添付資料５

質問票と回答

QUESTIONNAIRE
FOR
THE PROJECT FOR RURAL WATER SUPPLY AND REHABILITATION
IN
TIGRAY REGIONS
IN
THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

JUNE 2006

JAPAN INTERNATIONAL COOPERATION AGENCY
PRELIMINARY STUDY TEAM

Contents

A. Groundwater development Planning

A-1 QUESTIONS (Groundwater Development Planning)

1. Confirmation of the Contents of the Requested Project

1-1 Background of the Requested Project (Question to MoWR and Tigray BWRD)

(1) Please show the relations between the requested project and the national plans such as SDPRP (National poverty reduction plan), UAP (Universal Access Program) and so on.

1-2 Present Conditions of Water Supply and Future Plans of Rural Water Supply in Ethiopia (Question to MoWR and Tigray BWRD)

(1) Please show the general conditions of present rural water supply in Ethiopia.
(2) Please show the on-going activities or projects of water rural water supply in Ethiopia.
(3) Please show the future rural water supply projects in Ethiopia.
(4) Please show the national budget for rural water supply for these three years.

1-3 Conditions of the Requested Weredas and Villages (Question to Tigray BWRD)

(1) Please show the general conditions of the Tigray Regions:
   a. Administrative Divisions (Zones, Woredas, Villages and so on)
   b. Number of Zones, Woredas and Villages
   c. Population of each administrative divisions (Zones, Weredas and Villages)
   d. Major industries of the Tigray Region
   e. Development plan of the Tigray Region
   f. Conditions of the infrastructures such as road, electricity, telecommunication, accommodation, availability of fuel, market and so on of the Tigaray Region
   g. Conditions of sanitation and hygiene of the Tigray Region such as coverage ratio of latrine, water borne diseases and so on
   h. Regional plan of water supply and sanitation of the Tigray Region
   i. Activities of de-mining and sweeping of unexploded bomb in Tigray Region

(2) Please show the present water supply conditions of the requested 26 weredas:
   a. Served population and average coverage ratio
   b. Average water consumption rate and planned consumption rate per capita
   c. Number of existing water supply system (number of shallow well, deep wells, public faucet, hand dug well, spring and etc.)
   d. Water sources of the un-served population (population of the users of unprotected hand dug wells, wadi water and so on)
   e. Existence of the water vendor and its price
   f. Supply chain of spare parts for water supply facilities

(3) Please prepare the list of the requested villages in the attached form based on the up-dated data:
   a. Please show the criteria for the selection of priority villages.
   b. Please show the locations of the requested villages on the location map.
   c. Who is undertaking the water fetching? Women? Children?
   d. Please show the incidence rate of water born diseases.
   e. Please show the preferable type of the water supply facilities such as shallow well, deep well and etc., and please show the reasons.

(4) Please show the correspondence of Tigray state government to “Off-Set” policy in case that the grant aid project might be implemented.

List of Requested Villages

Zone	Wereda	Village	Popula-tion	Number of existing wells	Type[a] of supply system	Working[b] condition of existing system	Served ratio (%)	Perfor-mance[c] of committee	Water tariff (Birr/lit) & Afford-ability	Tariff[d] collection system	Access[e] condition to the village	Existence of geological logs of the existing well	Lithology of the aquifer	Assumed[f] groundwater productivity	Incidence[g] rate of water born diseases	Water quality (good or not)	Required Facilities	Priority[h]

a: Hand pump, Public faucet, House connection, etc. b: Working, Not working waiting for repair, Abandoned, c: Good performance, Not working, Not organized,
d: On the water point, Monthly, Yearly, In case of breakdown, e: Drilling rig can access easily in any season, accessible in dry season, not accessible even in dry season,
f, g, h: High, Medium, Low in comparison with other villages,

1-4 Organization of the Implementation Agency (Question to Tigray BWRD)

(1) Please show the up-dated organization, number of staff members and annual budget of last three years of the BWRD which is the implementation agency.
(2) Please show the procedures of the formulation of the groundwater development plan.

2. Activities of other Donors, NGOs (Question to Tigray BWRD)

(1) Please show the list of the completed/on-going/planned rural water supply projects by other donors (WB, ADB, UNICEF, EU and so on) and NGOs in the requested 26 weredas.
(2) Please show the outline of the projects:
   a. Type of project (water supply, rural development, agriculture and so on)
   b. Outline of the project
      -Purpose
      -Target area (target villages)
      -Budget and its source
      -Duration
      -Beneficiaries
      -Facilities
      -Others
(3) Please show the method of education and mobilization of village people for the operation and maintenance of the facilities.
(4) Please show the system of the supply chain of spare parts for water supply facilities.
(5) Are there project components of capacity building for governmental staff members?
(6) Please show lessons learned in the projects.

3. Land Mines, Unexploded Bomb and Other Security Risks (Question to Tigray BWRD)

(1) Are there map showing dangerous area of land mines or unexploded bomb?
(2) Please show the procedures to get such information.
(3) How is the decision whether safe or unsafe made in the areas where no data is available?
(3) Are there any security risks other than land mines and unexploded bomb in the Tegray Region especially in the vicinity weredas to the border to Eritrea?

4. Hydrogeological Conditions of the Project Sites (Question to Tigray BWRD)

(1) Please show the difficulties of the groundwater production and show the success rate of the well in the requested villages in the requested villages.
(2) Please show the necessity of exploratory well drilling in the requested villages in case the groundwater development project would be implemented.
(3) Please show the existence or nonexistence of the geological logs and casing program data of the existing wells in the requested villages.

5. Local Contractors and Markets (Question to MoWR and Tigray BWRD)

(1) Are the local consultants available which are able to conduct the Socio-economic survey? Please show the list of capable consultants and show the unit cost of the socio-economic survey.
(2) Are the local topographic survey companies available which are able to conduct the profile land survey? Please show the list of capable topographic survey companies and show the unit cost of the topographic survey.
(3) Are the local contractors available which can undertake the construction of the water supply facilities and production wells? Please show their abilities and the unit cost of the construction works.
(4) Are the local consultants available which can undertake the supervision of the construction work of water supply facilities and production wells? Please show their abilities and the unit cost of the consultant fees.
(5) What kind of the materials are available in Ethiopia which will be used for the construction of the water supply facilities? Please show the unit price of local materials.

6. Planed Water Consumption Rate (Question to MoWR and Tigray BWRD)

Please fill the following table:

Item	Unit	Urban		Rural (Villages)
		Urban	Peri-urban	
Rural unprotected dug ells	Lit/Capita/day			
Rural cased dug well with hand pump	Lit/Capita/day			
Rural sallow well with hand pump	Lit/Capita/day			
Rural small water supply (public faucet)	Lit/Capita/day			
Rural small water supply (house connection)	Lit/Capita/day			
Urban water supply (public faucet)	Lit/Capita/day			
Urban water supply (house connection)	Lit/Capita/day			
Factories	% of domestic demand			
Restaurants and hotels	% of domestic demand			
Small businesses	% of domestic demand			
Public institutions	% of domestic demand			
Hospitals and clinics	Lit/bed			
Hotels	Lit/bed			
Schools	Lit/Capita/day			
Daily peak factor	Max./Average			
Seasonal peak factor	Max./Average			

Please fill above table if the information is available, otherwise, the columns will be left blank.

