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# Ethiopian Social Rehabilitation and Development Fund (ESRDF)

## ESRDF Handbook for Rural Water Supply and Sanitation

April 1997

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**ABBREVIATIONS AND ACRONYMS**

AC	Alternating Current
CBI	Carl Bro International
CHA	Community Health Agents
CHW	Community Health Worker
CO	Central Office of ESRDF
CP	Community Participation
CPP	Community Participation Promoter
CPPO	Community Participation Promotion Officer
CPPA	Community Participation Assistants
CWSS	Community Water Supply and Sanitation
DC	Direct Current
ESRF	Ethiopian Social Rehabilitation Fund
ESRDF	Ethiopian Social Rehabilitation and Development Fund
HA	Health Assistant
HA	Home Agent
HE	Health Education
HESAN	Hygiene and Sanitation
HRD	Human Resources Development
HQ	Headquarters
IA	Implementing Agency
ICB	International Competitive Bidding
IDA	International Development Association of the World Bank
IRC	International Reference Centre for Community Water Supply and Sanitation
KAP	Knowledge, Attitudes and Practices
Kebele	Lowest administrative division of a region (with up to 2000 people)
l/c/d	Litre per capita per day
l/s	Litre per second
LCB	Local Competitive Bidding
LS	Local Shopping
M&E	Monitoring and Evaluation
MCE	Metaferia Consulting Engineers P.L.C.
MIS	Management Information System
MOH	Ministry of Health
MOWR	Ministry of Water Resources
NGO	Non Governmental Organisation
NWG	National Water and Sanitation Group
O&M	Operation and Maintenance
PMISE	Procurement and Marketing Information Services Enterprise
PMO	Promotion and Training Officer
PO	Project Officer
PV	Photo Voltaic
RM	Regional Manager
RMT	Regional Management Team
RO	Regional Office
RO	Regional Officer



PRA	Participatory Rural Appraisal
Region	The country is administratively divided into 9 regions excluding Addis Ababa and Dire Dawa
RSC	Regional Steering Committee
RWS	Rural Water Supply
RWSG	Regional Water and Sanitation Group of the WB
RWSS	Rural Water Supply and Sanitation
RWSSP	Rural Water Supply and Sanitation Programme
Sanplat	Sanitation platform
SIDA	Swedish International Development Authority
TBA	Traditional Birth Assistant
Tippy-tap	Plastic container adjusted to a hand- washing facility
TOR	Terms of Reference
TOT	Trainer of Trainers
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organisation
UNDP	United Nations Development Programme
USD	United States Dollar
WATSAN	Water and Sanitation
WB	World Bank
VES	Vertical Electrical Soundings
VIP	Ventilated Improved Pit (latrine)
WHO	World Health Organisation
VLOM	Village Level Operation and Maintenance
Woreda	District, the 2 <sup>nd</sup> lowest administrative division in a region (with approximately 100,000 - 300,000 people)
WSS	Water Supply and Sanitation
Zone	The first administrative division of a region
Birr	Local currency equivalent of USD 6.34

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## 1. INTRODUCTION

Some of the Government's long term development objectives are to eradicate poverty, provide adequate social services such as health care, schools etc. and give access to improved water supply. As of 1996 only about 26 % of its population has access to clean water, 55% to health care and 18 % to sanitation facilities. In fact in rural areas only 18 % had access to potable water and about 1 % to latrines in 1995<sup>1</sup>. Although some facilities exist the condition of those facilities and the use is even lower.

The Government strategies to eradicate poverty comprise:

- improving productivity of peasant agriculture and industrialisation of the economy based on agriculture
- promotion of labour intensive technology
- encouraging the private sector
- promotion of community participation in development
- training and building capacity of grassroots organisations to initiate, prepare, implement and manage development projects through grassroots participation

The Ethiopian Social Rehabilitation and Development Fund (ESRDF) is one of the poverty reducing programmes.

**ESRDF's priorities are to:**

- improve the living condition of poor communities through provision of basic social services such as water supply and sanitation
- enhance income generating capacity of poor communities
- promote community based approach in identification, preparation, implementation and management of sub-projects
- assist grassroots organisations and communities to increase their technical and managerial capabilities in project activities.

Development of rural water supply and sanitation is a major component for which about US \$75 million has been allocated for five years. The projects to be financed by ESRDF are required to be community based and their management, when they are completed, will be the responsibility of the communities themselves. Therefore, it is of paramount importance that assets to be built for and together with the communities

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<sup>1</sup> Personal communication from Mr. Muchie Kidanu Workinesh, Head, Water Quality, Liquid Waste & Sanitation Control Team Ministry of Health, Addis Ababa on 12 Sept. 1996.

should be based on appropriate technologies based on village know how simple to manage, operate and maintain with a minimum of training.

**Priority is to be given to systems based on spring protection and hand-dug and shallow wells fitted with hand pumps.**

**The objectives of ESRDF in the water and sanitation sub-sector are to:**

- Strengthen the local government (regional and below) to plan, co-ordinate, monitor and provide support to communities in maintaining water and sanitation facilities and building new ones
- Establish a functioning demand and community based management system
- Raise awareness of communities of the link between water, sanitation and health leading to increased use of latrines and improvements in household and personal hygiene
- Promote private sector providing required services in the water and sanitation sector
- Promote awareness leading to users demanding water and sanitation facilities
- Facilitate construction of community water supplies and sanitation facilities
- Establish functioning informing and reporting systems.

## **1.1 PURPOSE OF THE HANDBOOK**

This Handbook is one of three documents (the others are the Community and Institutional Development Manual and the Technical Design Manual) prepared to complement each other:

The objectives of the three documents are to assist in:

- Promotion of the ESRDF Water and Sanitation (WATSAN) programme
- Pre-planning of implementation
- Mobilisation and training of the community
- Standardisation of systems and procedures
- Effective operation and maintenance
- Monitoring and adaptation to ensure sustainability

- Establishment of an institutional framework and capacity building

### **The Handbook**

This is intended as a quick reference guide for the implementation of the Rural Water Supply and Sanitation programme under ESRDF. It will be used by those involved in project promotion and preparation from regional to woreda levels, like government officials, NGOs, agencies, associations and others who will be involved in the ESRDF water and sanitation programme.

**The Handbook gives the over-all summary description of the procedures** - in other words it focuses on **what** needs to be done, but does not give details on **how**. Such details are covered in the Community and Institutional Manual and the Technical Manual.

### **The Community and Institutional Manual**

This gives the detailed guidelines on the implementation of the water and sanitation projects. It will be used by those who are actively involved in project promotion and implementation. Detailed step by step guidelines on **what to do, why and how** are described.

### **The Technical Design Manual**

This describes the choice of technology designs in a given situation and the procedures for construction and supervision of construction. This will be used primarily by the technical staff but it will also contain information which the communities may need to know in order to select the kind of water and sanitation supplies most appropriate for their local needs and circumstances. In other words it details **what, why and how** like the Community and Institutional Development Manual.

**The content of the two supporting manuals is shown below:**

<b>The Community and Institutional Development Manual</b>	<b>Technical Manual</b>
<ul style="list-style-type: none"> <li>• Institutional framework</li> <li>• Implementation</li> <li>• Training and Capacity Building</li> <li>• Sub-project Promotion</li> <li>• Sub-project Preparation</li> <li>• Appraisal Procedures</li> <li>• Community Mobilisation and Training</li> <li>• The role of the community in construction and</li> <li>• Participatory Monitoring and Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Design parameters</li> <li>• Water source siting and selection</li> <li>• Construction procedures and technical specifications</li> <li>• Water lifting devices</li> <li>• Other water supply technologies</li> <li>• Water quality</li> <li>• Operation and maintenance guidelines</li> <li>• Sanitation facilities</li> </ul>

## 1.2 FREQUENCY OF UPDATING

The preparation of this handbook and manuals have been completed in a very short time schedule, utilising existing sector information in Ethiopia and experience from other relevant locations. There has therefore neither been the opportunity to test the proposals on actual project experience in Ethiopia nor incorporate the findings of the Evaluation Report on the Pilot Phase of the ESRDF programme as this was still being drafted at the time of completion of this handbook and manuals. It is therefore proposed that all these document will be reviewed after one year of operation taking account of the field experience up to that time and be updated accordingly. Thereafter it is recommended that further reviews take place on an annual basis but that comprehensive updates of the manuals be made only on a three yearly cycle minimum unless major corrections are deemed to be necessary. This would thus maintain a reasonable degree of continuity.

## 1.3 PROGRAMME APPROACH

The implementation of ESRDF's programme will be governed by some basic principles:

- **Capacity building**

This will be done through a training programme for personnel at all levels, which will prepare for decentralisation and delegation of responsibilities down to "lowest appropriate level". The programme itself will be demand driven, meaning that requests for project assistance will be promoted and proposals prepared at community level. This will be done through participatory approaches to promote a genuine ownership of the facilities. This feeling of ownership is also be promoted by a cost-sharing arrangement whereby the communities pay a minimum of 10 % of the construction costs of water supplies and all the costs for operation and maintenance of the schemes. Since water and sanitation are primarily a women's domain gender aspects are considered at all stages of the programme. An improved gender balance would benefit the sector. In essence this means that both men and women need to have equitable shares in the water and sanitation sector, but women need to be more actively involved in planning, management and operations, while men's participation need to be promoted in hygiene, sanitation and actual collection of water by different means. Implementation of improvements have initial implications on household expenditures which also need to be discussed by both men and women.

- **Creating a demand for sanitation**

One of the major challenges in the WATSAN sector is to create a real demand for sanitation. It is wrong to imagine that simply through construction - or even the use of latrines - health conditions will improve. Hygiene habits are the issue. Sanitation is not only latrines. It is the introduction of a new way of life through education and behaviour change. Sanitation must therefore be given a very high priority and appropriate share of resources in terms of manpower, capacity building etc. will be

allocated. The ESRDF WATSAN programme will therefore actively promote sanitation by:

- Showing political and professional awareness and will at all levels
  - Give sanitation sufficient prestige and recognition in all programme activities
  - As a policy always include sanitation and hygiene education in all WATSAN projects
  - Ensure that a sufficient emphasis is placed on sanitation in the training component
  - Promote public awareness of sanitation in the promotional activities
  - Focus particularly on women and children
  - Investigate consumer awareness, practices and preferences in sanitation.
- **Accountability and transparency**

This will be promoted through training in community management, transparent book-keeping, yearly auditing procedures, promotion of different methods for fund raising, preparation of by-laws and tariffs and participatory monitoring.

- **Sustainability**

The main means to achieve sustainable community managed schemes will be through promotion of critical analysis of needs, priorities and constraints at different levels to **strengthen the problem solving capacity**. User involvement at all project stages and cost sharing of both installation as well as running costs will increase self sufficiency. Community participation which includes involvement of women and also of the private sector for repairs and supply of spare parts are other important means. Use of simple and proven technology will be promoted.

