and Benefits to the Japanese Experts

The Government of the Federal Democratic Republic of Ethiopia will grant in the Federal Democratic Republic of Ethiopia, privileges, exemptions and benefits to the Japanese experts referred in III-1 above and their families as listed in Annex V which are no less favorable than those granted to experts of third countries performing similar missions.

4. Allocation of Budget

(1) The Ministry of Water Resources will allocate necessary budget for the implementation of the technical training program as follows;

- 1) Expenses necessary for the transportation within the Federal Democratic Republic of Ethiopia of the equipment provided by the Japanese side as well as for its installation, operation and maintenance,
- 2) Expenses to cover customs duties, internal taxes and any other charges imposed in the Federal Democratic Republic of Ethiopia on the equipment provided by the Japanese side,
- 3) Expenses necessary for supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by the Japanese side,
- 4) Operating expenses of the technical training program.

(2) Allocation of the necessary budget for experimental extension activities will be discussed between the Japanese side and the two Regional Governments at the preparatory stage of those activities.

V. ADMINISTRATION OF THE PROJECT

1. The Chief Engineer of the Ministry of Water Resources, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. The Head of Management and Training Service, Ministry of Water Resources, as the Project Manager will be responsible for the managerial and technical matters of the Project with close relation to regional governments. The Project Manager will be assisted by the Head of Water Supply and Sewerage Department regarding all technical matters.
3. The Head of the Addis Ababa Training Center, whose organization will be established prior to the commencement of the technical cooperation, will be responsible for the implementation of the technical training program.

Amu

[Handwritten mark]

4. The two Regional Governments will be responsible for the implementation of the experimental extension activities.
5. The Japanese Chief Advisor will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.
6. The Japanese experts will give necessary technical guidance and advice to the Ethiopian counterpart personnel on technical matters pertaining to the implementation of the Project.
7. The tentative organization structure required for effective and successful implementation of the Project is shown in ANNEX VI.
8. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VII.

VI. TENTATIVE SCHEDULE OF IMPLEMENTATION

The Tentative Schedule of Implementation of the Project is shown in ANNEX VIII.

VII. PROJECT DESIGN MATRIX

The Team explained that the Project Design Matrix (hereinafter referred to as the "PDM") is commonly introduced into Japanese Project-Type Technical Cooperation in order to manage and implement projects clearly, efficiently and effectively. It is also used as a reference for monitoring and evaluating the Project.

Both sides worked out the columns of narrative summary and input of the Tentative PDM as shown in ANNEX IX with the following understandings.

- (1) The PDM is a logically designed matrix which defines the initial understanding of the framework of the technical cooperation for the Project and it indicates the logical steps toward the achievement of the Project Purpose.
- (2) The PDM is to be flexibly developed according to the progress and achievements of the Project, upon agreement between the Japanese and the Ethiopian sides.
- (3) The Tentative PDM will be further elaborated for details between the Japanese experts and Ethiopian counterparts, since the Tentative PDM is mostly on the technical training program of the Project.

mm

A

VIII. IMPLEMENTATION STUDY

When the Project is found feasible and officially accepted by the Government of Japan based on the result of the Supplementary Study, the Japanese side will send the Implementation Study Team to conclude the implementation plan of the technical cooperation for the Project, the detailed contents of which will be confirmed by both sides through signing of the "Record of Discussions".

IX. OTHERS

1. Operating expenses

- (1) The Ethiopian side requested the Japanese side to cover a part of operating expenses at the initial stage of the project implementation.
- (2) The Team explained the principle that all the operating expenses of the project should be covered by the Ethiopian sides under the Japanese technical cooperation.
- (3) Although the Ethiopian side understood the principle, they repeatedly made the same request stated as above. At the same time they expressed their future plan that the Ethiopian side shall gradually increase the coverage of operating expenses.

2. Model area for experimental extension activities

The Ethiopian side agreed that they would select two model areas by the time when the Japanese side sends the Implementation Study Team.

3. Instructors of the training courses

The Ethiopian side shall appoint at least one instructor for each regular training course before the Japanese side will send the Implementation Study Team. Both sides also acknowledged the difficulties for a single instructor to organize and conduct the training course. Therefore it is suggested in the discussion that each training course should be conducted by a team of instructors which may include guest lecturers.



4. Facilities and equipment

4-1. Cable tool type percussion rig

The Ethiopian side strongly requested that cable tool type percussion rig should be included in ANNEX II.

4-2. Machinery and equipment installed in the workshop at Kaliti

The Ethiopian side confirmed that in addition to land and existing buildings and facilities, all the machinery and equipment which have been already installed in the Kaliti workshop shall be effectively used for the project.

4-3. Buildings and facilities for the Addis Ababa Training Center

- 1) It is understood that the existing buildings and facilities of the workshop at Kaliti can not fulfill the requirement stated in ANNEX III.
- 2) It is also understood by both sides that although the Ethiopian side plan to make a budget for the provision of the building of offices and class rooms, additional inputs of financial resources must be required.

5. Privileges, Exemptions and Benefits for the Japanese Experts

With regard to the article 2 and article 6 in ANNEX V, if any of the commodities, be it personal or professional, is disposed of in Ethiopia, appropriate procedures will be applied.