A-2 REQUIRED DATA AND INFORMATION (Groundwater Development Planning)

1. Development Plan

a. Region level in Tigray region (if any)
b. Development plan in wereda level in Tigray region (if any)
c. Other related development plan (if any)

2. Law and Regulation Regarding Rural Water Supply

a. Water laws (if any)
b. Laws and regulations regarding water right (if any)
c. Regulation and standard for the planning of water supply facilities (if any)
d. Design standard of rural water supply facilities (if any)

3. Water point inventory data of the Tigray Region (if any)

4. Data and Information Regarding Groundwater Development

a. Map of catchments area and river system
b. Geological maps
c. Hydrogeological maps
d. Land use and vegetation maps
e. Long-term groundwater level fluctuation data (hydrograph)
f. Meteorological data of the Project sites (Air temperature-monthly mean, Precipitation–monthly-annual, Evaporation-monthly)
g. Well inventory data showing well structure, geological log, pumping test and water quality, in the Project sites. Please provide us data of one typical well in each requested wereda.
h. Topographic maps of various scales

B. Operation and Maintenance/Environment and Social Consideration

B-1 QUESTIONS (Operation and Maintenance/Environment and Social Consideration)

1. Operation and Maintenance (Questions to Tigray BWRD)

(1) Please show the roles of MoWR and Tigray BWRD for rural water supply.
(2) Please show laws and regulations concerning operation and maintenance of rural water supply facilities.
(3) Please show the following information concerning operation and maintenance of rural water supply facilities (deep well with public taps and shallow well with hand pump)
   a. Ownership of water supply facilities
   b. Operating and managing body
   c. Organization of water committee
   d. Tariff system
   e. Household income and ratio of the tariff payment in income
   f. Training system for operator, repairer and water committee
   g. System of the supply chain of spare parts
   h. Number of existing facilities and operating facilities in Tigray region
(4) What are reasons for non-operation? Please show difficulties in operation and maintenance of the facilities.
(5) Please show the method of education and mobilization of village people for the operation and maintenance of the facilities.
(6) Are there capacity building plans for government staff members?
(7) Are there any plans of privatization of the water supply services?
(8) Please show the types of hand pump which are existing in Tigray region. What type of hand pump does the Government recommend?

2. Environmental and Social Consideration

2-1 Low and regulation

(1) Please show a list of every law and regulation concerning environmental and social considerations and groundwater development.
(2) What is the procedure for the environmental clearance and/or the Environmental Impact Assessment (EIA/IEIA).
(3) Please show the list of the international agreements for environmental conservation already ratified by the country.
(4) Have you ever gone through the environmental clearance procedure in the domain of rural water supply? If yes, please show some outlines of those projects.

2-2 Environmentally conserved area

(1) Please show the conserved areas by the international conventions (Ramsar convention, World heritage etc.) in Ethiopia.
(2) Please show the conserved areas of the national parks and the nature reserves

in Tigray region.

(3) Please show the cultural, historical, archaeological sites in Tigray region.

2-3 Organization

(1) What agency is responsible for environmental clearance and Environmental Impact Assessment of rural water supply project?

(2) Please show the up-dated organization, number of staff members, authority and duties of the Environmental Protection Authority (EPA).

(3) Please show the up-dated organization, number of staff members, authority and duties of the environmental agency in Tigray state government.

2-4 Others

(1) Please show the existing environmental monitoring system (water quality, water use, groundwater level, ecological conditions etc.) in Tigray region.

(2) Please show environmental issues happened in the past in and around Tigray region.

a. Water use conflict (irrigation, community etc.)
b. Water contamination
c. Groundwater level lowering
d. Land acquisition and involuntary settlement
e. Health and hygiene issues
f. Problem among ethnic groups or tribes
g. Traditional gender discrimination

(3) Please show social acceptability in case of involving involuntary resettlement and land acquisition of this Project.

3. Local Contractors and Markets

(1) Are some local consultants available which are able to conduct the environmental survey and assessment? Please show a list of capable consultants and show unit costs of the survey.

(2) Are some laboratories available which are able to conduct the water quality analysis? Please show a list of capable laboratories and show the unit cost of the water quality analysis for drinking water.

(3) Are some local consultants and/or NGOs available which are able to conduct the activities of education and mobilization of village people for the operation and maintenance of the rural water supply facilities? Please show a list of capable consultants and/or NGOs.

B-2 Required Data and Information (Operation and Maintenance/Environment and Social Consideration)

1. Law and Regulation Regarding Environment

a. Environmental policy
b. Environmental laws (if any)
c. Environmental conservation strategy
b. Environmental guidelines for the water supply facilities and the groundwater development (if any)
e. Environmental standards (drinking water quality, industrial wastewater quality, sewage water quality, noise, vibration etc.)
f. Explanation paper for the environmental clearance and assessment procedures (if any)

2. Data and Information Regarding Environment

a. Water quality data of existing sources of water supply in each requested Wereda
b. Long term groundwater level observation data in the requested Weredas (if any)
c. Number of existing irrigation wells or private wells in each requested Wereda
d. Maps of the national parks, the reserves and the conserved area in Tigray region
e. Map of ethnic groups
f. List of species in danger or species of precious animals and plants in Tigray region

水資源省からの質問票への回答書

1 Please shows the general condition of present rural water supply in Ethiopia?

Ethiopia with a total area of 1.13 million square kilometers has an estimated total population of 70 million (Mid 2005) out of which 59.5 million are rural settlers while the remaining 10.5 million are residing in urban centers. The rate of population growth is about 3% per annum.
The country is endowed with vast riches of water resources, including 12 major river basins and 12 natural and artificial lakes. The total annual surface runoff, regardless of its distribution, is estimated to be in the order of 123 BM^3, of which 75% drains to neighboring countries. There is also an estimated 2.56 BM^3 of usable ground water that is not yet exploited much with the exception for rural and urban water supply.

Attempts made by MoWR to estimate the water supply coverage levels in Ethiopia indicate that the coverage levels are extremely low, even by the standards of Sub Saharan African Countries. As a result, in the year 2005, only 42% of the total population is estimated to have access to improved water supply (WSDP/MoWR, 2002) while only about 28% (MOH, 2002) of the total population is assumed as having access to sanitation facilities. The Urban and Rural Water Supply coverage levels are 82% and 35% respectively in the year 2005. Sanitation coverage levels in the rural areas is even worse, about 17.5% of the total population are estimated to get some form of access to sanitation facilities.

The water problem is more acute in the drought prone areas. There is high dependency on unprotected rivers and streams, where these water sources are available. According to some findings of the Water Supply and Sanitation Master Plan Study (DHV/MoWR, 2003), the collection of water is a heavy burden to women members of households (in some cases over 530 hours traveling, 117 hours waiting and 27.9 tone Km per household annually).

Access to potable Water Supply and Sanitation facilities is a means to get out of poverty by adding up the production period of the agricultural society. The provision of these basic facilities has direct linkage with health situation, which in turn has relation with productivity.

2. Please show on going activities or project s of rural water supply in Ethiopia?

The Government of the Federal Democratic Republic of Ethiopia recognizes the provision of adequate water supply and sanitation services

as essential necessity for attaining acceptable socio-economic standards and promoting sustainable development as well as access to water supply and sanitation services as a basic right of every citizen. In an aim to meet the objectives of providing adequate water and sanitation services to the needy population, the Government of Ethiopia has prepared the Ethiopian Water Resource Management Policy, Ethiopian Water sector Strategy, Water Sector Development Program and National Water Supply and Sanitation Master Plan in a coherent manner. In all the documents, provision of water supply is given high priority. As it is well articulated in the policy and strategy documents, participation and empowerment of the end users starting from its conceptualization to implementation would remain a corner stone of sustainability. Technology choice will also be an area of concern.

Furthermore, Ethiopia is committed to achieve one of the Millennium Development Goals (MDGs), which is reducing by half, the proportion of people without sustainable access to safe drinking water by 2015.
The main goal of the water supply and sanitation program is designed to contribute towards poverty alleviation in rural areas of Ethiopia through increasing rural water supply and sanitation coverage levels there by availing the time for productive activities. The issue of end users and technology choice is well addressed in the water supply and sanitation component.

The present decentralization process creates favorable environment for implementation of the proposed RWS projects at woreda levels. Steps are being taken by the Government to enhance capacities of woredas both in terms of the necessary human resources and other areas to cater for the needs with respect to RWS. In fact, under the auspices of the Ministry of Water Resources, nine regions have established Vocational and Technical Training Centers to teach water technicians for the woredas. Training has already started in four core areas.