- **An over-all or holistic view**

Staff from different professions sometimes see the world from different angles. If they have a top-down approach and work in parallel with each other this may hamper collaboration and effective assistance to the rural communities. It takes interdisciplinary collaboration to get the over-view

An over-all view will also be promoted by other components like

- environmental protection
- consideration of ways to improve technical aspects of operation of water supply and sanitation to better suit the users (ergonomic aspects)
- agricultural practices in the catchment area
- and other productive needs for water use, which may be brought up to influence the design.

The top-down approach will be replaced by the creation of a demand-driven bottom-up approach supported by decentralisation and capacity building through an extensive promotion and training components. "Top down" language like "beneficiaries", "recipients", "target groups", "providers" etc. imply that the programme implementers



are the active actors "shooting messages at the target group" while the communities are the passive recipients of assistance. These words reflect harmful attitudes and will be replaced with a **spirit of collaboration with communities** on equal basis - instead of doing things **for** them.

## 1.4 SEQUENCE OF IMPLEMENTATION

Traditional planning and preparation techniques for WATSAN projects are not valid and appropriate for community based projects. While the over-all ESRDF involvement in the Water and Sanitation (WATSAN) sector can be planned and programmed using traditional project planning methods, community based and demand driven sub-projects need to be seen in a different perspective and need a different approach. Some of the differences between the traditional "blue-print" projects and community based ones are shown below.

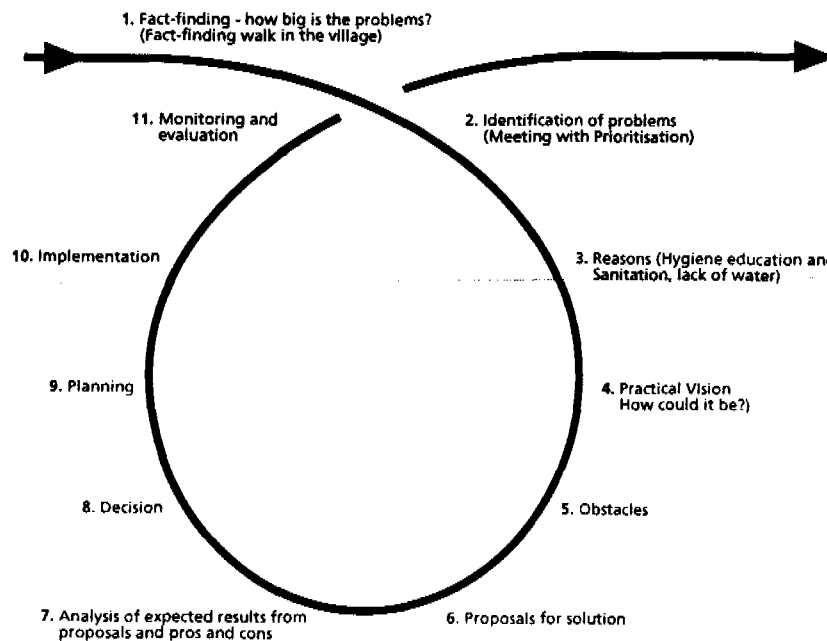
### Differences between "Blue-print" and Community Based Design

Issues	Traditional Blueprint Designs	Community Based Designs
1. Purpose	For urban, large-scale construction etc.	For rural and peri-urban areas
2 Role of people/users	Limited to payments and contribution of labour	Take initiative, organise, manage, operate and maintain
3 Project documents	Detailed, accurate "blue-prints"	Broad guidelines leaving communities to decide on "when", "where", "how" etc.
4 Role of Managers	Manage construction activities	Manage unpredictability and change by creating a problem solving environment
5 Personnel	Primarily interested in completed construction, adherence to schedules, unit costs	Continuously aware of ultimate objective as promotion of community self-reliance
6 Role of data	Extensive physical, economic data base before implementation	Limited data collection before implementation including KAP collected and used by community people.
7 Role of evaluation	Primarily at end of project conducted by external experts	Ongoing participatory evaluation by community people and project staff.
8 Indicators of success	Quality and quantity of construction; unit costs	Increased awareness and KAP. Effective management, use and O&M of facilities including a capacity for sustaining them.

Issues	Traditional Blueprint Designs	Community Based Designs
9 Inter-agency collaboration	Only consultations needed, collaboration during implementation not essential.	Working collaboration essential for achieving success.

While the planning cycle is circular for the over-all ESRDF WATSAN programme containing the usual steps of fact-finding, planning, programming, budgeting, implementation, monitoring and evaluation, the community based sub-projects will be more process oriented than production oriented. This means that at community level the WATSAN committees and the community together will repeat this cycle as often as need arises or as a result of regular monitoring activities as illustrated below:

Figure 1. The Planning Cycle



**Demand driven approach within the context of prioritisation**

There are many criteria which need to be fulfilled before a community will be eligible for Rural Water Supply and Sanitation (RWSS) investments. Below is a summary of the screening to be made which in essence mean that we are talking about a negotiated demand rather than purely demand driven.

**Steps which will be followed:**

- Regional allocation of resources based on population, present water coverage, poverty and WATSAN related diseases in the region
- Zonal and woreda allocations based on the same criteria as above
- Community eligibility is assessed according to social, technical and economic criteria
- Prioritisation between the eligible communities will be carried out based on a number of specific criteria.

Details on eligibility and the prioritisation are described in chapter 3.

## 2. Organisation and Management

## 2. ORGANISATION AND MANAGEMENT

### 2.1 ACTORS

The ESRDF institutional framework for RWSS consists of the following actors:

- Communities (women, men and children)
- Local community groups (Peasant Associations, religious groups, women groups etc.)
- Local authorities (Kebele, Woreda, Zonal and Regional councils)
- Local administrative authorities (Water and Health Bureau staff at Kebele, Woreda, Zonal and Regional levels)
- Federal Government Ministries (Ministry of Water Resources, Ministry of Health, Ministry of Economic Development and Cupertino)
- ESRDF
- The Prime Minister's Office through the Regional and Women's Affairs Sectors
- Non Government Organisations and agencies
- Private Sector contractors, suppliers and consultants.

### 2.2 ROLES AND RESPONSIBILITIES

1. The **Communities** are the households (women, men and children) with a common interest of a water system and common sanitation problems. The roles of the communities are to:

- Prioritise their needs for assistance by means of a democratic approach
- Establish WATSAN Committees representative of all social groups of users responsible to the community and responsible for all aspects of management services and for promotion of improved hygiene behaviour and sanitation. Special preference must be given to the election of women members and women should be elected to management positions (chairperson, secretary and treasurer)
- Select the service levels that correspond with what they want, can afford and can sustain with the human and financial resources at their disposal

- Site water points within technically feasible limits
  - Raise at least 10% contribution towards the construction of the water supply system
  - Assume complete responsibility for operation and maintenance of water systems, including the collection, management and safekeeping of funds and the purchase of those goods and services required for the system to continue to function
  - Designate caretakers who are fully responsible for all preventive and simple corrective maintenance of the water facilities
  - Initiate self help action to assist with the repairs and maintenance, and to clean and maintain the areas around the water environmentally sound, and
  - Own and control the water and sanitation facilities and use them in a hygienic manner.
2. The **Local community groups** like Women and Peasant Associations and religious groups will help in mobilisation and organisation of the communities.
  3. The **Local authorities** consist of local development councils at Kebele, Woreda, Zonal and Regional level. Their role is to prioritise communities based on criteria outlined in chapter 3, mobilise and sensitise communities and give the necessary political support. They also play an advisory role through formation of working groups (WATSAN committees) regarding community involvement in management of water and sanitation facilities, health education and environmental health activities. ~~The local authorities enact/make bye-laws which are necessary to~~ facilitate the implementation and operation of the water supply and sanitation facilities and resolve conflicts. They support the organisational framework for planning, implementation, monitoring and evaluation of the ESRDF RWSS sub-project.
  4. The **Local administrative authorities** have the main technical responsibility for the ESRDF programme implementation through the Water and Health staff at Woreda, Zonal and Regional levels. They will train and supervise the staff below them and provide back up support, carry out socio-technical feasibility, site water sources/carry out hydrogeological investigations, conduct water quality tests, supervise contractors and carry out monitoring and evaluation.
  5. The **Federal Government Ministries of Water Resources and of Health** are in charge of setting policies/guidelines and regulatory framework as well as providing advisory support to regions in water sector and in the hygiene and sanitation sector respectively.
  6. As described in it's Operational Manual **ESRDF** is a funding entity established to alleviate poverty through the support of community based sub-projects among

which Rural Water Supply and Sanitation is included. The fund co-ordinates its activities through a central office, provides technical support and monitors activities in the regions. The fund also manages financial transfers, carries out capacity building and training and monitors project performance (see ESRDF Operational Manual).

7. **The Prime Minister's Office** through the **Regional Affairs Sector** provides the link between the Federal Ministries and Regional Governments and Bureaux, and the **Women's Sector** promotes due consideration to gender aspects in planning and implementation of all programmes and links all Women affairs departments in Federal Ministries and Regional Women's' Affairs Bureaux.
8. **Non Government Organisations and Agencies** are used in programme implementation i.e. for training of communities and construction of water supplies.
9. **The private sector (contractors, suppliers and consultants)** will play an important role in providing the necessary goods and services under the programme (see chapters 9 and 10).

For implementation of the programme a **Consultant** with a multidisciplinary team of health, water and institutional experts hired by ESRDF is to carry out the following:

- Train and provide support to ESRDF staff in contracting, programme follow up and in monitoring and evaluation
- Train Regional Management Teams (RMTs) in planning, management and supervision of WATSAN activities with emphasis on participatory development, gender aspects, environmental issues, interdisciplinary collaboration and information management, and in contracts supervision and management
- Assist RMTs in case of special technical problems and offer advice in trouble shooting
- Conduct training needs assessment for staff at Zonal and Woreda levels (Community Participation Promoters and Sanitarians), design and conduct training programme accordingly. These staff will act as trainers of trainers and will supervise and support the Local Community Facilitators
- Conduct training needs assessment for Local Community Facilitators and design and conduct training programmes accordingly.

## 2.3 MANAGEMENT STRUCTURES

### 1. Funding

The overall responsibility of the ESRDF fund lies with the **National Board of the Ethiopian Social Rehabilitation and Development Fund**. This Board is in charge of the overall administration and operation of the Fund. It has a Central Office which co-ordinates its activities.

At Regional level the fund has a **Regional Steering Committee** that approves sub-projects and ensures that the Regional Office operates in accordance with the ESRDF Operational Manual.