ANNEX I

TENTATIVE OUTLINE OF TRAINING COURSES
AT ADDIS ABABA TRAINING CENTER

1 Technical Training Courses and Objectives

(1) Regular training course

a. Planning & Investigation Course:

To acquire specialized technology and related knowledge required for groundwater development investigation and planning

b. Drilling Technology Course:

To acquire specialized technology and related knowledge required for well construction

c. Mechanical Maintenance Technology Course:

To acquire specialized technology and related knowledge required for effective maintenance of drilling rigs and related machineries

d. Electrical Maintenance Technology Course:

To acquire specialized technology and related knowledge required for effective maintenance of electric machineries and equipment

e. Water Supply Management Course:

To acquire specialized techniques and related knowledge required for water supply technology, water supply management, and leakage and quality control

(2) Training course on ad hoc basis

a. Machinery Maintenance Technology Course:

b. Civil Engineering Technology Course:

a. Extension Promotion Officer Course:

2 Time-frame and term of each training course

a. Planning and Investigation Course: 3 months per each term, 2 terms per year

b. Drilling Technology Course: 6 months per each term, 1 term per year

c. Mechanical Maintenance Technology Course: 6 months per each term, 1 term per year

d. Electrical Maintenance Technology Course: 3 months per each term, 1 term per year

e. Water Supply Management Course: 3 months per each term, 1 term per year

3 Participants Number in each training course per each term

a. Planning & Investigation Course: 10

b. Drilling Technology Course: 10

c. Mechanical Maintenance Technology Course: 10

d. Electrical Maintenance Technology Course: 10

e. Water Supply Management Course: 10

4 Nomination and Recruitment of the Trainees

The Regional Governments nominate and recruit the trainees



5 Admission requirements

a. Planning & Investigation Course

Trainees should;

- i) be university graduates or have the equivalent degree of educational background; and,
- ii) be responsible for planning, implementation, monitoring and evaluation of groundwater development in the regional and local contexts

b. Drilling Technology Course

Trainees should;

- i) have work experiences of actual drilling or be technical college graduates

c. Mechanical Maintenance Technology Course:

Trainees should;

- i) be technical school or high school graduates and have work experiences in mechanical maintenance

d. Electrical Maintenance Technology Course:

Trainees should be;

- i) technical college graduates in electric course; or,
- ii) high school graduates with longer electrical work experiences

e. Water Supply Management Course:

Trainees should be;

- i) be technical school or high school graduates and have field work experiences
- ii) responsible for planning and management of small scale of water supply systems

6 Course Certificate

At the end of the course, a course certificate is awarded by the Ministry of Water Resources to successful trainees.

7 Daily subsistence allowance, travel allowance and related costs

In principle, the expenses including daily subsistence allowance, travel allowance and related costs for the trainees should be covered by the Ministry of Water Resources and regional governments. (VIZ. IX.1.)



ANNEX II

LIST OF MACHINERY, EQUIPMENT AND OTHER MATERIALS

1. Technical Training Program

(1) Planning and Investigation Course

- Electric exploration instrument
- Electro magnetic exploration instrument
- Water level detector
- Water quality analysis equipment
- Stereoscope for aerial photographs
- GPS
- Automatic water level recorder
- Clinometer / Branton compass
- Altimeter
- Computer with software
- Walky talky

(2) Drilling Technology Course

- Rotary drilling rig with DTH tools
- Air compressor for DTH drilling
- Service rig
- Accessories for drilling
- Truck with crane
- Mud pump for mud drilling
- Submersible motor pump
- Pumping test equipment
- Electric logging equipment
- Drilling and mechanical tools
- Pipes

(3) Mechanical Maintenance Technology Course

- Engine stand
- Measuring tools
- Cut models
- Hand tools

(4) Electric Maintenance Technology Course

- Cut models
- Circuit tester

(5) Water Supply Management Course

- Leakage tester



2. General use for training program and administrative activities

- Computers
- Educational materials/books
- Over head projector sets
- Copy machines
- Audiovisual equipment
- Radio communication sets
- Pickup trucks
- Mini bus
- Station wagons
- Duplicating Machine

- NOTE: 1. The above-mentioned equipment is limited to equipment necessary for the transfer of technology by the Japanese experts.
2. Contents, specifications and quantity of the above-mentioned equipment will be decided through mutual consultations within the allocated budget of the Japanese fiscal year.
3. Equipment will be utilized not only for the described course but also for other courses due to the training program.
4. Necessary equipment for the ad hoc training courses as well as for activities in model areas will be discussed between the Ethiopian and Japanese sides during the implementation of the project.



ANNEX III

LIST OF LAND, BUILDINGS AND FACILITIES

1. Land

The compound of the Kaliti workshop of the Ministry of Water Resources will be allocated for the Addis Ababa Training Center

2. Buildings and Facilities

(1) Addis Ababa Training Center

- a. buildings and facilities for practical training (The existing workshop will be allocated for them)
- b. buildings for lectures which contain classrooms, instructor rooms, meeting rooms, expert rooms, library and other necessary facilities
- c. field training space

(2) Ministry of Water Resources

One meeting room, one room each for Chief Advisor and Coordinator, and rooms for experts with necessary facilities.

(3) Two model areas

One building / house for each area, with expert room and necessary facilities for lectures and accommodations.



TENTATIVE PERSONNEL ASSIGNMENT PLAN

Title	Field / Category	Name	Qualification	Remarks
Project Director		Dr. Mohammed Ahmed Hagos		Chief Engineer, Ministry of Water Resources
Project Manager		Mr. Afeworki Abraha		Head of Management and Training Service
Technical Advisor		Mr. Yohannes Gebremedhin		Head of Water Supply and Sewerage Service Dept.
Project Coordinators at the model areas				
Head of Addis Ababa Training Center				
Instructors	1. Planning and Investigation		Bsc.	Hydrogeologist
	2. Drilling technology		Diploma	Driller
	3. Mechanical maintenance technology		Bsc.	Mechanical Engineer
	4. Electrical maintenance technology		Bsc.	Electrical Engineer
	5. Water supply management		Bsc.	Civil Engineer / Chemist
	6. Extension promotion		BA.	Sociologist / Economist
Workshop Technician	Technicians (4)			
Administrative Personnel	Administrative Staff (1) Secretary (1) Accountant (1) Cashier (1) Drivers (5) Cleaners Guards			