3. Please show the future rural water supply projects in Ethiopia?

Table 1: New Rural water supply schemes to be constructed

I/No.	Scheme types	1998/9 E.C	1999/ 2000 E.C	2000/1 E.C	2001/2 E.C	2002/3 E.C	2003/4 E.C	2004/5 E.C	To be constructed from 2005/6-2011 /12(7 years universal access plan
		2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	
1	Unlined Improved community dug wells(Avg. depth 10mts.)	9,964	9,964	9,964	9,964	9,964	9,964	9,964	69,745
2	Lined standard dug wells(Avg depth 15mts.	5,510	5,510	5,510	5,510	5,510	5,510	5,510	38,568
3	On spot spring development	2,061	2,061	2,061	2,061	2,061	2,061	2,061	14,426
4	Small scheme Spring development	89	89	89	89	89	89	89	625
5	Medium scheme spring development	63	63	63	63	63	63	63	438
6	Large scheme spring development	0.67	0.67	0.67					2
7	shallow boreholes	2,982	2,982	2,982	2,982	2,982	2,982	2,982	20,871
8	Deep Boreholes	427	427	427	427	427	427	427	2,986
9	Others(surface water source etc.)	3	3	3	3	3	3	3	20
10	Cysterns	111	111	111	111	111	111	111	778
11	Ponds	81	81	81	81	81	81	81	565
Total									**149,024**

Table2: Rural water Supply schemes to be rehabilitated

I/No.	Type of Schemes to be rehabilitated	1998/9 E.C	1999/00E.C	2000/1E.C	Total No. of schemes to be rehabilitated
		2005/6	2006/7	2007/8	
1	Hand dug wells	10,644	10,644	10,644	31,932
2	Spring development	3,220	3,220	3,220	9,660
3	Shallow boreholes	1,942	1,942	1,942	5,826
4	Deep boreholes	240	240	240	720
5	Ponds	59	59	59	177
6	Cisterns	59	59	59	176
7	Others	6	6	6	19
	Total	16,170	16,170	16,170	48,510

4 Please show the national budjet for rural water supply for these years?

Table 3: Rural Water Supply Financial Requirement 2005/6-2009/10 according to Universal Access Plan

I/ No.	Description	National Financial requirement in Birr(2005/6-2011/12)	Annual Financial Requirement in Birr						
			2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12
1	New schemes	7,312,506,955	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851
2	Rehabilitation	397,113,607	132,371,202	132,371,202	132,371,202				
3	Study and Design	146,250,138	20,892,877	20,892,877	20,892,877	20,892,877	20,892,877	20,892,877	20,892,877
4	Supervision	230,828,631	32,975,519	32,975,519	32,975,519	32,975,519	32,975,519	32,975,519	32,975,519
5	Refresher course for 10+3 water related technical school graduates	25,400,001	5,080,000	5,080,000	5,080,000	5,080,000	5,080,000		
6	Artisans training	8,082,661	1,616,532	1,616,532	1,616,532	1,616,532	1,616,532		
7	Equipments to be leased to artisans	449,036,776	89,807,355	89,807,355	89,807,355	89,807,355	89,807,355		
8	Areal mechanics training	8,009,581	1,601,916	1,601,916	1,601,916	1,601,916	1,601,916		
9	Equipments to be leased to areal mechanics	177,990,720	35,598,144	35,598,144	35,598,144	35,598,144	35,598,144		
	(New schemes +Rehabilitation) including community contribution	8,755,219,070	1,364,587,396	1,364,587,396	1,364,587,396	1,232,216,194	1,232,216,194	1,098,512,246	1,098,512,246
1	Community contribution for new schemes	953,840,693	136,262,956	136,262,956	136,262,956	136,262,956	136,262,956	136,262,956	136,262,956
2	Community contribution for rehabilitation	39,711,360	13,237,120	13,237,120	13,237,120				
	New schemes + Rehabilitation excluding community contribution	7,761,667,017	1,215,087,320	1,215,087,320	1,215,087,320	1,095,953,238	1,095,953,238	962,249,290	962,249,290

5. Please show the up date organization, number of staff and annual budget of the last three years?

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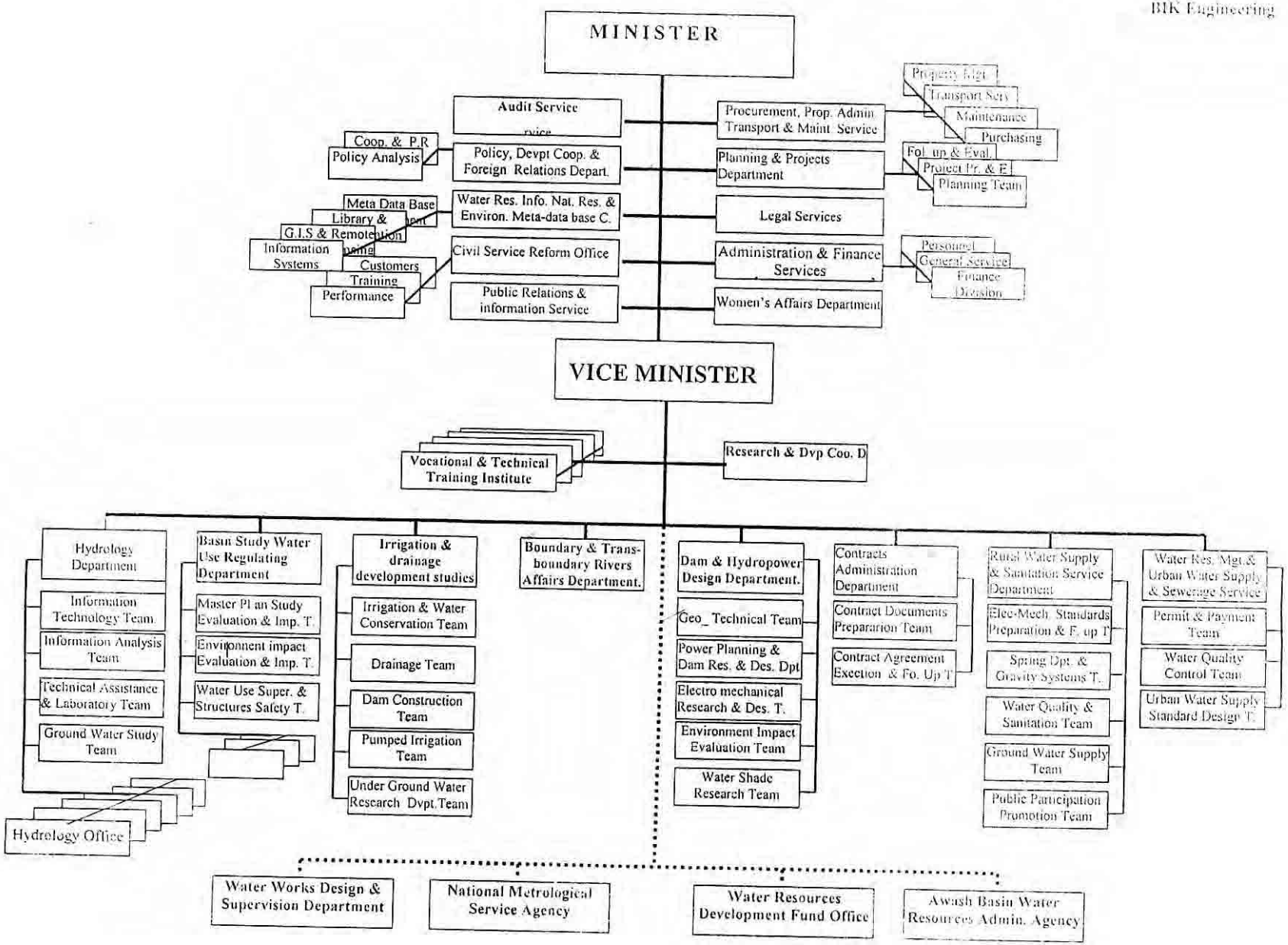
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Planning Team
Legal Services
Administration & Finance Services
Personnel
General Service
Finance Division
Women's Affairs Department
VICE MINISTER
Vocational & Technical Training Institute
Research & Dvp Coo. D
Hydrology Department
Information Technology Team
Information Analysis Team
Technical Assistance & Laboratory Team
Ground Water Study Team
Hydrology Office
Basin Study Water Use Regulating Department
Master Plan Study Evaluation & Imp. T.
Environment impact Evaluation & Imp. T.
Water Use Super. & Structures Safety T.
Irrigation & drainage development studies
Irrigation & Water Conservation Team
Drainage Team
Dam Construction Team
Pumped Irrigation Team
Under Ground Water Research Dvpt.Team
Boundary & Trans-boundary Rivers Affairs Department.
Dam & Hydropower Design Department.
Geo_ Technical Team
Power Planning & Dam Res. & Des. Dpt
Electro mechanical Research & Des. T.
Environment Impact Evaluation Team
Water Shade Research Team
Contracts Administration Department
Contract Documents Prepararion Team
Contract Agreement Execution & Fo. Up T
Rural Water Supply & Sanitation Service Department
Elec-Mech. Standards Preparation & F. up T
Spring Dpt. & Gravity Systems T.
Water Quality & Sanitation Team
Ground Water Supply Team
Public Participation Promotion Team
Water Res. Mgt.& Urban Water Supply & Sewerage Service
Permit & Payment Team
Water Quality Control Team
Urban Water Supply Standard Design T.
Water Works Design & Supervision Department
National Metrological Service Agency
Water Resources Development Fund Office
Awash Basin Water Resources Admin. Agency

Manpower

Personnel information obtained by the consultant is in adequate for complete presentation and analysis of the Ministry's human resources. As gathered from the documents received and discussions held with officials of the Ministry, there are about 800 employees deployed in various units of the Ministry, all housed in one building; 37% of them are female and 63% male. The staffing plan of old organization structure provides room for 1178 positions out of which more than 300 positions are vacant.