### 2. Implementation

- It is proposed that interagency co-ordination through the establishment of a **WATSAN Steering Committee** chaired by the Ministry of Water Resources meeting once in a year. Other members are representatives of Ministry of Health, Ministry of Economic Development and Co-operation, UNICEF, ESRDF, Ministry of Agriculture and any other Ministries active in the water sector. The committee will co-ordinate WATSAN activities so as to
  - enhance effective utilisation of resources
  - minimise overlapping of activities
  - standardise designs, equipment etc.
  - exchange experiences
  - provide a clearer view of the sector situation
  - create convenient forum for drawing up strategies to improve sector coverage
  - enhance improved sustainability of water supply systems
- The responsibility for management of the ESRDF RWSS sub-project lies with the **National WATSAN Steering Group (NWG)**. Members of the NWG are:

Task Manager RWSS from ESRDF	Chairman
Head of Water Supply and Sewerage Department(MOWR)	Secretary
Head of Environmental Health Department (MOH)	Member
A representative from Ministry of Economic Development and Planning	Member
Head of Women's department (MOWR)	Member
A representative from Regional Affairs Sector	



in the Prime Minister's Office Member

Task Manager Gender and Environment Sector in ESRDF Member

A representative from Women's Affairs Sector  
in the Prime Minister's Office Member

The group will meet 4 times in a year (3 months revolving basis) to review progress of the programme. The group reports to the National Board.

- The overall responsibility for the RWSS sub-project co-ordination and prioritisation in the region will lie with the **Regional Administrative Council**. A **WATSAN Committee** a subcommittee of the Regional Council is assigned to liaise with ESRDF in sub-project implementation. The duties of the committee include, but are not limited to overseeing the allocation of water sources guided by criteria in chapter 3 and co-ordinating and monitoring sub-project activities in the region.
- A **Regional Management Team (RMT)** chaired by an officer in charge of rural water supplies in the Regional Water Bureau and with the head of Environmental Health Department in the Regional Health Bureau and an officer from the Regional Women's Affairs Bureau co-ordinate, manage, supervise extension staff, contractors and NGOs, and monitor and evaluate programme activities.
- At Zonal and Woreda levels **WATSAN Committees** formed from the Zonal Executive council and the Woreda and Kebele Administrative councils respectively allocate water sources and monitor and co-ordinate sub-project activities at the respective levels.
- At source/water supply level a **WATSAN Committee** is chosen to manage the water facility and promote improved hygiene and sanitation practices among users.

### 3. Eligibility Criteria for RWS Investments

### 3. ELIGIBILITY CRITERIA FOR RWS INVESTMENTS

#### 3.1 REGIONAL ALLOCATION OF RESOURCES

- It is proposed that 80% of the annual budget for the sub-project programme be allocated to each region using a participatory prioritisation technique for equity and transparency based on:

<b>Proposed criteria for allocations of resources to regions</b>
1. <b>Population</b> - direct proportion in terms of % of the regional population out of the total population of all the rural regions in which ESRDF is operational
2. <b>Present water coverage</b> - inverse proportion in terms of % of population without access to a protected water source within 1.5 km distance
3. <b>Equity</b> - of special importance in areas with multi-tribal populations
4. <b>Poverty</b> Group exercise to identify "Who is Poor" based on need for relief assistance, general housing standard, ownership of assets etc. When the group has agreed on what constitutes poverty, they proceed to estimate the proportion of people in the area who are poor. Areas can be rated (ranked) in terms of poverty.
5. <b>Stunting of children</b> (too short compared to age) as an indication of poverty - direct proportion in terms of % of children stunted in the age bracket 12 - 24 months (as recorded by UNICEF, or as established in the proposed baseline survey described in chapter 8)
6. <b>Prevalence of WATSAN related diseases</b> - direct proportion as per official health records. Compilation of the proportion of all diseases which are WATSAN related in terms of % of the total in each region.
7. <b>Remoteness</b> in km from district centres or big cities

It is important that the criteria are selected in a participatory manner as described in section 3.1 of the Community and Institutional Development Manual.

The allocation will be based on the combination of the above criteria. The calculation of these priorities is described in the Community and Institutional Development Manual chapter 3.1.

- The disbursement of allocated funds will be based on actual sub-projects appraised and approved in accordance with the sub-project programme criteria on a 3 monthly revolving basis.

- The remaining 20% of the budget will be left as a reserve and for promotion and assistance to regions with a low absorption capacity due to a less developed infrastructure including access to support and advice. It may secondarily be allocated to regions with better absorption / higher implementation capacity or to regions where more expensive technologies are required.

### 3.2 COMMUNITY ELIGIBILITY CRITERIA

- It is proposed that all communities within a region that comply with the overall ESRDF criteria as referred in Section 3.1, are eligible for consideration under the ESRDF Rural Water Supply and Sanitation sub-project programme. This means that only communities that are identified by the Woreda Council as poor are considered at this stage of the process.
- A promotion campaign will be carried out in all eligible communities utilising a prioritisation approach within each region based on the eligibility criteria in 3.1, namely population, present water coverage, prevalence of WATSAN diseases, stunting.  
(see *Community and Institutional Development Manual chapter 3.5*)
- When the community has prioritised the WATSAN sub-project and accepted the fund conditions the process of project appraisal commences. The consideration of sub-project eligibility and sub-project prioritisation as described in the following sections will determine the selection of projects to be put forward for approval by the fund.

### 3.3 SUB-PROJECT ELIGIBILITY CRITERIA

A sub-project shall satisfy the following criteria to be eligible for submission to the fund for approval:

A sub-project shall satisfy the following criteria to be eligible for submission to the fund for approval:

- Social criteria
- Technical criteria
- Economic criteria
- Environmental criteria

*Social criteria* shall include:

- Population
- Present operating improved water supply system serving no more than 30% of the community

- Average distance to traditional water sources greater than 0.5 km for at least 75% of the community
- Poverty - a minimum of 25 % of the population considered poor
- Prevalence of WATSAN diseases not less than 50% of the national rural population average
- Stunting - as above

***Technical criteria*** shall include:

- Selection of the least cost, technically feasible and sustainable solutions related to the community or relevant sections of the community
- Compliance with design parameters as stated in chapter 2.8 of the Technical Manual.
- Professionally verified water source siting and selection
- Compliance with other technical aspects as specified in the Technical Manual.

***Economic criteria*** shall include:

- Costs per capita for either capital or operation and maintenance investments are not greater than 20% above the average cost for the type of scheme proposed as specified in chapter 7
- The minimum of 10% contribution to capital costs together with the full cost of operation and maintenance. In case the community is in fact willing and able to spend more than this amount on water the long term implications of having to pay higher amounts over a period of say 15 years should be brought up and seriously discussed before a community decision is taken in a truly democratic way.

***Environmental Criteria*** shall include:

- Availability of water resources in relation to current and future needs. The design may not deplete the ground water and not divert the total flow of the spring water (see chapter 3 of the Technical Manual).
- Population trends must be properly calculated. There is a great potential for in-migration to areas provided with water.
- Consideration of contamination risks - the location of the source must be at a sufficient distance away from pit latrines as specified in chapter 3 in the Technical Manual.
- Construction methods which will avoid cutting of trees around sites has to be encouraged.
- Plans for catchment area protection
- Plans for source/water point protection
- The design must appropriately incorporate the use of spill water for irrigation or collection to soak-pit or ditch.
- Appropriateness of proposed mitigation measures to the environmental impacts

A sub-project which does not satisfy the above criteria should only be put forward for fund approval based on very special and/or difficult circumstances which prevail in the

particular community. Special explanation of the circumstances relating to each item of non-compliance will be required to accompany each such application.

### 3.4 CRITERIA FOR SUB-PROJECT PRIORITISATION

Sub-project prioritisation will be determined after the sub-project development has been completed. The criteria considered will be almost the same as mentioned under paragraph 3:1 above namely:

- Prioritisation of rural water and sanitation sub-project by the community
- Existing operating improved water supply system
- Average distance to traditional source
- Willingness of the community to contribute in terms of money collected.

<b>Existing operating improved water supply system</b>	
• No system	3 points
• System serving < 10% of community	2 points
• System serving < 20% of community	1 point
<b>Average distance to traditional source</b>	
Greater than 1.5 km average for at least 75% of the community	3 points
Greater than 1.0 km average for at least 75% of the community	2 points
Greater than 0.75 km average for at least 75% of the community	1 point
<b>Poverty</b>	
More than 50 % considered poor or in need of relief assistance on and off	3 points
Between 25 - 50 % as above	2 points
Less than 25 % poor	0 points
<b>Remoteness</b>	
Far away from nearest town (Km to be decided by ESRDF)	3 points
Medium remoteness (criteria in km as above)	2 points
Fairly close to nearest town (criteria as above)	1 point
<b>Equity</b>	
Disadvantaged group of people	3 points
Rather disadvantaged group	2 points
Not disadvantaged group	1 point

A sub-project which scores less than 10 points in total should not be put forward in the prioritisation list until further promotional work has been carried out in the community.

### 3.5 PROJECT APPRAISAL

Sub-projects which are identified in the prioritisation list for development shall be prepared for submission to the ESRDF RO for appraisal in accordance with the following procedure:

- Community meeting to establish WATSAN committee and further explain ESRDF programme, conditions of compliance and requirements for sub-project submission ( *see Community and Institutional Development Manual chapter 6* )
- Selection of technical solution(s) ( *see Tech Manual chapter 5* )
- Training of the WATSAN Committee ( *see Community and Institutional Development Manual chapter 6* )
- Preparation of proposal for ESRDF

The community must be clearly aware that the process from submission, through approval to signing of the financial agreement shall take a period of about 3 months. Further training within the community, arrangements for generating and recording of funds, the identification of caretakers and mechanics and similar preparatory activities can take place in this period on the basis that only well prepared high priority sub-projects clearly satisfying ESRDF requirements have been progressed forward to this stage.

#### **4. Sub-Project Identification, Implementation and Monitoring**



#### 4. SUB-PROJECT IDENTIFICATION, IMPLEMENTATION AND MONITORING

##### 4.1 SEQUENCE

The sequence of sub-project identification, implementation and monitoring shall be as follows:

1. General promotion campaign on ESRDF programme at regional level
2. Socio-economic surveys on regional basis
3. Water resources surveys on regional basis
4. Establishment of Regional, Zonal, Woreda, and Kebele WATSAN committees and accompanying training programmes (hygiene and sanitation promotion, gender aspects, choice of technology, construction of demonstration latrines) based on regional priorities
5. Prioritisation of community sub-projects within region
6. Promotion of specific sub-projects and preparation of submissions for appraisal
7. Training and mobilisation and follow up of the community
8. Sub-project approval and signing of Financial Agreement (FA).
9. ~~Planning for construction after approval~~
10. Further training within community
11. Construction
12. Training on O&M and follow up on hygiene and sanitation promotion
13. Final inspection and commissioning
14. Monitoring and Evaluation and follow up backstopping.

The above steps are generally indicative of a sequential procedure but certain steps e.g. 3 and 4 will require to be overlapped and the overall sequence will need to be applied to sub areas within a region in order to implement a workable phased programme for the overall project.

**4.2 STEP 1. GENERAL PROMOTION CAMPAIGN ON ESRDF PROGRAMME**

It is considered practical to carry out one ESRDF promotional campaign based on all sub-project components rather than separate sectoral campaigns. This will ensure against a bias towards a particular sub-project component resulting from lower level un-balanced campaigns within different sectors and ensure that communities are aware of the full range of options available at the outset of the programme.