~~Handwritten mark~~

Handwritten signature

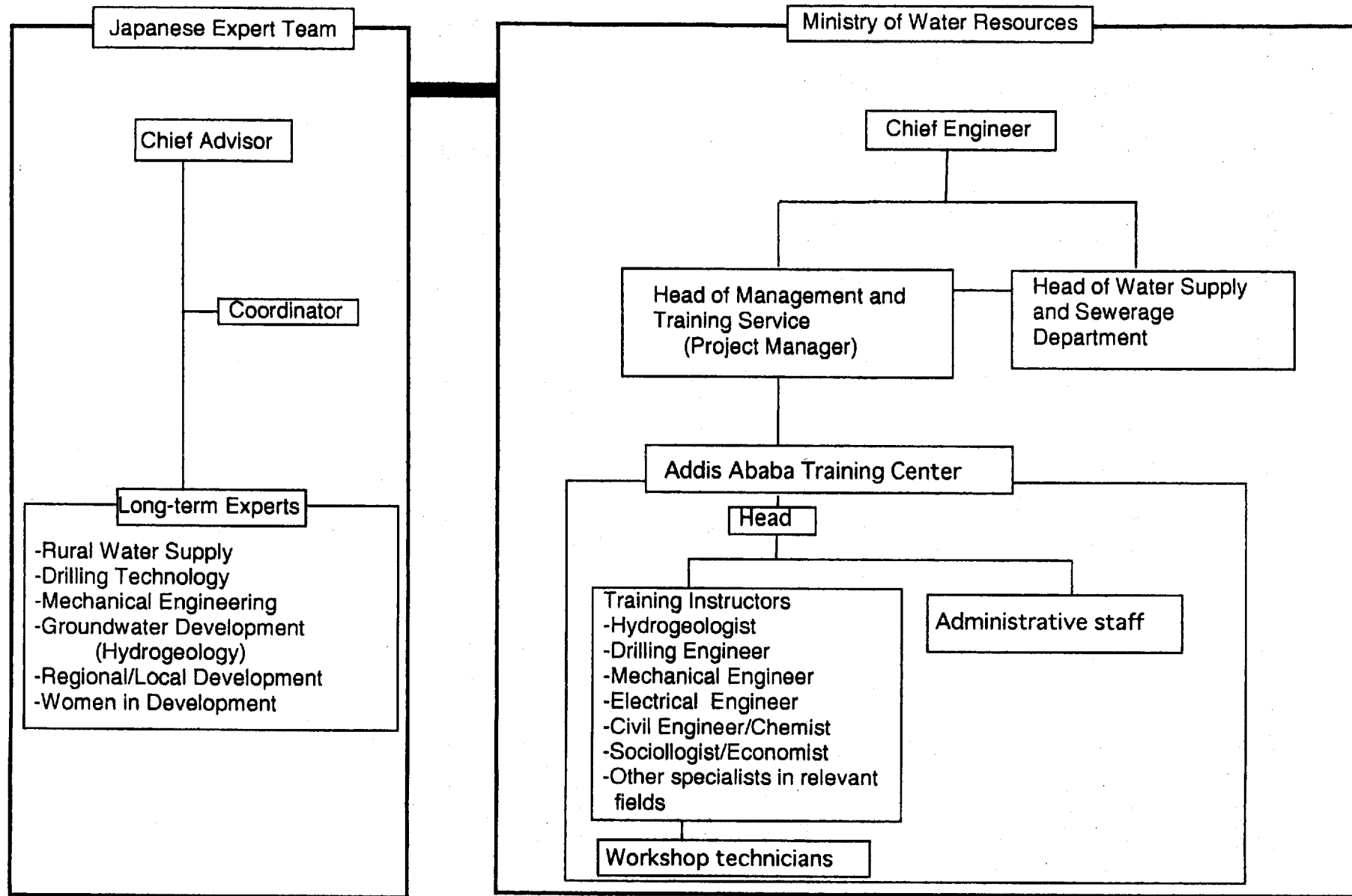
ANNEX V

PRIVILEGES, EXEMPTIONS AND BENEFITS FOR THE JAPANESE EXPERTS

1. Exemptions from income tax and other charges of any kind imposed on or in connection with the living allowances remitted from abroad for the Japanese Experts.
2. Exemptions from import tax, export duties and any other charges imposed on personal household effects of the Japanese experts and their families, including one motor-vehicle per expert.
3. The Government of the Federal Democratic Republic of Ethiopia will use all its available means to provide medical and other necessary assistance to the Japanese Experts and their families, equivalent to that of Ethiopian civil servants.
4. To issue, upon application, entry and exit visas for the Japanese Experts and their families free of charge.
5. To issue identification cards to the Japanese Experts and their families to secure the cooperation of all governmental organizations necessary for the performance of the duties of the Experts.
6. Exemption from customs duties for import and export of professional equipment by the Japanese Experts in connection with the Project activities.



TENTATIVE ORGANIZATION STRUCTURE OF THE PROJECT



Handwritten signature/initials

ANNEX VII

JOINT COORDINATING COMMITTEE

The Joint Coordinating Committee which consists of both the Japanese and the Ethiopian sides will be established for the smooth and effective implementation of the Project.

i. Functions

The Joint Coordinating Committee will meet at least once a year or whenever the necessity arises in order to fulfill the following functions:

- a. To formulate the Annual Plan of Operation of the Project based on the framework of the Record of Discussions (R/D) to be signed at the Implementation Survey stage;
- b. To review the overall progress of the Project and achievement of the technical cooperation program as well as the Annual Plan of Operation; and,
- c. To review and exchange views on major issues arising from or in connection with the Project.

ii. Composition

a. Chairperson : Chief Engineer, Ministry of Water Resources

b. Members

(1) Ethiopian side:

Representatives of;

Ministry of Economic Development and Cooperation,

Ministry of Water Resources,

Regional Governments, and other personnel to be designated by the Chairperson, if necessary.