An attempt is made to present below the profile of the staff of the Ministry on the basis of their age, sex, level of education attained, years of service with the Ministry, occupational classification of jobs and salary range (see table below). Its pictorial presentation is also portrayed in the following charts. Male and Female ratio of the staff of the Ministry and their place in the organization can be easily discerned from these table and charts.

Detailed analysis of the staff of the Ministry will be presented after complete personnel information is secured in the findings and recommendations part of this study.

The newly studied organization structure that is being implemented today has 1247 positions in its staffing plan. Like many public institutions the Administration and Finance Service has the highest number of positions, 418. It is followed by the Supplies and Materials Management Service and Hydrology Departments in that order as second and third. Basin Studies Department takes the lion's share of professional jobs; Hydrology takes most of the sub-professional jobs.

Close to 30 % of the planned positions require a minimum of first degree for entrance. Details are presented in the charts that follow. Planned positions are approved by the Federal Civil Service Commission. But they are not classified. This presentation is based on the proposal of the Ministry of Water Resources submitted the Federal Civil Commission for its approval.

companies and show the unit cost of the topographic survey.

(3) Are the local contractors available which can undertake the construction of the water supply facilities and production wells? Please show their abilities and the unit cost of the construction works.

(4) Are the local consultants available which can undertake the supervision of the construction work of water supply facilities and production wells? Please show their abilities and the unit cost of the consultant fees.

(5) What kind of the materials are available in Ethiopia which will be used for the construction of the water supply facilities? Please show the unit price of local materials.

6. Planed Water Consumption Rate (Question to MoWR and Tigray BWRD)

Please fill the following table:

Item	Unit	Urban		Rural (Villages)
		Urban	Peri-urban	
Rural unprotected dug ells	Lit/Capita/day			10
Rural cased dug well with hand pump	Lit/Capita/day			12
Rural sallow well with hand pump	Lit/Capita/day			15
Rural small water supply (public faucet)	Lit/Capita/day			15
Rural small water supply (house connection)	Lit/Capita/day			15
Urban water supply (public faucet)	Lit/Capita/day			
Urban water supply (house connection)	Lit/Capita/day			
Factories	% of domestic demand			
Restaurants and hotels	% of domestic demand			
Small businesses	% of domestic demand			
Public institutions	% of domestic demand			
Hospitals and clinics	Lit/bed			
Hotels	Lit/bed			
Schools	Lit/Capita/day			
Daily peak factor	Max./Average			1.5
Seasonal peak factor	Max./Average			2.0

Please fill above table if the information is available otherwise, the columns will be left blank

ティグライ州水資源局からの質問票への回答書

Regional Profile

Location-$12^0$15'N-$14^0$57'N

$36^0$27'E -$39^0$59E

The region is bordered in the north with Eritrea in the west with Sudan, in the south, with the Amhara region, and East by the Afar region.

- It covers an area of 53623 km^2
- The region is divided into 5 zones
  - -Western Zone which covers 51% of the area
  - -Central Zone which covers 19.3% of the area
  - -Southern zone which covers 18.1% of the area
  - -Eastern zone which covers 10.8% of the area
  - -Mekelle zone which covers 0.8% of the area

These zones are divided into 34 Woreda, and these woreda's are further sub divided into 620 tibias and 3516 villages.

- The region is high land area. which consists of plateau and hilly areas, dissected by deep river valleys, predominant geological formations are sandstone, limestone and shale's layer, 2000m thick.
- The annual rainfall between 300-1000mm temperature 11.7-25.4. Most of the rainfall occurs between mid June and mid September.
- Population of the region is estimated 4.3 million with an annual population growth 3%.
- 82.2% Rural and 17.8% urban
- 860,000 house holds
- 49.2% Male, 50.8% female.

Economic and social situation

less than US$ 1.0/day
(World Bank, UNDP)

- 75% of the rural population and 61% of the urban population lives under absolute poverty.
- The major economic activity of the region is agriculture
- The rate of erosion is very high.
- The rate of deforestation is high
- Industrial development is at a rudimentary stage the major industries are cement at Mekelle, phrmaclutus poducts at Adigrat and textile industry at Adwa.

Woredas Population

N.o	Woreda					population 1998 E C	
1	Medebay Zana					123621	
2	Tahetay Koraro					73528	
3	Laelay Adyabo					97212	
4	Asgede Tsmbla					120282	
5	Tahetay Adyabo					78514	
6	Tselemte					126046	
7	Kafta Humera					42515	
8	Wolkayet					116587	
9	Tsegedie					55585	
10	Rayaa Azebo					101449	
11	Endamekone					82091	
12	Alaje					105725	
13	Enderta					123257	
14	Ofla					142168	
15	Alamata					91777	
16	Saharte Samre					111801	
17	Hintalo Wajerat					138828	
18	Sase tsadaemba					120296	
19	Ganta afeshum					110226	
20	Astbe wonberta					103987	
21	Erobe					20648	
22	Gulomekeda					91569	
23	Kelet awlalo					92814	
24	Hawzen					119143	
25	Adua					111905	
26	Tahtay maichew					98289	
27	Mereb leke					97439	
28	Naeder adet					106350	
29	Kola tembein					135725	
30	Tankuaabergle					75317	
31	Ahforom					151712	
32	Dogua tembein					112359	
33	Laelay Machew					83635	
34	Werie leke					135718	
	Total					**3498118**	

The Bureau set up

Currently the bureau has reorganized itself by merging Mine and Energy office with itself, replacing Tigrai Water Resources Development Bureau. In this new arrangement there are 411 staff positions which at present 305 are filled with skilled personnel.

No.	Qualification	Quantity
1	Ph Degree	1
2	MSc Degree	34
3	Degree	74
4	Diploma	68
5	High school	24
6	Junior & Elementary	93
	Total	305

The Bureau Budget

No.	Type of budget	1996 2004/05	1997 2005/06	1998 2006/07
1	Capital/project/ budget	4,662,400	4,626,260	11,433,973
2	Operational budget	5,088,129	5,907,780	6,279,361
3	Food security projects	61,069,885	122,446,680	102,014,330
4	Total	70,820,414	132,980,720	119,727,664

There are also several non governmental organizations which work in water supply and irrigation projects in collaboration with the Bureau, the major donors are IFAD, UNICEF, UNDP, IRISH, and currently World Bank and ADB.