**4.3 STEP 2. SOCIO-ECONOMIC SURVEYS ON REGIONAL BASIS**

In order to provide the necessary socio-economic baseline data to evaluate communities ability and priority for involvement in the programme certain key information need to be collected. The nature of this survey requires professional competence to capture the behavioural and sociological aspects of great importance. The survey results should be reliable and representative of the communities. It is recommended that a consultancy company with expertise within the behavioural sciences is contracted. The consultant will work with the Regional Health Bureau staff to build their capacity. The survey will aim at a representative sample in both programme intervention as well as in control areas. The data gathered during the regional socio-economic survey will comprise:

- Willingness and ability to pay for improved WATSAN supplies
- Prevalence of stunting of children in age bracket 12-23 months old
- Knowledge Attitudes and Practices (KAP) in hygiene, sanitation and water use.
- Prevalence of diarrhoea among children below 5 years during the last 2 weeks prior to the survey.
- Status of existing operating improved water supplies (closely co-ordinated with water resources studies in 4.4)
- Distance to traditional water sources (closely co-ordinated with water resources studies in 4.4)

This survey will need to be based on a representative on a representative sample of households. The data will be compiled into regional WATSAN profiles

**4.4 STEP 3. WATER RESOURCES/HYDRO-GEOLOGICAL STUDIES ON A REGIONAL BASIS**

In order to ensure a fair distribution of water sources there a need to carry out a water resources survey on regional basis. The information gathered would then be utilised at a sub-project level and supplemented by specific local information and studies. The regional water resource/hydro-geological study will result in reports for the regions with the following information:

- Inventory maps of springs, dug wells, boreholes and other water supply systems
- Groundwater data maps mainly based on existing borehole data (location, main water strike, yield, static water level, thickness of regolith and geology)
- Spring data maps (location, yield, water quality and geology)
- Thematic maps, based on interpretation of data from database (water resources availability, its potential, recommended technology options)
- Recommended investigation procedures
- Maps showing the most likely technical options for water development (springs, dug wells, gravity schemes, boreholes) in every Woreda
- Maps summarising the hydrogeology which will be useful for detailed site surveys.

#### 4.5 **STEP 4. ESTABLISHMENT OF WATSAN COMMITTEES AND ACCOMPANYING TRAINING PROGRAMMES BASED ON REGIONAL PRIORITIES**

WATSAN committees shall be established at regional, zonal, woreda and kebele levels in order to provide the necessary planning and training structure for the sub-projects in a top - down structure. In order to build up this structure gradually taking account of capacity development capability, the sub-regional committees should be developed based on the regional priorities identified as a result of steps 1 to 3.

For details of the establishment of WATSAN committees and the accompanying training programmes see chapters 2 and 6. *More details can be found in the Community and Institutional Development Manual.*

#### 4.6 **STEP 5. PRIORITISATION OF COMMUNITY SUB-PROJECTS WITHIN A REGION**

The prioritisation of community sub-projects within a region shall be carried out in accordance with the procedures detailed in Chapter 3. This process may be carried out in parallel with Step 4 but should not proceed unless the establishment of the relevant WATSAN committees are proceeding at a pace such that the structure will be in place in time to promote and train within the communities for the subsequent stage 6.

#### 4.7 **STEP 6. PROMOTION OF SPECIFIC SUB-PROJECTS AND PREPARATION OF SUBMISSIONS FOR APPRAISAL**

Once prioritisation of sub-projects has been made based on a 3 monthly basis within a region and a phased programme of implementation taking account of the establishment of the WATSAN committees and training programme has been planned, the promotion of specific sub-projects can proceed in accordance with Chapter 3.

Committee training as described in chapter 6 will cover the following:

- Hygiene education
- Sanitation
- Gender issues
- Technology choice
- Sub-project proposal preparation
- Fund raising and book keeping

Due to the degree of mobilisation work that is required to take place within a community to prepare for a successful application to ESRDF, it is important to avoid promoting communities whose application will fail with the consequent demoralising effect on the concerned community. It is therefore also important that the eligibility criteria identified in Section 3.3 of the Handbook will be critically assessed in the pre-selection of sub-projects for promotion.

#### 4.8 **STEP 7. FURTHER MOBILISATION AND FOLLOW UP OF THE COMMUNITY**

In order to maintain the momentum of commitment and involvement generated within the community during the project preparation phase and to make practical use of the period of appraisal of the project, further mobilisation of the community can proceed immediately following the submission of the proposal for appraisal. This assumes successful appraisal and therefore careful project preparation as emphasised in Step 6 is critical.

Further mobilisation of the community involves:

- Hygiene education
- Sanitation awareness including teaching the committees how to construct improved pit latrines through working together with them in constructing demonstration latrines.
- Gender issues
- Committee organisation and operation
- Generation and recording of funds
- Identification of caretakers and mechanics
- Spare part distribution

#### 4.9 STEP 8. SUBPROJECT APPROVAL & SIGNING OF FINANCIAL

After submission of sub-projects to the RO office appraisal will be done as described in the Community and Institutional Development Manual section 5.4. Below is a brief description of the steps.

- **Desk Assessment to establish:**
  - \* Whether the project is rural.
  - \* Total requested ESRDF contributions are within the maximum limit set for rural water supplies and sanitation projects.
  - \* Whether the minimum design population exists.
  - \* Involvement of the community in the identification and preparation of the project especially the women.
  - \* Willingness of the community to contribute at least 10% of the total project costs.
  - \* Guarantee by the community to ensure sustainability through own management and operation and maintenance of the facility
  - \* The technical complexity of the proposed project both for ease of implementation and future management by the user community.
  - \* The approval of the water supply project by the regional water resources development department.

If the sub-project falls outside the range for assistance a rejection letter signed by the RM and giving the reasons for rejection is sent to the community.

- **Field Investigation**

Where the request is apparently eligible, or where eligibility is not clear cut, the PO together with the relevant technical experts from the regional water and health bureaux will make a field visit to verify the following:

Technical feasibility to establish:

- \* Whether requested technology is least cost, technically feasible.
- \* Repairs for requested technology can be handled locally after training if necessary.
- \* Availability of spare parts (if unavailable check possibility of establishing supply).
- \* Repair and running costs are affordable.

Social feasibility:

- \* Did women participate in community meeting and preparation of the proposal
- \* Establish local institutional capacity.

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- \* Check whether community has had previous experience in implementing a similar project
- \* Check for presence of local organised community groups
- \* Verify the responsibility of the community in covering maintenance costs and the mechanism, organisational structure and source of financing

##### Environmental feasibility:

- \* Availability of water for current and future needs taking both natural population increase and migration into consideration.
- \* Protection of catchment area
- \* Protection of source/water points
- \* Construction methods avoiding cutting of trees around sites
- \* Appropriate use or collection of spill water for irrigation or soak-pit/ditch
- \* Contamination risks (carry out a sanitary survey)
- \* Appropriateness of proposed mitigation measures to the environmental impacts.

The sub-project appraisal forms are presented in annex 3.

#### • Appraisal results

At the end of the appraisal exercise, a document forwarded to the RO will reflect one of the following conditions:

- **Rejection,**
- **Request for further study or**
- **Provisional acceptance.**

**Rejection:** If a proposal fails to meet the pre-set eligibility and/or appraisal criteria, the project is rejected and thus the Fund will not finance its implementation. In such an event, the PO prepares a rejection letter clearly enumerating reasons for deciding so and passes it to the RM. The applicant (the community) is then promptly contacted and made aware of the decision. All necessary recordings are then made concerning the project, etc. on the data base.

**Request for further study :** In the event when more information/data is required for making an objective decision on the proposal, the applicants are requested to undertake a study to fill the information gap.

**Provisional acceptance:** Project proposals that have managed to meet the eligibility and appraisal criteria, will receive provisional acceptance by the PO. Only such proposals are forwarded to the Regional steering committee, through the RM, for approval.

- **Approval and finalisation**

Only proposals that have been provisionally accepted by the PO, after meeting eligibility and appraisal criteria, will be taken up for final approval.

Proposals have to adequately meet the criteria set on environmental aspects, sustainability, gender sensitivity and social, technical and financial feasibility in order to get provisional approval. The PO then prepares an "appraisal report" and submits it to the Regional Manager (RM). The "appraisal report" summarises important aspects in the eligibility and appraisal criteria including community participation, sustainability, financial and implementation arrangements.

A provisionally accepted proposal will be based on the judgement of the RM and heads of departments in the RO fall under any of the following three categories (1) feasibility/technical study; (2) acceptance; and (3) deferral.

- Feasibility or technical study may be recommended if the provisionally accepted project has a complex technical component. The RO then commissions the study needed to complete the document.
- Acceptance: A proposal accepted by the Regional Steering Committee (RSC) will be administratively finalised for implementation.
- Deferral: Implementation in a locality of an accepted/ approved project may be deferred for planning purposes. This is mainly done when the community, of the approved project, is already engaged in similar activity. Such a decision is made not to over-burden the community and to ensure full community participation at a more appropriate time.

An accepted proposal is forwarded to the Regional Steering Committee, RSC, for approval. The RSC is the highest decision body in the region. When the committee consider approving a project it will take into consideration such factors as a fair distribution of rural water supplies and sanitation programmes within the region and ensure that backward areas and communities in these respects are given proper attention.

An approved project proposal is finalised by the PO who was involved in the examination and analysis of proposals during appraisal.

The following details should be included in the documentation.

<b>Documentation for approved project proposals</b>
<ul style="list-style-type: none"> <li>• Map of the project works within the zone and the region</li> <li>• Location of the WATSAN project in relation to the households in the community/the village</li> <li>• Project application form submitted by the community</li> <li>• Appraisal report prepared by the PO</li> <li>• Work programme and implementation arrangement for the community management structures</li> <li>• Arrangement for covering recurrent and maintenance costs and the mechanism of operation and maintenance activities</li> <li>• Proposed and approved designs of WATSAN projects and bills of quantities</li> <li>• Summary profile of the project, and</li> <li>• Supervision and monitoring plans including indicators and for trench release of the approved fund.</li> </ul>

- **Time frame for approval**

To ensure a more efficient performance in the implementation of WATSAN programmes in the country, a time frame for each activity is considered crucial. It is generally believed that a time bound activity encourages the POs and RMs to discharge their respective duties more efficiently than otherwise. The communities will also be ensured that the indicated 7 major activities are carried out as planned. For a normal project proposal which does not require feasibility /technical studies, the total number of weeks required from the submission date to signing of a financing agreement is 11-13 weeks. On the other hand, a proposal that fails eligibility test or is unable to meet appraisal criteria will receive letters of rejection within 1.5 weeks and 8 weeks after the date of submission respectively. The communities need to be informed about the time-frame as a principle of good service management.