(2) Japanese side:

- Chief Advisor
- Coordinator
- Long-term Experts
- Representative of JICA Ethiopia Office
- Other personnel concerned, to be dispatched by JICA, if necessary.

NOTE: Official(s) of the Japanese Embassy in Ethiopia may attend the Committee meeting as observer(s).

ANNEX IX

Tentative Project Design Matrix

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
OVERALL GOAL 1) More people are served with safe and adequate water. 2) Development of water supply is improved.			
PROJECT PURPOSE Human resources in the water sector are developed			
OUTPUTS <A. Addis Ababa Training Center> 1. The Addis Ababa Training Center is established. 2. Curricula for training courses are made. 3. Facilities and equipment are improved. 4. Course instructors are developed. 5. Training courses are executed. <B. Model areas> 6. Sustainable water supply management system is established in model areas.			
ACTIVITIES <A. Addis Ababa Training Center> 1-1. To formulate the Training center in the Ministry of Water Resources 1-2. To appoint Head, instructors and administrative staff 1-3. To allocate necessary budget for the Center 2-1. To establish curriculum development committee 2-2. To decide contents and curriculum 2-3. To make teaching/learning materials 3-1. To make the list of necessary equipment for training 3-2. To make the procurement plan 3-3. To procure equipment 3-4. To install equipment 3-5. To maintain equipment 4-1. To assign responsible person for each course 4-2. To assign instructors for each course 4-3. To execute courses in collaboration with Japanese experts 4-4. To manage courses by Ethiopian instructors 5-1. To make annual operation plan of training courses 5-2. To print the General Information for training courses 5-3. To announce to the regional governments 5-4. To carry out training courses 5-5. To evaluate courses <B. Model areas> 6-1. To train well construction and maintenance team 6-2. To rehabilitate existing drilling rigs and related machineries 6-3. To select model areas 6-4. To construct or rehabilitate wells in model areas 6-5. To train extension promotion workers 6-6. To promote extension activities in model areas	INPUTS (Ethiopian side) 1. Land, building and necessary facilities for the Project. 2. Assignment of counterpart and administrative personnel 3. Expenses necessary for the implementation of the Project. (Japanese side) 1. Dispatch of experts 2. Training of Ethiopian counterpart personnel in Japan. 3. Provision of equipment		PRE-CONDITIONS

ANNEX X

ATTENDANT LIST

A. Ethiopian Side:

(1) Ministry of Water Resources

Ato Yohannes Gebremeihin	Head, Water Supply and Sewerage Service Department
Ato Tefera Aseffa	Acting Head, Management & Training Service
Ato Samson Tsewameskel	Senior Water Quality Expert, Water Supply and Sewerage Service Department
Ato Estifanos Zerai	Senior Expert / Economist, Planning & Project Department
Ato Samma Melesse	Training Expert, Management & Training Service

(2) Ministry of Economic Development and Cooperation

W/t. Seble Getachew	Expert, Asian Section, Department for Bilateral Cooperation
---------------------	---

B. Japanese Side:

(1) Supplementary Study Team

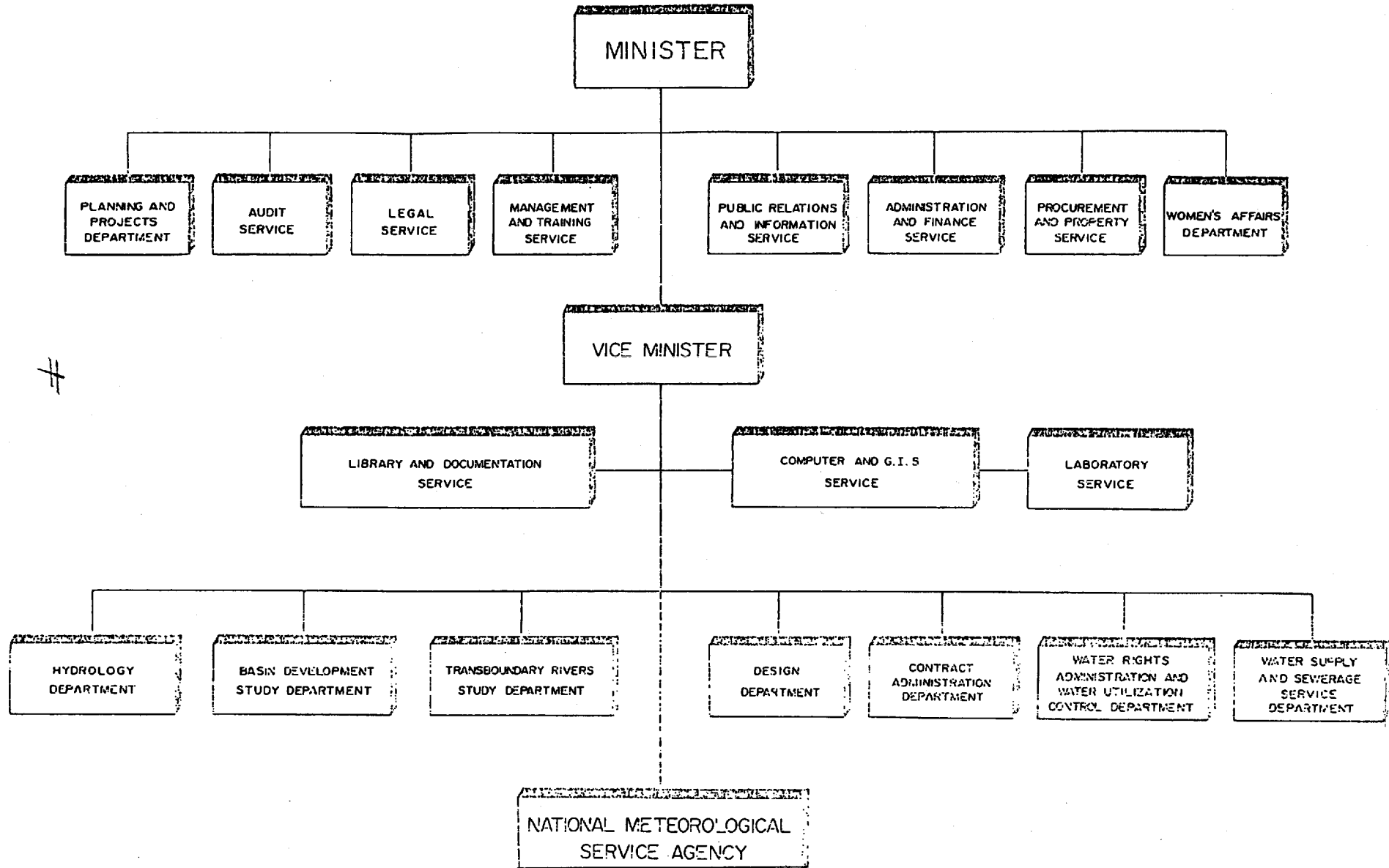
Dr. Yuji Maruo	Leader / Development Specialist, Japan International Cooperation Agency(JICA)
Mr. Haruhiko Nakamura	Expert in Groundwater Development / Technical Director, Institute of Hydrogeology
Mr. Shin'ichi Yoshikawa	Expert in Drilling Technology / Yoshikawa Consultant Office
Mr. Masanobu Ninomiya	Expert in Regional Development / National Expert, United Nations Centre for Regional Development
Mr. Hideo Eguchi	Cooperation Planning / Deputy Director, Second Technical Cooperation Division, Social Development Cooperation Department, JICA