International Food and Agriculture Development. (かんがい分野のみ援助)

↖ また開始 されていた。

No.	UNICEF	World vision	Orthodox	Catholic Mekelle	Catholic Adigrat	Mekahe Yesus
1	Alaje	Sase Tsadaemba	Hintalo wajerat	DoguaTembien	Erob	Merebleke
2	GantaAfeshum	Atsbe		Enderta	Glomekda	
3	Enderta	Wukro			GantaAfeshum	
4	SaseTsadamba				SaseTsadaemba	
5	Hawzen				TahtayKoraro	

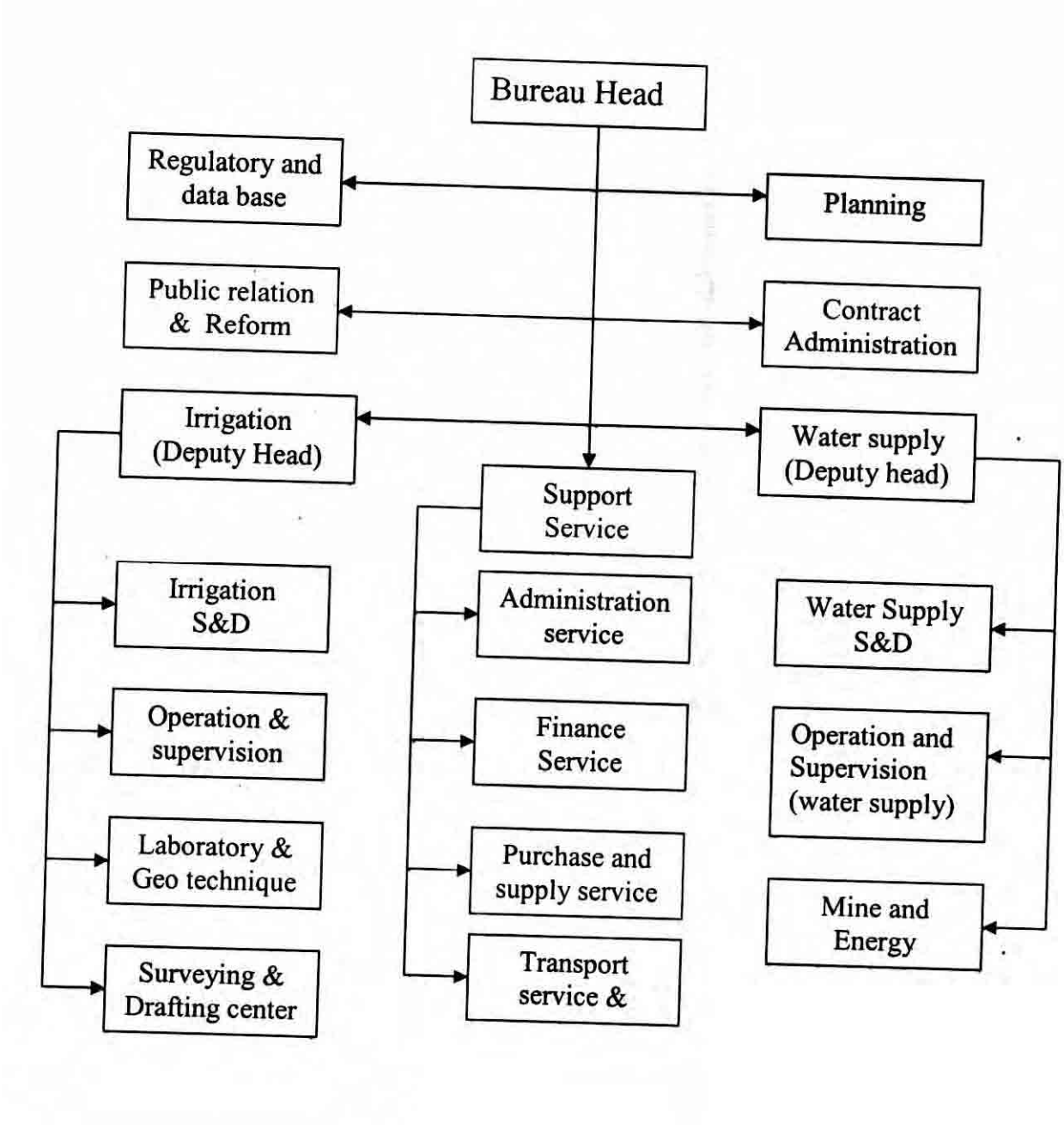
Bureau Head
Regulatory and data base
Planning
Public relation & Reform
Contract Administration
Irrigation (Deputy Head)
Water supply (Deputy head)
Support Service
Irrigation S&D
Administration service
Water Supply S&D
Operation & supervision
Finance Service
Operation and Supervision (water supply)
Laboratory & Geo technique
Purchase and supply service
Mine and Energy
Surveying & Drafting center
Transport service &

Table 1 From 1999-2003 Planned Rural water supply coverage

N..o	Year	Expected increase %	Planned coverage %
1	1999 2007	5	46
2	2000 8	8	54
3	2001 9	~~10~~ 10	64
4	2002 10	11	75
5	2003 11	13	88

Table 2 Annual plan of rural water supply

N.o	Type	Year					Total
		1999	2000	2001	2002	2003	
1	Deep well (fuel,)	26	49	74	89	107	345
2	Deep well (Solar)	2	6	9	11	13	41
3	Deep well (Wind)	0	5	10	15	20	50
4	Shallow well	233	419	593	733	860	2838
5	Modern hand pump	357	351	351	351	351	1761
6	Community hand well	19	36	55	66	80	256
7	Spring development	72	72	53	45	30	272
8	Pond	0	10	14	15	16	55
9	Roof catchment	340	340	340	340	340	1700
10	Deep well with system	0	1	2	2	3	8
11	Multi village water supply system	1	2	2	2	3	10
12	Ground water recharge	21	150	200	250	300	921
13	Deep well rehabilitation	34	34	34	34	34	170
14	Shallow well rehabilitation	182	182	182	182	182	910
15	Hand dug well rehabilitation	94	94	94	94	94	470
16	Spring rehabilitation	42	42	42	42	42	210
17	Hand pump replacement	10	30	40	50	60	190
18	Electro Mechanical Replacement	7	8	10	15	20	60

Present water supply conditions of the requested 10weredas

	ZONE	WOREDA	POPULATION	EXISTING COVERAGE
1	Southern	Raya Azebo	101449	40%
2	Southern	Alamata	91777	43%
3	Eastern	Hawzen	119143	39.29%
4	Southern	Hintalo wajerat	138828	45%
5	Southern	Saharti Samre	111801	42%
6	Southern	Inderta	123257	38%
7	Eastern	Kilete Awlalo	92814	45%
8	Central	Tanqua Abergle	75317	39%
9	Central	Dogua Tembean	112359	42%
10	Central	Kolla Tebean	135725	38%
	TOTAL		1089052	40%

		Hand dug		Shallow well		Spring		Motorized	
		F	N.F	F	N.F	F	N.F	F	N.F
1	Raya Azebo	-	-	3	-	-	-	37	3
2	Alamata	17	-	6	3	7	1	20	2
3	Hawzen	101	27	45	22	11	4	-	-
4	Hintalo wajerat	152	4	38	4	47	3	3	1
5	Saharti Samre	31	24	79	38	16	8	188	70
6	Inderta	29	11	40	7	5	-	2	-
7	Kilete Awlalo	123	21	47	24	5	3	2	-
8	Tanqua Abergle	95	26	60	7	4	3	-	-
9	Dogua Tembean	72	10	4	1	107	6	-	-
10	Kolla Tebean	62	-	68	1	5	3	-	-

The people in the above woredas have little access to clean water almost 60% of the residents get water from springs ,river /protected and unprotected wells or ponds.

Health situation

In the above mentioned woredas the water born disease incidence is high according to 2003/04 Tigray health bureau assessment in these woredas water born diseases are listed among the top 10 diseases in the areas. The distribution of hospitals and clinics is also low,only the two woredas own hospitals.

Operation and maintenance

Major maintenance and repair of motorized RWSS and UWSS is carried out by the O&M of the region which is stationed at Mekele .Minor maintenance is carried out by zonal and woreda team. Before some years there was a significant subsidizing of maintenance, repair and supply of material, equipment and spare parts, but now most of the RWSS and UWSS are covering their major maintenance costs, and the bureau is supplying spare parts on their costs.