Time frame from submission to approval		
Step	Activity	Time-frame
1	Assigning a PO to follow up the proposal	3 days
1.2	Desk assessment	1 week
2	Field investigation	4 weeks
3	Appraisal by the PO	1 - 2 days
4	Acceptance/rejection by the	1 week
5	Approval by the RSC	1-2 weeks
6	Finalisation of documents for implementation by the PO	1-2 weeks
7	Signing of financial agreement by the RM and implementing agency after the approval	within 3 weeks

#### 4.10 STEP 9. PLANNING FOR CONSTRUCTION AFTER APPROVAL

After approval of the sub-project by ESRDF and signing of FA, planning for construction can commence. The preparation shall include:

- Project map including beneficiary distribution
- Preparation of a project profile document
- Work programme including community inputs and management structure
- Arrangement for capital and recurrent cost generation, collection and accounting
- Designs, drawings, specifications and bills of quantities
- Supervision and monitoring plans including indicators
- Plans for release of funds

#### 4.10 STEP 9. TRAINING WITHIN COMMUNITY

Further training/follow up within the community should take place as soon as it will be suitable to the community and once construction plans are completed and continue throughout the construction and commissioning period. Training topics will include:

- Hygiene/sanitation
- Gender topics
- Fund raising
- Construction procedures
- Operation and maintenance
- Spare parts availability
- Accounting procedures
- Monitoring and evaluation

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**4.11 STEP 10. CONSTRUCTION**

The Local Community Facilitator will be responsible during the construction phase to ensure the following:

- Construction according to designs, drawings and specifications
- Construction in accordance with agreed time schedules
- Procurement of all materials in accordance with specifications and in due time for the construction of the works
- Provision of all equipment and tools for the construction of the works as specified and in a timely manner
- Management of the construction works in liaison with the supervisor of works through the community WATSAN committee including involvement of the community at all stages of construction planning and implementation
- Co-ordinate specific inputs to the construction work as agreed with the WATSAN committee and specified in the ESRDF financial agreement

A contract agreement form for use in the construction of works under this programme is included as an annex and details of the social and technical procedures to be followed are described in the respective social and technical manuals.

**4.12 STEP 11. TRAINING ON O&M AND FOLLOW UP ON HYGIENE AND SANITATION PROMOTION AND ENVIRONMENTAL AWARENESS**

After completion of construction the WATSAN committee along with caretakers will be trained in the following:

- O&M of the water source including preventive maintenance
- Environmental protection of the source
- Environmental hygiene of the source/water supply
- Hygiene promotion
- Sanitation
- Agreement on tariffs, fund raising and book keeping
- Participatory monitoring

In addition the caretakers and mechanics will receive extra training on repairing the water supplies.

**4.13 STEP 12. FINAL INSPECTION AND COMMISSIONING**

The final inspection and commissioning of the sub-project works will be carried out jointly between the community, through the WATSAN committee, the project implementers, where appropriate and ESRDF. The steps followed will be as follows:

- Joint inspection and agreement on any outstanding work or defects between the community and implementing agents as appropriate
- Inspection jointly by above parties and ESRDF PO where outstanding work, defects and remedial action and time schedule are mutually agreed and recorded
- The inspection certificate will be completed and signed by all relevant parties
- An official opening ceremony/commissioning will normally be held
- As part of the official ceremony trees will be planted as part of promoting environmental awareness.

An inspection certificate is included as an annex and the details of the social and technical procedures involved in final inspection and commissioning are included in the relevant sections of the social and technical manuals.

#### 4.14 STEP 13. MONITORING AND EVALUATION

Monitoring and evaluation of the completed sub-projects shall be carried out on a participatory basis involving the community members and the back-up organisational structure is described in the Community and Institutional Development Manual.

The project outcomes will be measured at three levels:

- physical or efficiency level
- behaviour or effectiveness level
- impact level defining ultimate project consequences

The three key aspects which need to be measured are:

- sustainability
- effective use
- replicability

Monitoring and evaluation tools are also included in the Community and Institutional Development Manual and forms to be utilised are included as appendices.

During monitoring follow up backstopping to communities will be carried out. Monitoring and evaluation results will be used for designing retraining programmes or for modification of the approaches.

## 5. Technical Aspects

## 5. TECHNICAL ASPECTS

### 5.1 INTRODUCTION

The guiding principle in technology choice of a particular area should be the least cost and most sustainable option which satisfies the design criteria within the given budget and with affordable operation and maintenance costs which the community is willing to pay. Accordingly, the following water supply selection criteria, in decreasing priority has been adopted by ESRDF:

- Springs (either as point or gravity supplies)
- Hand dug wells installed with hand pumps
- Shallow wells constructed using machine bucket augers and installed with hand pumps
- Shallow boreholes (up to 60m deep) installed with hand pumps

In priority areas where hydrogeological conditions do not permit the use of the above mentioned technologies, other technologies stated in the manual can be considered provided that they are affordable and sustainable by the community.

*In addition no water supply system should be installed within a community without carrying out hygiene education and promoting sanitation improvements.*

### 5.2 DESIGN PARAMETERS

The objective of any water supply and sanitation system is to supply safe water, in adequate quantity, conveniently located and at reasonable cost to the user in addition to improving the overall health and well being of the community. The basic criteria that need to be taken into account for sound technical and social decisions are:

- the area and population to be served
- the design period
- the water demand
- selection of water source
- type and location of the facilities to be provided

In order to standardise the sub-projects being designed under the ESRDF programme fixed criteria have been established for each of these aspects depending on varied conditions prevailing in each situation. They are detailed in the Technical Manual and summarised below:

## Design Parameters

- **Maximum design population 10,000 persons**
- Population average growth 2.23% per annum but adjusted to detailed information in each community
- Design period of 15 years but with phasing of project components wherever practical for economy
- Per capita consumption 20 - 30 litres per day
- Level of service
  - 300 - 350 users per handpump
  - 400 users per spring point source
  - 900 users per public fountain ( 6 faucets )
- Distance to supply point
  - < 1.0 km for point sources
  - < 0.5 km for public fountains
  - up to 1.5 km in difficult situations

The type of technologies proposed for implementation under the ESRDF Rural Water Supply and Sanitation Programme are selected as suitable for a community based sustainable rural water supply. Appropriate selection has to be made in each case dependent on the total quantity of water required by the community, hydrogeological, topographic and other conditions of the area. If the community desires a higher service level then they meet the full difference in providing it.

Springs are given preference to other sources since they provide water of high quality, can be developed at low cost using simple technology and involve low operation and maintenance cost. Springs can be developed to supply water to small as well as large communities either as a point source or by gravity. Night flows can be stored to augment the supply during the peak demand periods of the day.

Shallow wells, either hand dug or drilled using machine augers and fitted with hand pumps, also provide a simple and low cost solution to supply water to small rural communities. Machine drilled shallow boreholes installed with hand pumps in areas where shallow wells are not feasible may have to be considered.

In some areas where hydrogeological conditions completely preclude the selection of simple options, it will be necessary to consider more expensive and less suitable technologies such as springs or deep boreholes together with a mechanised pumping system, storage and distribution system or some of the alternative technologies referred in the Technical Manual.

### 5.3 SANITATION

Sanitary disposal of human excreta is one of the most important ingredients of a healthy productive life for any community. Most people in rural areas know little or nothing of the problems of uncontrolled disposal of excreta. As a result, they suffer from debilitating worm diseases and diarrhoea transmitted by direct contact with infected excreta, through hands or utensils or carried by flies and rodents. Many are also sick because they eat food or drink water which has become contaminated at the source and/or between the source and mouth. *Rural sanitation therefore most effectively starts with the introduction of hygiene education and improvement of traditional practices and only moving on to a programme of latrine construction when awareness has reached a sufficient level for this to be user driven.*

When a programme of latrine construction is appropriate the selected latrines should provide the most socially and environmentally acceptable level of service to the community/household at the least economic cost. Latrines should be sited taking account of the following:

- at least 20-30m from any water source to avoid risk of pollution
- close to the household within a range of minimum 10m to a maximum of 50m in order that it can be convenient to users and encourage use even at night yet does not create a nuisance through bad smell
- avoid locating latrines up-hill of a water source to avoid gravity transmission of pollutants via the ground water aquifer
- located where the ground is firm in order that the structure will not collapse. In areas where the soils are unstable for example sandy soils, the pits have to be lined with stones or other materials as described in the technical manual
- located on raised ground in order that rain water can drain away easily
- located in relation to the appropriate wind direction in order that odour is dispersed away from the latrine surrounding.

Rural sanitation systems are described in detail in the Technical Design Manual. The pit latrine is the only one recommended for present day conditions in rural Ethiopia. The latrines can be either the traditional or improved type as described in the Technical Design Manual. In its simplest form, the traditional type has three components - namely a pit, a squatting place, a foundation and a superstructure. The pit is simply a hole in the ground into which excreta fall. When the pit is two thirds full, the superstructure and squatting plate are removed and the pit filled up with soil. A new pit is then dug nearby. A latrine is therefore a temporary structure with a life time of about 5-10 years.

The traditional type has two major disadvantages - it usually smells, and flies or mosquitoes readily breed in it, particularly when it is near full. Bad smell and flies can be controlled by covering the squat hole and by sprinkling ash, powdered soil or sawdust.

The improved pit type is a modification of the traditional type. The modification is achieved by installing a small concrete slab commonly known as a sanplat on the traditional latrine. The sanplat has the following features:

- a hard and smooth surface sloping towards the drop hole, which make daily cleaning/washing easier
- elevated foot rests, which help the user to find the right position when using the latrine hence reducing on soiling around the hole
- a tight-fitting lid which stops not only flies, cockroaches and rodents, but also smell, and
- a key-hole-shaped drop hole which makes the latrine safe also for the smallest children.

#### 5.4 WATER SOURCE SITING AND SELECTION

Communities (women and men) must be involved in the choice of technology and siting of the water source together with the technical team. The technical team should assess all available data and insert it on the Participatory Rural Appraisal map to be prepared by the WATSAN committee.

A visit has to be made by the technical team together with the community representatives to the possible potential sites in the area. Basic principles of water availability and quality pollution risks and other conditions are presented together with technology options and costs as described in detail in the technical manual.

For detailed investigations each technology option will require a different approach but the following major common tasks have to be accomplished:

- Reconnaissance survey-collection of relevant information such as surface and subsurface geology, water table precipitation, evaporation, land use vegetation, aquifer characteristics and boundaries etc.
- Field work - performing geophysical investigations, checking actual field conditions, communicating with local people etc.
- Reporting of the results of the reconnaissance survey and field work

Water source investigation must accommodate an acceptable balance of both the technical components which are relevant to the physical exploration works and the social



components which will provide confirmation on how to develop a sustainable source acceptable to the community and their environment.