(2) JICA Ethiopia Office

Mr. Yasuyuki Uehara	Deputy Resident Representative
Mr. Kyosuke Kawazumi	Assistant Resident Representative
Ato Yeshitla Amare	Director, Technical Cooperation
Mr. Mitsuyoshi Sagawa (Observer)	JICA Expert

mm *A*

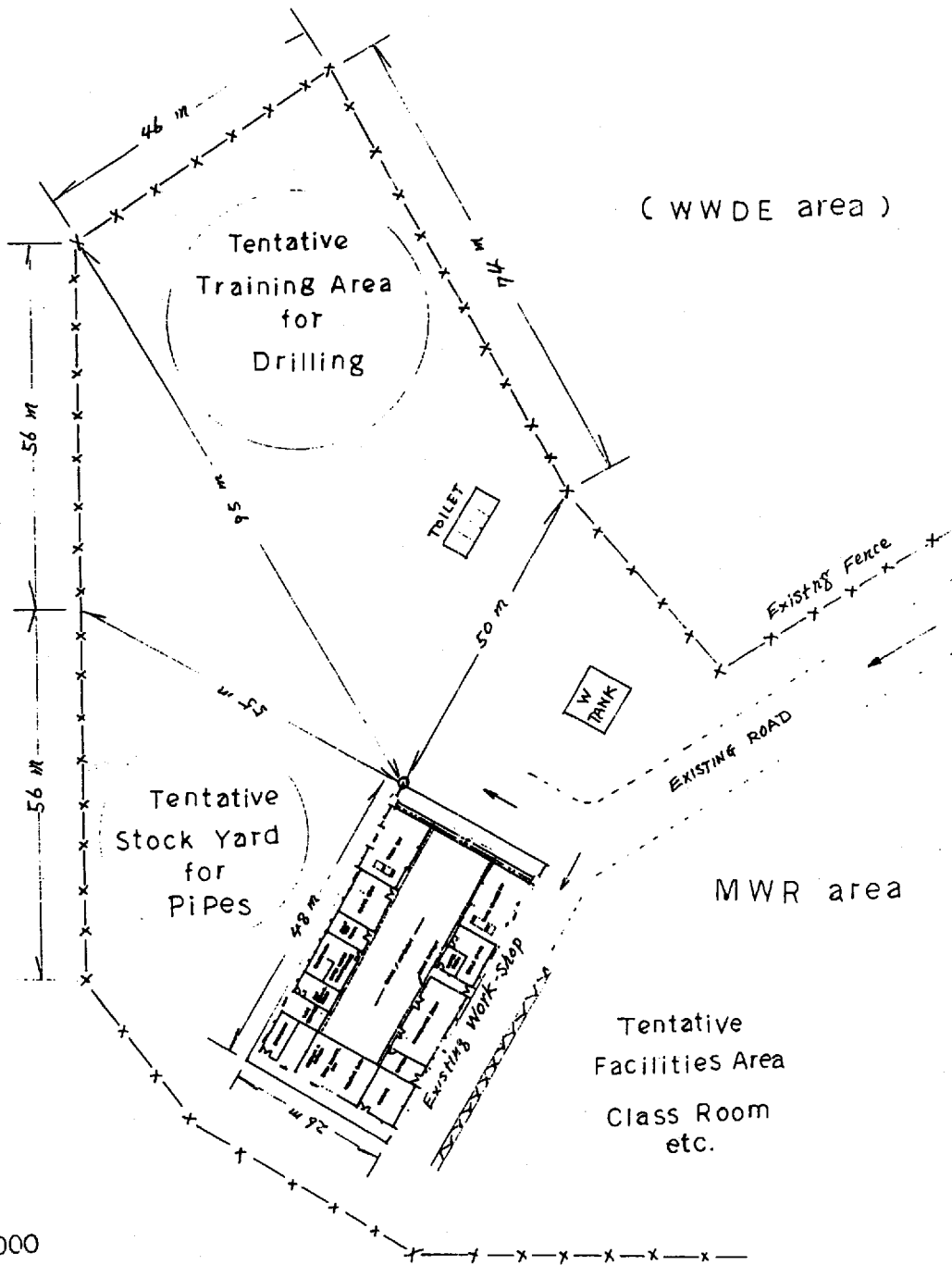
MINISTRY OF WATER RESOURCES ORGANIZATIONAL CHART



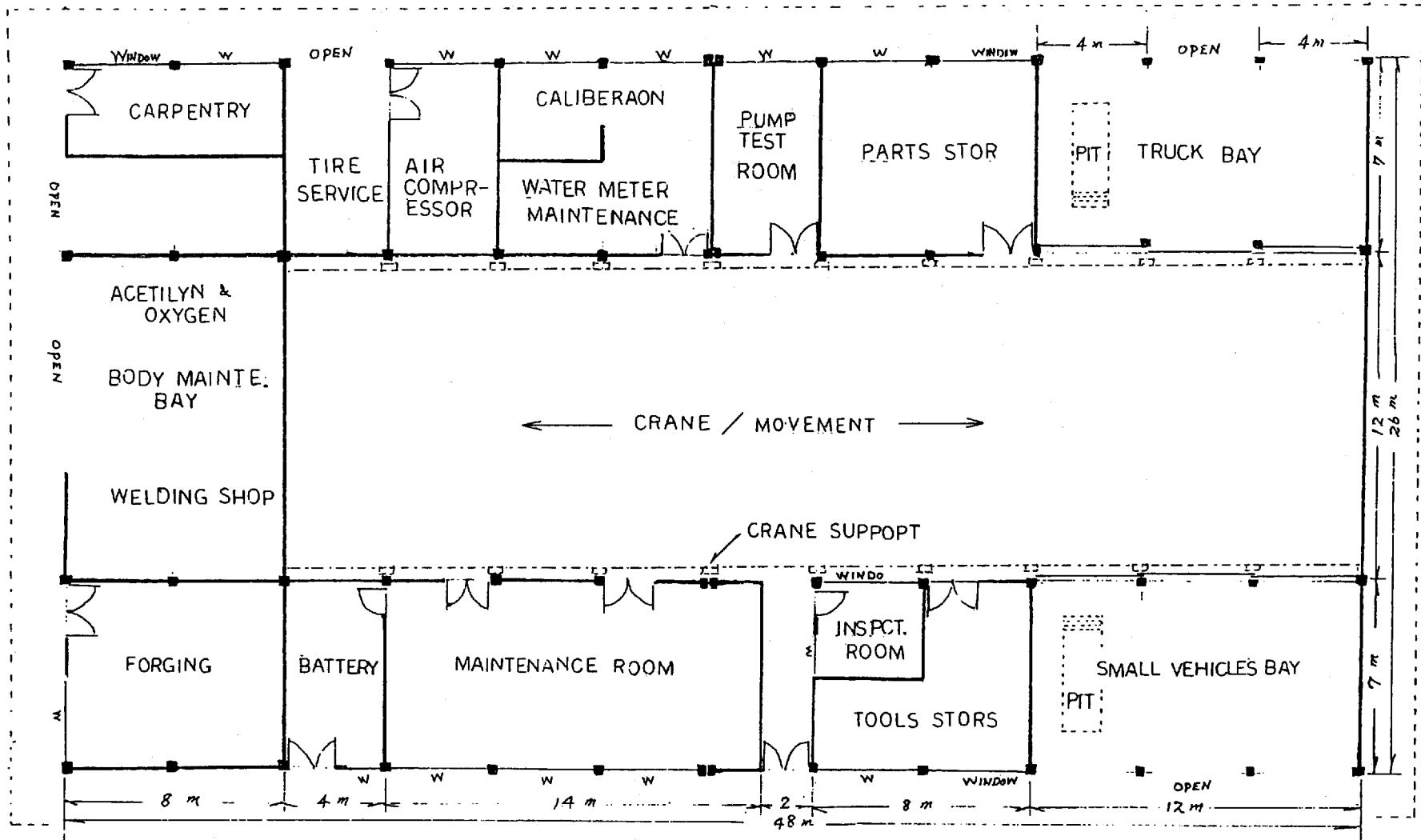
#

10. 訓練センター配置予定図

THE LAND OF TRAINING CENTER
IN KALITI



Scale: 1/1000



Scale 1 : 200
area: 1248 m²

EXISTING GARAGE AND WORKSHOP OF MWR IN KALITI



11. エチオピア側予算措置の内訳(5年間分)

(Operation Cost Covered by Ministry of Water Resources)

(1B=¥17.65,97/8/22)

No	項目	内容	予算 (Birr)	円概算
1	既存ワークショップのメンテナンス	シャワー、トイレ、共用部屋・小部屋の設置、ワークショップ内の補修、建物の維持管理、ケーシングパイプ置場の設置	636,480	1120万円
2	給水ライン設置及び使用料	メイン水栓から既存施設への給水ライン設置、中型水タンク設置、水使用料	31,500	55万円
3	電線設置及び使用量	電気使用量	63,000	110万円
4	電話線設置及び使用料	電話線設置、電話使用料	157,000	280万円
5	F A X 及び郵便料金	使用料	63,000	110万円
6	燃料・潤滑油費	センター車両の燃料・潤滑油費	378,650	680万円
7	車両保守費	車両整備費	315,000	560万円
8	印刷・文具費	事務業務に使用する文具等備品購入費	262,000	460万円
9	教具費	教具(机、椅子等)整備費	300,000	530万円
小計			2,206,630	3900万円
10	供与機材の税金、国内輸送費	供与機材の税関引き取り費・税金、国内輸送費	2,568,000	4500万円
11	人件費	カウンターパート・事務職員の給料手当	3,383,100	6000万円
合計			8,157,730	約1億4400万円

OPERATING COST COVERED BY MOWR

Maintenance of the existing Workshop :636, 480 Birr

- *provision of shower, toilet, common room and small room
- *maintenance of the road in the workshop
- *routine maintenance of the compound
- *preparation of stockyard for casing pipe shade

Water supply line installation and operation :31,500

- *installation of water line from the main and within the existing building
- *Provision of medium size water tank
- *cover operation cost of the water supply line