添付資料６

収集資料リスト

添付資料６．収集資料リスト（■収集資料/□専門家作成資料）

主管部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

		プロジェクトID		調査団番号			
地域	アフリカ	調査団名	ティグライ州水供給整備・改修計画予備調査	調査の種類	基本設計調査（予備調査）	担当部課	無償部業務第三ｸﾞﾙｰﾌﾟ水資源・環境ﾁｰﾑ
国名	エチオピア国	配属機関名		現地調査期間	18年6月27日～18年8月2日	担当者氏名	深瀬　豊

番号	資料の名称	形態(図書、ﾋﾞﾃﾞｵ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	ﾃｷｽﾄ	発行機関	取扱区分	図書館記入覧
A	**統計資料、法令・基準、国家計画**								
A-1	Water Resources Policy	コピー	*				Ministry of Water Resources	JR・CR(　)・SC	
A-2	Ethiopian Water Resources Management Regulations	コピー	*				Ministry of Water Resources	JR・CR(　)・SC	
A-3	Ethiopian Water Resources Management Proclamation	コピー	*				Ministry of Water Resources	JR・CR(　)・SC	
A-4	Ethiopian Guidelines, Specification for Drinking Water Quality, March 2002	コピー	*				Ministry of Water Resources	JR・CR(　)・SC	
B	**地形図**								
B-1	25万分の1地形図3枚(MEKELE, ADI ARKAY, MAYCHEW)	オリジナル	*				Ethiopian Mapping Authority	JR・CR(　)・SC	
B-2	MAP CATALOGUE 2002	オリジナル	*				Ethiopian Mapping Authority	JR・CR(　)・SC	
C	**地質、水文地質関連報告書、図面**								
C-1	Geological Map of Ethiopia (1/2,000,000) and Explanation Note	カラーコピー	*				Geological Survey of Ethiopia	JR・CR(　)・SC	
C-2	Geological Map of Mekele (1/250,000)	オリジナル	*				Geological Survey of Ethiopia	JR・CR(　)・SC	

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番号	資料の名称	形態(図書、ﾋﾞﾃﾞｵ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	ﾃｷｽﾄ	発行機関	取扱区分	図書館記入覧
C-3	Geological Map of Axum (1/250,000)	オリジナル	*				Geological Survey of Ethiopia	JR・CR(　)・SC	
C-4	Geological Map of the Adigrat Area (1/250,000) and Explanatio Note	オリジナル	*				Geological Survey of Ethiopia	JR・CR(　)・SC	
C-5	Hydrogeology of the Mekele Area with Hydrogeological Ma (1/250,000)	オリジナル	*				Geological Survey of Ethiopia	JR・CR(　)・SC	
C-6	Regional Hydrogeological Investigation of Northern Ethiopia wi Hydrogeological Map (1/1,000,000	カラーコピー	*				Geological Survey of Ethiopia	JR・CR(　)・SC	
C-7	既存井の地質柱状図	コピー	*				Tigray Water Works Construction Enterprise	JR・CR(　)・SC	
C-8	行政区分図、主要道路マップ、水系図	コピー	*				Tigray Atlas, 1996	JR・CR(　)・SC	
C-9	要請村落で想定される地質のリスト	コピー	*				Tigray Water Resources Mines & Energy Bureau	JR・CR(　)・SC	
D	**他ドナー、NGOの活動**								
D-1	世銀のティグライ州における村落給水プロジェクトの村落リスト	コピー	*				世銀ティグライ事務所	JR・CR(　)・SC	
D-2	REST(NGO)のパンフレット	ｵﾘｼﾞﾅﾙ	*				REST	JR・CR(　)・SC	
E	**環境・社会配慮関連資料**								
E-1	Environmental Impact Assessment Guideeline Document, July 2002	コピー	*				Environmental Protection Authority	JR・CR(　)・SC	
E-2	Environmental Impact Assessment Procedural Guideeline (Draft), November 2003	プリント	*				Environmental Protection Authority	JR・CR(　)・SC	
E-3	Integrated Environmental and Social Impact Assessment Guidelines Water Supply, 2004	プリント	*				Environmental Protection Authority	JR・CR(　)・SC	

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E-4	Guidelines to Prepare Environmental and Social Management Plan, Nov. 2004	プリント	*				Environmental Protection Authority	JR・CR(　)・SC	
E-5	Environmental Assessment Reportong Guide, 2004	プリント	*				Environmental Protection Authority	JR・CR(　)・SC	
E-6	Environnmentaal Policy, April 2, 1997	プリント	*				Environmental Protection Authority	JR・CR(　)・SC	
E-7	Environmental Protection Authority Establishment Proclamation	コピー	*				Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia	JR・CR(　)・SC	
E-8	Environmental Protection Organs Establishment Proclamation	コピー	*				Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia	JR・CR(　)・SC	
E-9	Environmental Impact Assessment Proclamation	コピー	*				Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia	JR・CR(　)・SC	
E-10	Environmental Pollution Controle Proclamation	コピー	*				Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia	JR・CR(　)・SC	
E-11	ティグライ州の観光パンフレット(Tigrai, The Open-Air Museum)	オリジナル	*				Tigray Tourism Commission	JR・CR(　)・SC	
E-12	ティグライ州の観光パンフレット(Tigray, The Open-Air Museum, Gheralta: The Home of Rock-Churches)	オリジナル	*				Tigray Tourism Commission	JR・CR(　)・SC	
E-13	Ethiopian Art, The Ancient Churches of Tigra(2005)	オリジナル	*				ERC:Editions Recherche sur les Civilisation, Paris	JR・CR(　)・SC	
E-14	環境保護庁作成の環境政策(E-6)およびEIAガイドライン集(E-2～E-5)のCD-R	CD-R	*				Environmental Protection Authority	JR・CR(　)・SC	
I	**その他**								
I-1	民間コンサルタントのパンフレット2社分(AG Consult, Professional Consulting and Business PLC)	コピー	*				AG Consult, Professional Consulting and Business PLC	JR・CR(　)・SC	
I-2	エチオピアの登録コンサルタントリストおよび登録井戸掘削業者リスト	コピー	*				AG Consult（民間コンサルタント）	JR・CR(　)・SC	
I-3	Sector Study on Water Supply System in Tigray, 1997	コピー	*				Tigray Water Resources Mines & Energy Bureau	JR・CR(　)・SC	

添付資料７

エチオピア国の現状および地域の現状

添付資料７　エチオピア国の現状および地域の現状
目次

エチオピア国の現状および地域の現状

１． エチオピア国の一般概況

外務省の国別データブックによると、エチオピア国の概要は以下のとおりである。

1991 年の反政府軍の首都制圧により、メンギスツ政権が崩壊し、同年 7 月に国内諸勢力からなる暫定政権が成立した。暫定政権は民族融和と民主化に尽力し、1995 年に連邦共和国制の下に議員内閣制を採用した新体制が成立し、メレス首相率いる新政権が発足した。この政権は食糧安全保障の確立と貧困削減を最大の課題として取り組んでいる。2005 年 5 月には連邦下院及び地方議会選挙が行われ、選挙の暫定結果に野党が反発し、デモが発生するなどの混乱があったが、同年 8 月の正式結果では与党が勝利を収めた。同年 11 月には、再度野党支持者によるデモが発生し各地方都市にも混乱が拡大したが、その後情勢は落ち着きを取り戻している。

外交面では、メレス政権は善隣有効政策をとり、分離独立したエリトリアとも良好な関係を保っていたが、エリトリアの独自通貨導入やアッサブ港の使用料をめぐり両国間で摩擦が生じ、1998 年 5 月、国境画定問題を巡って武力紛争が発生した。2 年間にわたって断続的な武力紛争を繰り返した後、2002 年 12 月に両国間で「和平合意」が成立した。しかし、国境付近の一部地域を巡って両国の意見が対立し、未だ関係正常化には至っていない。

エチオピアは未開発ではあるが、石油や希少金属等の天然資源に恵まれていると言われており、潜在的な発展の可能性は高い。現在は農業部門が労働人口の約 85%、GNI の約 45%を占めているが、周期的な旱魃による食料不足、多額の対外債務、コーヒーなどの第一次産品への輸出依存等の課題を抱えている。

2002 年の大旱魃では、2002/2003 年度の GDP 成長率は前年度比-3.9%に落ち込み、2003 年には順調な降雨による農産物の増産で、2003/2004 年度の GDP 成長率は+11.6%に回復したが、自然災害など外的要因に対する脆弱性は依然として高い。

食料安全保障の確立と貧困削減は同国の最大の課題であり、政府は農業主導による産業開発（ADLI : Agricultural Development Leads Industry）を開発課題に据えているほか、貧困削減への取り組みを強化している。2003/2004 年度の貧困削減ターゲット分野（農業、食糧安全保障、保健、教育、道路、水）への支出は一般会計歳出総額（約 205 億ブル=約 2,500 億円）の約 55%に上っている。