Water source selection should aim at the technology options previously identified in priority order. The considerations and procedure to be followed are detailed in the technical manual but the main aspects of the priority choices are outlined below:

- Minimum flow of springs has to be adequately determined during peak dry conditions and storage considered where appropriate
- Dug wells are selected where no springs are available, in areas of alluvials, river banks, lake shores and similar. Sites of rock outcrop, ridges and the like should be avoided
- Shallow wells or boreholes are the last primary option of the ESRDF RWSS programme. Access to the site for construction and maintenance should be assured and the location should be such that contamination is avoided

## 5.5 CONSTRUCTION PROCEDURES AND TECHNICAL SPECIFICATION

The detailed construction procedures and specifications are given in the technical manual but the outline requirements of the priority systems are given below:

### Springs and Gravity System

- Capping and/or storage should be provided dependent on the natural high and low flows compared to the demand pattern
- Construction of spring development should be carried out during dry periods so that the spring eyes can be located properly
- Site clearing such as vegetation, bushes; laying out of the location of the capping structure; the excavation works, the construction of the masonry and concrete structures and laying of the pipes should be all as per the design specification and the working drawings
- The system should be disinfected after all the construction work is completed and before the scheme is made operational.

### Dug Wells

- Before starting the construction work a crew of an experienced technician and a skilled supervisor and the necessary equipment for the work should be organised
- Digging of the well has to continue according to the design and the depth and the diameter can be fixed depending on the hydrogeological condition of the area.

Average depth of 10-15 meters and a diameter of 1.50 meters can be used in most cases

- After completion of the digging testing, should be carried out to determine the yield of the well. The well should be completed with installation of concrete rings gravel pack, well head construction and installation of hand pump.

#### Shallow Wells and Boreholes

- The drilling of shallow wells and boreholes should conform to the method recommended during the investigation of the area and would involve drilling through both unconsolidated formations and indurated rock units using mud drilling system and down the hole hammer drilling method respectively.
- Well depths are envisaged to be up to 60 meters and the drilling diameter can be greater in the upper section and telescoped to facilitate easy installation of casings and screens yet achieve maximum economy
- Logging of the wells during and after the drilling has to be carried out in order to keep the history of the well
- Surface casing, well casings and screens have to be put into the well according to the findings of the well logging. The well has to be gravel packed, grouted and the well head has to be constructed according to the design
- The well has to be developed prior to test pumping. The test pumping procedure will be selected based on the drilling information and the well has to be disinfected before starting operation.

## 5.6 WATER LIFTING DEVICES

The main features of the appropriate lifting devices and the selection procedures are detailed in the technical manual as referred but the sequential process is summarised below:

### Hand Pumps

- suitable for pumping water from a few meters to not more than 50 meters deep. Suction pumps are suitable as low lift pumps up to 7m depth. Direct action pumps, dependent on the effort of the operator, will operate up to around 12 meters. Deep well reciprocating pumps are suitable for lifts of up to 45 meters
- The selection of hand pump, in addition to the lifting characteristics, should also take into account the resistance to corrosive water, the discharge rate, ease of maintenance (VLOM concept), reliability and other factors which will contribute to its sustainability

- Only true VLOM pumps which are in the public domain (Afridev or prototype) are recommended for implementation. Standardisation at least in each region but preferably also nationally should be aimed at for ease of maintenance and availability and distribution of spares. At depths above 45 meters pumping capacity true VLOM pumps are not available and only modified versions of well known and tested pumps and in the public domain (Indian Mark II and III or prototype) should be used.

#### Bucket Pumps

- A simple technology developed utilising the principles of the traditional method of withdrawing water from a well
- The bucket pump is particularly suitable in small sparsely populated communities, where the water table is relatively shallow and the maintenance capacity is limited
- Due to the fact that the well is not completely sealed and the chain can be contaminated, a high degree of water quality surveillance has to be effected.

#### Motorised Pumps

- The turbine and submersible pumps are generally used for pumping water from boreholes
- Surface centrifugal pumps can be used to pump water from spring wet wells
- Progressive cavity positive displacement type of pumps driven by diesel engine can be used to pump water from boreholes where the quantity, depth and demand pattern are suitable
- In selecting pumps the operating characteristics should be compared to the manufacturer's performance curves for optimum and satisfactory operation
- The factors to be considered in the selection of pumps are its capacity, depth of the well and pumping level, well diameter and verticality, abrasive property, type of power available and cost of pump
- In setting the pump characteristics, the discharge in relation to the pumping test result and the daily demand, the total pumping head including static and dynamic head should be taken into account.

#### Solar and Wind Pumps

- Solar pumps should be installed where appropriate on a trial basis as a low operating cost, environmentally friendly alternative to other motorised pumps.
- A storage tank of appropriate capacity should be provided to ensure the daily supply when there is variation in daily and seasonal radiation or solar energy characteristics.

- The use of wind-power for pumping water should be technically feasible in situations where there is wind 60% of the time with a speed of about 3.0m/sec. A storage tank should also be provided to cater for periods of insufficient wind and there should not be any obstruction to wind flow within 150 meters.
- Windmill sustainability must be carefully taken into account before installation. Windmills are also more expensive to install than equivalent diesel or solar units and although cheap to run they have a large number of moving parts.

## 5.7 OTHER TECHNOLOGIES

### Rain water catchment

- Rain water has the benefits of being free from pollutants and generally of a physical and chemical quality suitable for domestic supply without treatment. Rain water can be harvested from roofed areas, paved areas, or natural ground utilising specially prepared catchments
- With the 3-4 months rain fall pattern in Ethiopia, it would not however generally be viable as a sole supply alternative, rainwater harvesting can provide a useful supplemental supply of high quality by mixing with poor quality water or by artificial recharging of the ground water if the hydrogeological conditions permit.

### Surface Water

- Surface water, either from rivers or lakes will not be naturally of a quality to satisfy the design standards within this programme without treatment
- Conventional treatment methods are expensive and too sophisticated to be operated by a community based programme
- The use of surface water therefore would only have to be considered in very special situations together with simple treatment such as natural or artificial filtration within the stream bed
- This system of treatment is only to be considered when the turbidity of the water is low, the catchment is protected from pollution, the flow is perennial and the river bed is suitable for filtration. In this case the water quality has to be tested and monitored regularly by the Water Bureau staff. The users should carry out regular sanitary surveys.

### Infiltration Galleries

- In areas where a significant flow of high quality groundwater is available over a wide area at depths less than 3 meters, abstraction by infiltration galleries should be considered.

### Sub-surface Dams

- In arid or semi-arid areas, where evaporation rates are high and very limited water resources, are available the construction of a sub-surface dam in the dry river bed of wadis is often the only reliable sustainable supply of suitable quality water
- Before constructing the sub-surface dam the storage capacity and the location related to the service centre have to be investigated
- The catchment and the dam area should be protected from contamination by animals and humans.

## 5.8 WATER QUALITY

Drinking water quality refers to the suitability of water for human consumption and for all usual domestic purpose including personal hygiene. The threats to human health associated with drinking-water quality have been assessed by WHO in Guidelines for Drinking-water quality. The guideline values recommended by WHO for some microbiological, chemical and physical constituents of water is presented in the Technical Design Manual.

Securing safe drinking- water for rural populations scattered over large geographical areas poses tremendous logistical problems for which standards or guideline values can at best provide a reference point. *Environmental hygiene is essential for ensuring that a good bacteriological quality of water is maintained especially for springs and dug wells. Land use upstream of the source should be controlled by fencing off the catchment area in case of a spring thus preventing human and animal activities. The areas around handpumps have also to be fenced off. Collection points have to be kept clean and hygienic. A safe water chain has to be promoted to achieve the objective of communities drinking safe water.*

External input would comprise random sampling of water and analysis together with reactive measurement to cases of excessive occurrence of water related disease but mainly focus on sanitary evaluation and monitoring. Sanitary inspection is concerned with the impact and evaluation of the entire water supply system with a view to detect contamination sources and taking corrective measures.

Field kits for appropriate bacteriological and chemical analysis for this type of RWSS programme are available which can provide a suitable base line for proper evaluation of source selection and for future monitoring. In cases where the E-coli exceeds the maximum permissible levels, a sanitary survey together with community members should be carried out to identify, the source of pollution and take remedial action.

## 6. Training and Capacity Building

## 6 TRAINING AND CAPACITY BUILDING

The training is designed to promote the achievement of the ESRDF objectives in the WATSAN sector. These objectives are shown below together with the associated training activities.

### 6.1 OBJECTIVE 1

**Strengthen the local government (regional and below) to plan, co-ordinate, monitor and provide support to communities in maintaining water and sanitation facilities and building new ones.**

The expected output associated with the achievement of this objective is competent local government staff at regional, zonal, and woreda level. This training will be organised in the form of regular half yearly seminars for the Regional Management Team (RMT) and for regional zonal and woreda WATSAN Committees. The content will basically cover the same components in order to create uniformity of approaches, procedures, rules and regulations.

There is a need to carry out a **training needs assessment** for each of these levels. The assessment should be made in relation to the specific tasks to be performed at each level and what competence is required to carry them out.

The science of delivery of public services has developed considerably during the last two decades. It is the intention to base the training on these new approaches which are briefly described in the Community and Institutional Development Manual chapter 3.

~~The training methods will comprise of various kinds of on-the-job training, exchange visits, seminars etc. during the implementation period. The training will mainly focus on the facilitative role the staff at all levels will play in the implementation of the programme. They will for example:~~

- Provide leadership in the promotion, implementation and monitoring process
- Assess and implement training at the level below them in collaboration with existing training institutes and consultants.
- Advice and support agencies, NGOs, contractors and others involved in the programme
- Assist in preparation, translation and duplication of training materials
- Give guidance on preparation of budget allocations incorporating realistic and generous training components

**Training content:**

1. *Planning and Management of WATSAN sub-projects*
  - . Review of sanitation and water status based on survey reports and available data
  - . Use of various social marketing techniques, drama, songs etc. for promotion
  - . Prioritisation of woredas and kebeles according to the priority criteria described in chapter 3
  - . Discussion of appraisal criteria, promotion of sub-project proposals, preparation of proposals
  - . Environmental issues
  - . Involvement of women right from proposal preparation stage
  - . Preparation of work-plan for promotion, constructions and follow up activities
  - . Planning, budgeting and reporting requirements by ESRDF
2. *Co-ordination and collaboration*
  - . Promotion of inter-departmental co-ordination,
  - . Establishment of interagency collaboration
  - . Initiation of collaboration with local NGOs, agencies and private sector contractors.
  - . Integration of hardware and software aspects
3. *Training and supervision*
  - . Contracts Management for both hardware and software aspects
  - . Tendering procedures
  - . Contract supervision
  - . Adult education methods
  - . Participatory methods
  - . Use of participatory tools
  - . Methods of involving women
4. *Promotion of awareness in hygiene, sanitation and water*
  - . Assessment of prevalence of WATSAN related diseases and child mortality
  - . Current knowledge, attitudes and practices (KAP) in hygiene and sanitation
  - . Review of appropriate targets for HESAN improvement and appropriate technologies
  - . Methods and participatory tools for promotion of HESAN
5. *Support and capacity building methods for community based management*
  - . Discussion of community contributions in view of local ability to pay
  - . Different methods of payment and tariff setting
  - . Operation and Maintenance
  - . Programmes for support and monitoring visits
  - . Analysis of progress and redesign of interventions
  - . Analysis of problems encountered and solutions tried out.