Power line installation and operation :63,000

- *cover the operation cost of the power line

Telephone line installation and operation :^{157,000}~~378,650~~

- *installation of telephone line
- *cover the operation cost of the telephone line

Telefax and postal service :63,000

- *cover the operation of Telefax and postal service

Fuel and lubricants :378,650

- *cover cost of fuel and lubricants of service vehicles

Vehicles maintenance :315,000

- *Cover cost of service vehicles

Printing and stationary materials :262,000

- *cover cost of stationary materials related to administrative activities

Teaching Furniture :300,000

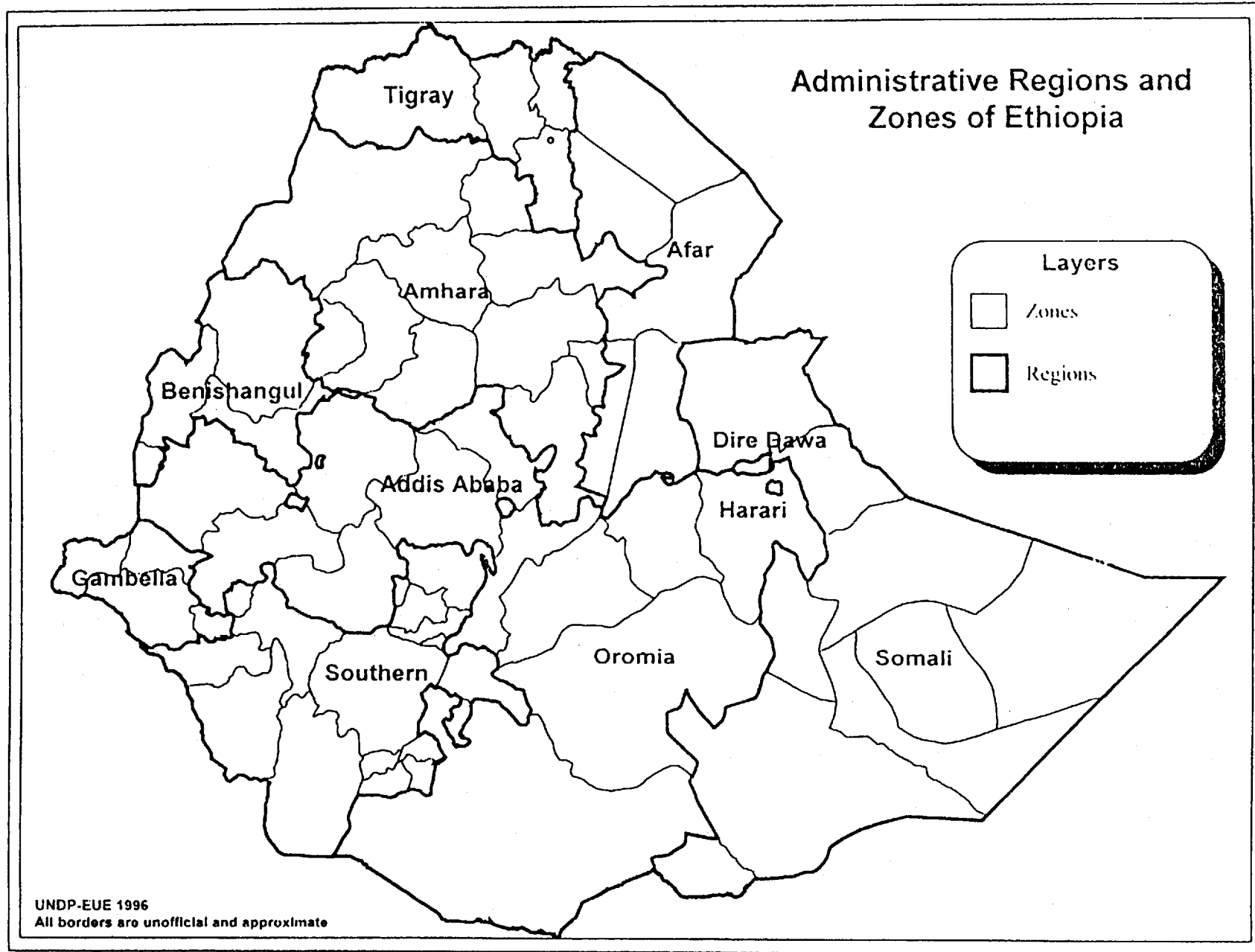
- *provision of teaching furniture

Tax and Inland transport of donated materials:2,568,000

- *Customs duty and other related Tax
- *Inland freight and insurance

Salary and allowances:3,383,100

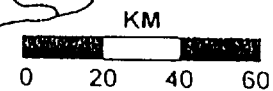
- *salary of counter parts
- *salary of administrative personnel
- *perdiem and allowances of counter parts



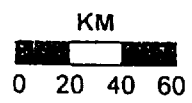
Administrative Weredas of Tigray Region, Ethiopia



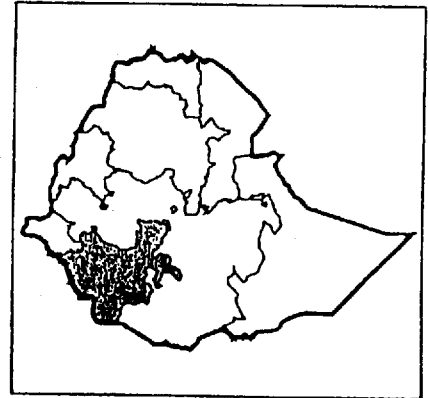
UNDP-EUE 1996
All borders are unofficial and approximate



Administrative Weredas of Southern Region (SPNNR), Ethiopia



UNDP-EUE 1996
All borders are unofficial and approximate



[参考] 事前調査情報：水供給状況等

A. Tigray Region (テグライ州) について

1. 州都は Mekele(メケレ)、首都アジスアベバから陸路自動車利用では1日半掛かるが、国内航空便もある。

州の人口350万人、86%が農村等地方に住む。州の下部行政組織は、4 Zone(ゾーン)、35 Wareda (ワラダ)、約3500kushet (クシャット)