エチオピアは 2002 年に世銀グループにより重債務貧困国（HIPC ｓ : Heavily Indebted Poor Countries）として認定され、新たな支援を受ける条件として SDPRP（Sustaunable Development and Poverty Reduction Program、持続発展可能な開発および貧困削減計画）を作成した。SDPRP の要点は、以下のとおりである。

- 農業の最優先（農業主導による産業開発）
- 民間セクター開発による雇用の創出
- 輸出振興（高付加価値農産物の開発、皮革加工や衣類製造などの輸出産業の育成）
- 初等教育の強化および各種能力開発
- 地方分権化の促進
- ガバナンスの改善（法整備、貧困層のエンパワーメント、民間セクター開発のための枠組み作り）
- 水資源開発

次の表に、エチオピアの主要経済指標と主要開発指数を示す。

表１　エチオピアの主要経済指標等

指標		2003 年	1990 年
人口（百万人）		68.6	51.2
出生時の平均余命(年)		42	45
GNI	総額（百万ドル）	6,597	8,541
	一人当たり（ドル）	90	170
経済成長率		-3.7	2.6
経常収支（百万ドル）		-199	-294
対外債務残高（百万ドル）		7,151	8,630
貿易額	輸出（百万ドル）	1,265.26	596.62
	輸入（百万ドル）	2,636.48	1,270.92
	貿易収支（百万ドル）	-1,371.22	-674.30
政府予算規模（歳入）（ブル）		－	3,091,300.000
財政収支（ブル）		－	-1,661,600.000
債務返済比率（DSR）(%)		1.4	2.8
財政収支/GDP 比(%)		－	-9.4
債務/GNI 比(%)		24.4	－
債務残高/輸出比(%)		138.5	－
軍事支出割合（対 GDP 比）		4.5	9.1
援助受取総額（支出純百万ドル）		1,504.4	1,015.7
面積（1,000km²）		1,104	
分類	DAC	後開発途上国(LDC)	
	世銀等	低所得国/HIPC	
貧困削減戦略文書（PRSP）策定状況		最終版 PRSP 策定済み（2002 年 7 月）	
その他重要な開発計画等		エチオピア貧困削減戦略	

出典：外務省の国別データブックによる

表２　エチオピアの主要開発指数

開発指標		最新年	1990 年
極度の貧困の削減と飢餓の撲滅	所得が 1 日 1 ドル未満の人口割合(%)	26.3 (1990-2003 年)	—
	下位 20%の所得又は消費割合	9.1	—
	5 歳未満児栄養失調割合(%)	47(1995-2003 年)	48
普遍的初等教育の達成	成人（15 歳以上）識字率(%)	41.5(2003 年)	28.6
	初等教育就学率(%)	51(2001/2002 年)	23(1990/1991 年)
ジェンダーの平等の推進と女性の地位の向上	女子生徒の男子生徒に対する比率（初等教育）(%)	85(2002/2003 年)	75(1988-1990 年)
	女性識字率の男性に対する比率（15-24 歳）(%)	82(2003 年)	—
幼児死亡率の削減	幼児死亡率（出生 1,000 件あたり）	112(2003 年)	130
	5 歳未満児死亡率（出生 1,000 件あたり）	169(2003 年)	220
妊産婦の健康改善	妊産婦死亡率（出生 10 万件あたり）	850(2000 年)	900(1988 年)
HIV/エイズ、マラリア、その他の疾患蔓延防止	成人（15～49 歳）のエイズ感染率(%)	4.4(2003 年)	—
	結核患者数（10 万人あたり）	507(2003 年)	—
	マラリア患者数（全年怜）（10 万人あたり）	—	—
環境の持続可能性の確保	改善された水源を継続して利用できる人口(%)	22(2002 年)	25
	改善された衛生施設を継続して利用できる人口(%)	7.3(2003 年)	37.6
開発のためのグローバルパートナーシップの確保	債務元利支払い金額割合（財・サービスの輸出に占める%）	7.3(2003 年)	37.6
人間開発指数（HDI）		0.367(2003 年)	0.305

出典：外務省の国別データブックによる

２． エチオピアの村落給水政策

エチオピアの村落給水政策の概要について、水資源省からの質問票への回答に基づき、以下に述べる。

（１）エチオピアの水資源

エチオピアには 12 本の主要河川が流れており、自然湖とダム湖は 12 箇所ある。すべての河川の年間流量は 1,230 億トンに達するが、そのうちの 75%が国外へと流出している。また、エチオピアの利用可能な地下水は 26 億トンにも上ると推計されているが、これらはほとんど開発されていないのが現状である。

（２）エチオピアの給水状況

エチオピアの給水率は極端に低く、全国民の 42%しか安全な水にアクセスできない状況にあり、28%しか衛生施設（トイレ）を使用できない（2005 年のデータによる）。村落部の状況はさらにひどく、給水率は 35%に、衛生施設を使用できる村民の比率は 17.5%になっている（2005 年のデータによる）。この水準は近隣のサブサハラ諸国よりも低いレベルである。

（３）エチオピアの村落給水計画

エチオピア国政府は、かかる水問題に対処すべく以下に示すような数々の計画を立ててきた。

-Ethiopian Water Resource Management Policy
-Ethiopian Water Sector Strategy
-Water Sector Development Program
-National Water Supply and Sanitation Master Plan
-Universal Access Program

上記の計画以外に、エチオピアでは UNDP の提唱する Millennium Development Goals (MDGs)の達成を目指している。MDG s の達成のために策定されたのが上記の Universal Access Program である。Universal Access Program（UAP）は MDGs の目標年である 2015 年よりも目標年を前倒しし、2012 年に設定している。給水原単位を 20lit/人/日から 15lit/人/日に減量することにより村落給水率を上昇させ、2012 年までに村落給水率を現況の 35%（2005 年）から 98%に引き上げようとする計画である。現在、エチオピアではこの UAP に従い、村落給水プロジェクトが推進されている。

また、現在進められている地方分権化政策も、村落給水分野にも良い影響を与えており、これにより、村落給水システムの維持管理訓練が地方のワレダ単位で行われることになり、成果を得ている。実際、9 つの州において、ワレダ単位で村落給水施設を維持管理する人材を育成する職業訓練所や技術教育センターが設立され、教育訓練が行われている。

（４）エチオピアの村落給水プロジェクト

上述の Universal Access Program（UAP）に従い、次の表に示す村落給水施設や既存施設のリハビリ計画が立案されている。これらの表に示されるように、全国において 2012 年までに約 15 万箇所で新規の村落給水施設を建設し、2008 年までに約 4 万 9 千箇所の既存給水施設のリハビリを行う計画が立てられている。

また、表 5 に示すように、これらの計画を実現するためにエチオピア政府は 2006 年から 2012 年の 6 年間で、87 億 Birr 以上（約 1,000 億円以上）予算案を立てている（この内、約 1 億 Birr（約 14 億円）が受益村民の負担分となっている）。

表 3　エチオピアの村落給水施設建設計画

I/No.	Scheme types	1998/9 E.C*	1999/ 2000 E.C	2000/1 E.C	2001/2 E.C	2002/3 E.C	2003/4 E.C	2004/5 E.C	To be constructed from 2005/6-2011 /12(7 years universal access plan
		2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	
1	Unlined Improved community dug wells(Avg. depth 10mts.)	9,964	9,964	9,964	9,964	9,964	9,964	9,964	69,745
2	Lined standard dug wells(Avg depth 15mts.	5,510	5,510	5,510	5,510	5,510	5,510	5,510	38,568
3	On spot spring development	2,061	2,061	2,061	2,061	2,061	2,061	2,061	14,426
4	Small scheme Spring development	89	89	89	89	89	89	89	625
5	Medium scheme spring development	63	63	63	63	63	63	63	438
6	Large scheme spring development	0.67	0.67	0.67					2
7	shallow boreholes	2,982	2,982	2,982	2,982	2,982	2,982	2,982	20,871
8	Deep Boreholes	427	427	427	427	427	427	427	2,986
9	Others(surface water source etc.)	3	3	3	3	3	3	3	20
10	Cysterns	111	111	111	111	111	111	111	778
11	Ponds	81	81	81	81	81	81	81	565
Total									**149,024**