### 6. *Monitoring and evaluation*

- Planning of monitoring and evaluation designs, as integral components of the programme activities
- Use of monitoring tools and forms compilation and analysis of data, reporting procedures and examples of corrective actions needed as a response to findings
- Reporting procedures

## 6.2 OBJECTIVE 2

- Establishing a functioning community based management system and

## OBJECTIVE 3

- Raising awareness of communities of the link between water, sanitation and health leading to increased use of latrines and improvements in household and personal hygiene

These two objectives will be accomplished through a strategy of training of trainers who in turn will train Local Community Facilitators. The steps involved are described below:

### Training of trainers

The water bureaux has only got staff at regional and zonal level, but these people are expected to play an active role as trainer of trainers.

The Community Participation Promotion Officer (CPPOs) under the Regional Water Bureaux, Rural Water Supply Department and the Sanitarians under the Regional Health Bureaux will be trained as trainers of trainers (TOTs). These cadres already have an appropriate basic training and experience.

The CPPOs have a B.A in Social Science or Sociology and experience in promotion of community participation. Their number differ in the regions, but they are working both at regional and zonal level. Each zone has a Community Participation Promotion Service (CPPS). Community Participation Promotion Assistants (CCPA) are recruited after completion of 12 grade and receive 9 month training before they assist the CPPOs in mobilising the communities for WATSAN. For example, in Oromiya the planned number of CCPS staff is 88, out of which 35 of the posts are manned. The population in this region is estimated at about 20 - 25 million people. This is why they can only be used as trainers of trainers. Other regions have very few CPPOs and CPPAs compared to Oromiya..

The Sanitarians are working at Woreda level. They are also recruited from grade 12 and trained for two years in sanitation and health. They are only about 4-500 in total but they have the technical know how in sanitation, protection of water sources etc.

Health Assistants are a much larger group of about 11000. They are the core staff of Health Centres together with the nurses and they have an appropriate background to work as TOTs, although they are in great demand for their curative responsibilities in the community. There is a risk that they will have limited time for programme implementation, but they could presumably be utilised during limited periods as trainers of trainers in community health, hygiene and sanitation.

Traditional Birth Attendants (TBAs) already play a role in the WATSAN development at community level. Although they are not ordinary staff under the health bureaux they are visiting the families at village level and they have (if they have been trained) a 3 months training which contain promotion of personal and community hygiene. They therefore need to be brought into the programme activities.

Community Health Agents is another staff category hired by the health bureaux. Originally voluntary health workers they are to offer curative and preventive services in areas where there is no Health Centre.

There are also agricultural extension workers at this level. Although they are also busy with their regular work they can still be involved in the implementation of the programme. Their advice on such as aspects as environmental protection, irrigation through utilisation of soak-away water, reforestation etc. will be possible. The Home Agents who are similar to the Community Health Agents in background are working at community level.

These cadres are to a varying extent expected to act as trainers of the Local Community Facilitators. Their training as TOTs will at a minimum contain the same components as listed above under objective 1, but the TOTs will receive a more comprehensive training in the aspects of training of adults, use of training methods, participatory tools etc. The training will also comprise the supervision of trainers like the Local Community Facilitators.

### Training of Local Community Facilitators (LCFs)

The LCFs will have a 12 th grade educational background as a minimum requirement. They will need a basic minimum initial training in WATSAN aspects of one month as outlined below:

#### Training of Local Community Facilitators

Initial training content	Time required in days
<b>1. Introduction</b> <ul style="list-style-type: none"> <li>• The ESRDF Programme and organisation</li> <li>• The role and responsibilities of a LCF</li> <li>• Working conditions and resources</li> <li>• Performance indicators</li> <li>• Reporting procedures</li> <li>• Salary and benefits</li> </ul>	1

Initial training content	Time required in days
<b>2. WATSAN Aspects</b>	
• Water and sanitation related diseases,	1
• Personal and Household Hygiene,	1
• Sanitation	1
• Water resources	1
• Environmental sanitation and protection	1
• Integration of hardware and software aspects at community level	2
<b>3. Promotion</b>	
• Promotion methods	1
• Prioritisation at community level	1
• Eligibility and Appraisal Criteria	1
• Proposal writing	1
<b>4. Community Participation (CP)</b>	
• Objectives for CP - sustainability	1
• Concepts of CP	1
• Gender aspects	1
• Methods for CP	1
• Constraints and how to over-come them	1
• Participatory tools - introduction and	5
• Practice at community level	5
<b>5. Choice of Technology for WATSAN</b>	
• Technology options	1
• Technology costs	1
• Affordability and methods for raising funds	1
<b>6. Construction</b>	
• Planning	1
• Community mobilisation	1
• Selection of caretaker	½
• Identification of technicians	½
• Training of caretakers	2
<b>7. Follow-up Activities and O&amp;M</b>	
• WATSAN committee support for promotion of hygiene, sanitation and environmental protection	1
• WATSAN committee support for O&M	1
• Management and accountability	1
<b>8. Monitoring and Evaluation</b>	
• Participatory monitoring methods	1
• Collection, compilation and analysis of data	1
• Reporting, and	1
• Remedial actions available	1
• Trouble shooting at community level	1
Minimum number of training days	40 days or about 2 months

### Training at community level

The over-all objective of this training is:

- **To establish sustainable community based management of water and sanitation facilities.**

Community management is concerned with all aspects of decision making authority and control over the project planning, development and system operations.

There are immediate objectives which must be realised in order to achieve the over-all one of sustainable community based management of WATSAN facilities. These are:

- **Increased hygiene awareness with special reference to the linkage between diarrhoeal diseases and contamination routes, and**
- **Behaviour changes when it comes to hygiene and sanitation** in particular in relationship to:
  - handling of faeces - for example by burying or use and maintenance of latrines and
  - hand-washing after defecation and before eating - with soap or ash

In order to achieve this it will be necessary to implement a comprehensive awareness and training programme within the WATSAN sector.

There will be four types of training at community level:

- 1) Training and promotion will be integrated when the Local Community Facilitators (LCFs) will assist communities initially to identify their priority needs for assistance and to prepare sub-project proposals. This is described in the Community and Institutional Development Manual in chapter 5 on Sub-project Preparation and Appraisal
- 2) Training in hygiene and sanitation awareness and promotion of behaviour change
- 3) Training of communities will also be carried out by these LCFs to manage their own WATSAN schemes. This training is described in the Community and Institutional Development Manual chapter 6 of Community Mobilisation and Training
- 4) Training and follow-up /backstopping will also be carried out after construction of the WATSAN facilities. This will go hand in hand with the monitoring and evaluation activities.

A brief summary of the steps in the capacity building at community level is shown in the table below: These steps comprise of both promotion and training activities. These steps are fully described in the Community and Institutional Development Manual in chapter 6.

## Capacity Building at Community Level

Day	Activity	Time
1	<b>Preparatory Mobilisation</b> Establish contacts with community leaders, elders and representatives of local groups to prepare the invitation to the community meeting and stressing the need for involvement of women	30 min - 1 hour
2	<b>Community Meeting and Prioritisation of problems and needs for assistance</b>	2 - 3 hours
3	<b>Selection of WATSAN Committee involving women.</b> To be discussed. <ul style="list-style-type: none"> <li>• The role and responsibilities of the committee</li> <li>• The Composition of the committee</li> <li>• Suitable time and place for training of the committee</li> </ul> (Meanwhile technical staff are informed and technical data prepared)	3 hours
4	<b>Training</b> <ul style="list-style-type: none"> <li>• Walk through the village to assess WATSAN situation</li> <li>• Discussion of findings from the walk in terms of WATSAN conditions diseases etc</li> <li>• Mapping of findings</li> <li>• Training on hygiene and sanitation <ul style="list-style-type: none"> <li>• Contamination Routes</li> <li>• Contamination Barriers</li> <li>• Story with a gap on sanitation</li> <li>• If there is an interest, agree on date and place for construction of a demonstration latrine with a sanplat and a hand-washing facility.</li> </ul> </li> </ul>	30 min.  15 min  1 hour  30 min - 1 hour 45 min - 1 hour 45 min - 1 hour 30 min - 1 hour
5	<b>Preparation of sub-project proposal</b> <ul style="list-style-type: none"> <li>• Gender analysis on resources</li> <li>• Gender analysis on tasks</li> <li>• Technology options - selection of design</li> <li>• Technology costs and availability of spare parts</li> <li>• Environmental considerations</li> <li>• Willingness and ability to pay</li> <li>• Mechanisms for raising funds for construction and O&amp;M.</li> <li>• Preparation of a Standard Agreement and By-laws</li> </ul>	20 - 30 min 20 - 30 min 30 - 45 min 30 - 45 min 20 - 30 min 1 hour 1 hour 1 hour
6	<b>Actual construction of a demonstration latrine with a sanplat and a hand-washing facility</b>	
7	<b>Planning of construction</b> <ul style="list-style-type: none"> <li>• Selection of Caretakers</li> <li>• Identification of Technicians</li> </ul>	1 - 2 hours 1 hour
8	<b>Training in Operation and Maintenance of WATSAN facilities</b> <b>Training in simple book-keeping</b>	2 hours 2 hours
9	<b>Training in participatory monitoring and evaluation</b>	2 - 3 hours

### 6.3 OBJECTIVE 4

- Private sector providing required services in the water and sanitation sector

**Privatisation** is often hindered by the perception that there is no developed private sector to promote and collaborate with, and that there is an insufficient competence developed. But as soon as privatisation initiatives are taken the sector starts to develop. The issue is to promote a market by giving assistance to communities and private sector entrepreneurs to establish collaboration. **Caretakers, technicians, private contractors and local agencies and NGOs may need different kinds of support to get established and starting their activities.** This facilitation of contacts including training of caretakers will be undertaken by the programme. Management training organised for WATSAN committees at different levels will also be open for agencies and NGOs in the respective areas and levels. It is more appropriate to include these in the training of local government officers than to have a specific training for this category. The representatives of the private sector will then have an opportunity to learn from the other participants as well and will be familiar in WATSAN aspects which may not be the key aspects on the programme but discussed in the process. This will enable an exchange of experiences and facilitate future collaboration among participants.

**Caretakers** will participate in the WATSAN committee training, but they will also get extra caretaker training in connection with construction activities which will give them an opportunity to see how the pumps, springs etc. are constructed and operate. Special training in operation and maintenance will be arranged at community level to facilitate the participation of women who may have difficulties in leaving their homes for too long because of family obligations like caring for young children. Their training will include:

- How to use hand-pumps and other water sources in a proper and efficient way
- Preventive maintenance and purchase of spare parts.
- Whom to contact if the repair required is beyond their capacity
- Organisation of users in protecting the catchment area and the water source
- Environmental measures like cultivation by means of irrigation utilising the soak-away water, planting of live fence in the form of bushes around the water points, reforestation etc.
- Promotion of hygiene education at water points - meaning use of clean containers etc.