2. 州政府の水資源開発・水供給関連組織

水資源・鉱業・エネルギー局・・・ほかにNGOのテグライ救済委員会がある
水資源開発部(水文地質、設計施行、維持管理、水資源管理の各チームあり)
鉱業・エネルギー部、配給・調達部

3. 主な水源は、湧水及び地下水であり、給水施設の種類は湧水開発施設、手押し井戸(これが数の上からは重点施設で計画上の想定利用者数は1箇所につき500人)、動力式井戸給水施設(想定利用者数は1箇所につき2,000人)

4. 1995年8月現在の給水率は14%で、1995~2000の5カ年計画設置数は、手押しポンプ1640、動力式井戸給水施設860、湧水開発施設540で、給水率を34%まで引き上げる計画となっている。

5. 給水施設建設のすべての過程に住民を参加させる方針で、給水施設毎に建設場所の選定、施行、維持管理に当該地域住民が選出する水衛生委員会が関与するようになっている。これが最も持続性を高める手法であると認められている。同委員会は5人編成で1人は女性となっている。また、給水活動普及員は、水衛生委員会設立のための住民の組織化や、給水施設の建設、維持管理の支援を行っている。

6. 人口1200人のテグステンピエンというワラダの事例：

1井戸を110世帯が利用、利用料は1戸当たり月1ブル、井戸ができる前は女性が10km離れたところへ水汲みに8時間掛かっていたのが今では5分ですみ、以前は1戸15ℓの使用量が今では90ℓになっている、また水質も良くなり衣服の洗濯回数も増えている。

7. 諸外国の援助

従来 UNICEF が大掛かりな財政援助を行っていた。イタリアが、エリトリアと接するテグライ州の16のワラダで、1年半、給水事業を支援(機材供与160万US\$)した、受益者5万人、1997年3月終了。

B. Southern Peoples' Region (南部民族州) について

1. 州都はアワサ(Awasa)、州の人口110万人、アワサは首都アジスアベバから陸路275km(自動車で片道4~5時間)、4 Zone、5特別 Wareda、通常 wareda, kebere(カバレ)

2. 州政府 水資源開発保全局（アワサ所在）

技術部、運営維持部、計画企画部、建設部、機材供給部、管理経理部、
地域社会参加促進部

第2の都市アルバミンチ（Arbaminch）に支部機構がある。

3. 主な水源は、湖水・河川水を中心とする表層水（アワサ、アルバミンチ、イエルガレム）利用で、アワサの1日の浄水処理量は500 m³、地下水利用給水施設として機械掘井戸、手掘井戸、湧水開発施設がある。給水施設は現在約970で、給水率は20%である。

4. 州の水資源開発保全局には、水理地質技術者5名、水文技術者4名、給水普及員8名がおり、年間、村々から約100件の陳情要請が寄せられている。給水普及員の活動内容は、

1) 給水事業事情の提供・地域住民の意識化、地域の社会経済調査・地区選定基礎情報の収集、2) 水委員会の組織化、3) 水道料金システム・料金徴集の仕組みや給水施設維持管理について水委員会の指導、4) 村の住民が選んだテクニシャンに対する必要な技術指導。

5. 村単位に水委員会（5～7名、1名は必ず女性）がある。

6. 諸外国の援助：カナダ（CIDA）が15年間協力した。掘削機等の供与、事務所・職員住宅の建設、専門家派遣を行った。昨年協力活動を終了した。

また、中国が10年前、モロチョ村へ中国の給水事業を導入した、224mの機械掘深井戸（15.4pump kw 容量の発電機で揚水）、いったん25000 lのタンクに貯水し、パイプ付設により三つの共同水栓から給水する。各々の給水栓には二つの蛇口が付いている。

7. モロチョ村（アワサから40 km南下、500世帯、約5000人）の事例：

1965年近隣の住民を移住させて形成、60の集落からなる。シマダ系、アムハラ系、ワライタ系、グラゲ系という異なった言語・文化背景を有する先祖をもつ住民の混成集落である。

伝統的水源は、しみだし水、もしくは、溜め池であった。乾季に利用集落住民が共同で深耕などをして水源維持のため複数の集落規模での共同作業が行われていた。

カナダ人チームがこの村を対象に、初等教育施設の建設を通して給水事業を導入した。学校の敷地に10 m x 20 mの穴を掘り、雨どいを使って雨水を確保した。特に乾季の水の確保は深刻な状況だったので、カナダチームの提案は即座に住民に受け入れられて、溜め池補修という集落を超える規模の共同作業に基づいて雨水貯水槽建設に必要な労働力が地域住民から提供されるに至った。

水委員会は、5名（委員長、経理、監査、出納、物品資材管理）で、村会で選ばれる。委員には3ヶ月に一回1人20ブルの手当が支給される。また発電気オペレーターには月100ブル、水販売責任者には、月90ブル、守衛（発電気室に寝泊り）には月70ブルが支給される。

水料金は、時間給水で、水委員会が雇用した水販売責任者により徴収される。1インスラ（素焼きの壺）1っ杯5セントである。

村人の利用状況：夫婦・子供8人の家族で20ℓ入インスラで1日4回汲みに来る（80ℓ）、この水は、飲料水、料理用、食器洗浄、に使い、洗濯は川です。

その他、地酒（ビール）屋は3日に200ℓ、茶屋は毎日200ℓ、ハチミツ酒屋は3日に60ℓまた、3km離れた隣村からの利用者もいる。

給水施設設置効果として、水が衛生的になり下痢防止の効果がでている、水汲み時間と労力の軽減になっている。摂取できる水量も飛躍的に増加している。