出典：質問票に対する水資源省からの回答
E.C：エチオピアン歴、西暦よりも 7 年遅れている

表 4　エチオピアの既存村落給水施設のリハビリ計画

I/No.	Type of Schemes to be rehabilitated	1998/9 E.C	1999/00E.C	2000/1E.C	Total No. of schemes to be rehabilitated
		2005/6	2006/7	2007/8	
1	Hand dug wells	10,644	10,644	10,644	31,932
2	Spring development	3,220	3,220	3,220	9,660
3	Shallow boreholes	1,942	1,942	1,942	5,826
4	Deep boreholes	240	240	240	720
5	Ponds	59	59	59	177
6	Cisterns	59	59	59	176
7	Others	6	6	6	19
	Total	16,170	16,170	16,170	48,510

出典：質問票に対する水資源省からの回答

上記プロジェクトの実施のための予算計画は、次の表に示すとおりである。

表 5　エチオピアの村落給水施設、リハビリのための予算計画

I/ No.	Description	National Financial requirement in Birr(2005/6-2011/12)	Annual Financial Requirement in Birr						
			2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12
1	New schemes	7,312,506,955	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851	1,044,643,851
2	Rehabilitation	397,113,607	132,371,202	132,371,202	132,371,202				
3	Study and Design	146,250,138	20,892,877	20,892,877	20,892,877	20,892,877	20,892,877	20,892,877	20,892,877
4	Supervision	230,828,631	32,975,519	32,975,519	32,975,519	32,975,519	32,975,519	32,975,519	32,975,519
5	Refresher course for 10+3 water related technical school graduates	25,400,001	5,080,000	5,080,000	5,080,000	5,080,000	5,080,000		
6	Artisans training	8,082,661	1,616,532	1,616,532	1,616,532	1,616,532	1,616,532		
7	Equipments to be leased to artisans	449,036,776	89,807,355	89,807,355	89,807,355	89,807,355	89,807,355		
8	Areal mechanics training	8,009,581	1,601,916	1,601,916	1,601,916	1,601,916	1,601,916		
9	Equipments to be leased to areal mechanics	177,990,720	35,598,144	35,598,144	35,598,144	35,598,144	35,598,144		
Total (1～9)	(New schemes +Rehabilitation) including community contribution	8,755,219,070	1,364,587,396	1,364,587,396	1,364,587,396	1,232,216,194	1,232,216,194	1,098,512,246	1,098,512,246
10	Community contribution for new schemes	953,840,693	136,262,956	136,262,956	136,262,956	136,262,956	136,262,956	136,262,956	136,262,956
11	Community contribution for rehabilitation	39,711,360	13,237,120	13,237,120	13,237,120				
Total-(10+11)	New schemes + Rehabilitation excluding community contribution	7,761,667,017	1,215,087,320	1,215,087,320	1,215,087,320	1,095,953,238	1,095,953,238	962,249,290	962,249,290

出典：質問票に対する水資源省からの回答

３． わが国の援助状況

（１）わが国の援助協調の現状とわが国の関与

外務省の国別データブックによると、エチオピア国に対する援助協調の現状とわが国の関与は以下のとおりである。

エチオピアは OECD の援助調和化モデル国であり、また世銀が主催する SPA（Strategic Partnership with Africa）の財政支援パイロット国となっていることから、サハラ以南アフリカ諸国の中でも、援助協調が進んでいる国の一つである。

エチオピアの主要ドナー会合である DAG（Development Assistance Group）－CG（Core Group）が UNDP の主催により組織されており、ドナー及びエチオピア政府（財務・経済開発省など）との援助協調を目的として、任意参加による会合が定期的に持たれているほか、四半期に一度 DAG－CG とエチオピア政府とハイレベル対話を行っており、SDRP 策定プロセスや各種開発課題等について意見交換を行っている。

わが国は現地 ODA タスクフォースとして、DAG－CG 以外にも保健、教育、民間分野開発や農業・食料安全保障分野会合に積極的に参加しているが、今後は政策協議の内容を反映して、参画する分科会を選択し、その中で主導的役割を担うなど、活動にメリハリを付ける方針である。

（２）わが国の援助実績

わが国の年度別・援助形態別実績は、次の表に示すとおりである。

表 6　わが国の年度別、援助形態別実績　（億円）

年度	円借款	無償資金協力	技術協力
2000 年	—	54.37	8.15
2001 年	—	55.89	15.37
2002 年	—	31.78	11.84
2003 年	—	27.85	12.54
2004 年	—	32.20	11.90
累計	37.00	682.56	169.91

円借款・無償資金協力 E/N ベース技術協力年度経費ベース
出典：外務省の国別データブックによる

水分野におけるわが国の援助は、有償資金協力（円借款）によって 1974 年に水井戸掘削事業団を設立したことに遡ることができる。その後、「エ」国における内戦等により、わが国の協力分野は食糧援助・食料増産援助、保健・医療分野など人道的観点に立った無償資金協力や研修員受け入れ、および青年海外協力隊の派遣を中心として、技術協力に限定されていた。1991 年 5 月の内戦終結後、わが国の本格的な協力が開始された。わが国は水供給分野を協力の重点分野の一つとして捉え、これまでに給水分野において次の表に示す協力を実施してきている。

「エ」国では、給水施設に利用されている水源のほとんどが地下水であり、また地方部での給水率の向上を優先しており、日本の技術協力プロジェクト「地下水開発・水供給訓練計画」において、地下水開発と村落給水に重点を置き、各州の水資源開発を担当する局や公社を対象として訓練を実施してきている。1998 年から 2005 年までに、地下水探査、井戸掘削、給水施設維持管理、機械整備、電気施設整備、住民参加促進などのコースに参加した訓練生は 1,188 人にのぼっている。

表 7　わが国の「エ」国に対する給水分野における援助活動

協力の形態	案件名（年代）	事業の内容
1)無償資金協力	地方都市給水計画（1997-2000）	11 地方都市の共同水栓水道システム整備（36.45 億円）
	地方給水計画(2002 年)	地方都市給水施設整備計画の予備調査
	南部諸民族州給水計画（2005-2007）	103 ヶ村の給水施設建設、掘削関連資機材の供与（10.39 億円）
	アムハラ州給水計画（2005-2006）	掘削関連資機材の供与(4.99 億円)
2)技術協力	地下水開発・水供給訓練計画（1997-2005,ﾌｪｰｽﾞ I、2005-2008,ﾌｪｰｽﾞ II）	
	アジス・アベバ市地下水管理計画（2003、在外基礎調査）	
	アフリカ地域水資源管理、乾燥地における水管理環境管理ｺｰｽ(1998～、国別研修)	
3)開発調査	11 地方都市水供給、衛生改善計画調査(1995-1996)	
4)青年海外協力隊	水質検査（2001-2003）	

出典：アファール州給水計画基本設計調査報告書より

４．ティグライ州の概況

ティグライ州の概況について、ティグライ州の水資源局からの質問票への回答に基づき、以下に述べる。

a. 緯度経度：12° 15’N―14° 57’N、36° 27° E―39° 59’E

b. 面積：53, 623km^2

c. 人口：4.3 百万人、82.2%が村落に、17.8%が都市部に住む、男性 49.2%、女性 50.8%

d. 人口増加率：3%

e. 戸数：860,000 戸

f. 貧困率：村落人口の 75%、都市人口の 61%が貧困層となっている（収入が$1/日/人以下）

g. 主要産業：農業、セメント工場等はあるが規模は小さい

h. 交通：州の東部を南北に縦貫する主要幹線は舗装されているが、その他の道は未舗装、雨季にはアクセスが困難な村もある

i. 電気：郡都（Wareda Town）には電気が通じているが、その他の村には電気はつうじていない、このためレベル２の動力は主にエンジンか発電機となっている

j. 通信：郡都（Wareda Town）には電話線が通じているが７月～８月の雨季には電話や Fax が通じない場合が多い、携帯電話は雨季に通じなくなることはないが州の東部を南北に縦貫する主要幹線沿いの郡都でしか通じない（Alamata, Raya Azebo, Hintalo Wajirat, Enderta, Kilte Awlaelo, Hawzen の６つのワレダの郡都で携帯電話が通じる）、電子メールは州都メケレに多くのインターネットカフェがあり通信手段となりうるが、雨季の７月～８月にかけては通じないことが多い

k. 村落給水率：平均で 41%


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