**Handpump mechanics/ technicians** will be trained in tendering, repairs, construction of springs- and pump platforms plus in participatory techniques. If possible they should be invited to participate in a WATSAN committee training to get a deeper understanding of the roles and responsibilities of all involved in a sub-project. They could be trained at the existing vocational training institutes at the cost of the ESRDF WATSAN or training component.

**Small local contractors** will also require some training and promotion in the form of 1 - 2 days training in tendering and preparation of contracts reports etc.

Spare parts dealers will need to be briefed on what type of spare-parts to stock and how to establish contacts with wholesalers and mechanics.

NGOs and big contractors will need capacity building in pre-qualification, management implementation and quality assurance. They will need training to understand the importance of the project implementation sequence, participatory concepts and objectives etc.

#### 6.4 OBJECTIVE 5

- Users demanding water and sanitation facilities

This objective refers to promotion of the WATSAN component of ESRDF through an increased awareness of the importance of improved hygiene and sanitation as a mean to improved health and access to more time and energy for other purposes than fetching water. While there is a genuine demand for water, the demand for sanitation is more or less non-existent. There is a great need for promotion of this demand which only can be carried out through increasing the general awareness of the importance and personal value of improved sanitation. The focus on the mechanisms to create this increased awareness will be a prominent feature of the programme requiring a multi-media and multi-sectoral concerted effort from the highest government and ESRDF level down to the household. **Improved sanitation needs to be a learning theme** promoted through all possible means and media including the schools through both the curriculum as well as an enabling school environment which must include latrines.

Campaign efforts which have been successfully used in other countries like contracting drama groups, development of songs and specific behavioural campaigns should be tried out. These activities will necessitate specific consultancies to be carried out since the professional staff in this field is not available within the WATSAN sector.

A School Health Component could also, as has been tried out in many east African countries be developed to support hygiene behaviour change among youth and children. This has been successfully implemented in many African countries and elsewhere and guidelines are developed which could be adapted to Ethiopian conditions.

ESRDF has a unique opportunity to attain synergy effects between the programmes with reference to sanitation by including an obligatory component of latrine construction in the School and the Health components of the ESRDF over-all programme.

The demand for sanitation will otherwise be promoted in all seminars and training courses at all levels from the management level of CO and ROs, RMTs down to community and household level. This learning theme constitute a prerequisite for a

successful implementation of WATSAN in Ethiopia and will therefore require special attention.



## 6.5 OBJECTIVE 6

- Construction of community water supplies and sanitation facilities

It is envisaged that the programme will provide up to about 13000 water supply schemes with accompanying sanitation promotion during a five year period. This ambitious target will require above all a very extensive training component. Without the capacity building in planning, HESAN, construction, maintenance and monitoring and evaluation the facilities constructed will only last for a couple of years and they will then be out of operation. In fact, the construction of facilities of this magnitude will require an active involvement of the private sector, which in turn may require efforts on standardisation, training, supplies of spare parts etc.

## 6.6 OBJECTIVE 7

- Monitoring and evaluation systems functioning

The establishment of a functioning and effective monitoring and evaluation system is essential for the establishment, shaping and evaluation of a programme of this magnitude. Monitoring and evaluation is detailed in chapter 10. Training will cover the use of these methods and tools, regular reporting and how the findings will be utilised to improve the programme.

## 6.7 ESTIMATED TRAINING COVERAGE

Training coverage as well as intensity will depend on the eligibility of programme assistance as described in chapter 4. Thus the training budgets and programmes will differ. Addis Ababa and Harari will not be covered as the programme is rural.

According to the results of the census there are 57 zones and 544 woredas in the 8 regions to be covered. It has been estimated that ESRDF is going to construct about 1100 to 1200 schemes over a five year period. The total number of WATSAN committees cannot be accurately foreseen at this stage but it is assumed that the following numbers will be covered:

Type of committees	Estimated no of committees
Steering committee	1
National WATSAN Steering Group	1
WATSAN Sub-Committee	8
Management Team	8
WATSAN Committee zonal	57
WATSAN Committee Woreda	544
WATSAN Committee Kebele	11500
Total	12119

With an average of 7 members per committee (WATSAN Committees at Kebele level will have five members and two caretakers who will be trained together), the number of trainees will amount to **84833 people over a five year period.**

There is a great need for a assistance to ESRDF to manage the planning and implementation this massive training component which have to be process oriented and flexible in design and therefore cannot be detailed before the eligibility issues are properly investigated. The human resources available for training in the form of trainers who can be identified and trained are other determining factors.

## 6.8 TRAINING AND PROMOTION MATERIALS

The training materials will in short include the following:

1. Trainer of Trainers Manual for use by the master trainers explaining the approaches using practical examples
2. A trouble shooting guide
3. Participatory tools for small group audiences which will be pre-tested in different regions and areas. This are mainly non-verbal, pictorial illustrations prepared to stimulate participation and active analysis. These are more effective than flip-chart used and handled only by the facilitator. Included in the Community and Institutional Development Manual, see Chapter 6, and as appendix to the Technical Manual
4. Guidelines for
  - . latrine construction
  - . latrine construction guidelines for schools and health centres
  - . book-keeping for WATSAN Committees.
  - . operation and maintenance.
5. Checklists for planning, monitoring of progress, participatory evaluation etc.

Some of these materials are included in the manuals either integrated in the text or as appendices to the chapter on training. They will need to be professionally pre-tested and revised before printing in large quantities and used.

### Promotional materials to be prepared:

1. Posters for public places
2. Leaflets
3. Preparation of radio spots for mass campaigning
4. Radio programmes in the form of discussions on WSS issues
5. Video films featuring successful sub-projects.

## 7. Environmental Aspects

## **7. ENVIRONMENTAL ASPECTS**

### **7.1 INTRODUCTION**

The environmental degradation in Ethiopia in combination with the population growth is a big threat to future development. In the WATSAN sector cutting of trees around water sources and for latrine construction, depletion of aquifers and pollution of sources can lead to further environmental degradation. Interdisciplinary action is required to conserve and protect and even develop areas around water supplies and develop technologies whereby tree cutting for latrine construction can be avoided. Environmental aspects will be incorporated in the capacity building and training programmes for communities.

The communities and above all the WATSAN committees must become aware of how environmental degradation has negative implications on their overall life including the problem of water, and how each problem is linked to another. The communities will be trained in how to protect and manage the local environment with the available resources at their disposal.

Water resource studies will be carried out to facilitate planning and designing the appropriate water supply technologies taking into account the environmental issues.

### **7.2 IMPACT IDENTIFICATION**

The environmental problems which can arise from the ESRDF RWSS sub-projects are:

- Lowering of the ground water table and depletion of aquifers due to water being extracted from bore holes (over-pumping)
- Endangering of the bio-diversity of the ecosystem by diverting total spring flows for a gravity schemes
- Unhealthy environment around water sources created by pools of water which can act as breeding sites for mosquitoes and other vermin
- Pollution of ground water from latrines and pools of water around hand pumps
- Deforestation and hydrological disruption due to cutting trees for latrine construction (it should however be noted that tree cutting for latrine construction is insignificant compared to tree cutting for firewood)
- Overgrazing around water points leading to soil degradation.

### 7.3 MITIGATION

- Designs for bore holes will take into account the groundwater recharge rate. A water resource study described in chapter 4 is to provide design data to avoid over extraction of groundwater
- Flows from springs should be studied for at least 2 years and only 70% of the dry weather flow should be diverted for gravity schemes
- Properly constructed drainage channels from handpumps, springs and public fountains will be constructed. Spillage water from hand pumps and public fountains will be led through the channels into gardens with water sucking plants i.e. reeds, bamboo, bananas, ginger, vegetables etc. to avoid stagnant pools of water as well as to provide food or building materials for houses and latrines. Seedlings can be provided for the appropriate varieties in an area through linking with afforestation programmes.
- Messages on environmental aspects will be disseminated in the training of the Water Committees encouraging tree replanting and planting of live fences from thorny bushes or pine trees (plants that do not suck a lot of water) around water collection points and catchment area of springs. This will keep away animals and limit human activities.
- Latrines should be constructed at a minimum distance of 30 metres from water points. A behavioural change from unhygienic excreta disposal to use of latrines will have positive effects on the environment.
- Replanting of trees should be promoted as part of the hygiene/sanitation promotion programme to replace trees cut for latrine construction.
- Stones and un-burnt bricks are encouraged for construction of latrine superstructures. The latrine base slab can also be constructed from stones in a dome-shaped arrangement without using wood.
- Water siting should take aspects of deforestation into account in order to avoid cutting of trees during construction.
- Communities must be made aware of the long term impacts of over-stocking.

8. Costs

## 8. COSTS

### 8.1 UNIT COSTS FOR WATER SUPPLIES

Cost of water supply projects are greatly influenced by the type of water supply system (technology) opted for. In the ESRDF Rural Water supply sub-projects, the systems below are recommended in the following order:

- Spring improvement (with box)
- Spring improvement (without box)
- Hand dug well (with hand pump)
- Shallow borehole (with hand pump)
- Deep borehole (with motorised pump)

The guiding principle in technology choice of a particular area should be the least cost sustainable option which satisfies the design criteria within the given budget and with affordable operation and maintenance costs which the community is willing to pay.

The investment or construction costs for each of the above water supply schemes have been computed on the basis of "bill of quantities" prepared for the programme. Total investment costs were developed with a 10% contingency added for any unforeseen circumstances that may affect prices over the next five years (project year). The following table shows total investment cost for each scheme.

**Table 1. Total Estimated Investment Costs**

No.	Water Schemes	Total Investment Cost (Birr)
1	Spring (without Box) refer to Bill no. W1	20,855
2	Spring (with box) refer to Bill no. W2	22,173
3	Hand dug well (with hand pump) refer to Bill No. W3	49,025
4	Shallow borehole (with hand pump) refer to Bill No. W4	97,025
5	Deep borehole (with motorised pump) refer to Bill No. W5	511,880

### 8.2 INVESTMENT CEILINGS

The investment ceiling and other related costs (per capita ceiling and technological option ceiling) are affected by (1) the number users; (2) the expected service life of the system and (3) the cost of the chosen technology and (4) the willingness and ability of the community to 10% of the investment costs and full operation and maintenance costs. *As part of the start up of the program in each region socio-economic surveys to determine the willingness and ability to pay for improved*

*WATSAN facilities shall be prepared. Based on this the investment ceilings and per-capita ceilings can be derived.*

### 8.3 OPERATION AND MAINTENANCE COSTS

Estimated costs for O&M are presented in table 8.2 below

Type of Scheme	Annual O&M Costs (Birr)
Spring	600
Gravity Scheme 1 km. long with 4 taps	4000
Hand pump Scheme	850
Motorised Scheme with 4 taps	20000

The costs are based on:

- **springs** payment for caretaker and minor repairs of structure
- **gravity scheme** repair of pipeline, minor repairs on pipeline and payment of caretakers
- **hand pump scheme** spares for handpump, payment for caretakers and mechanics and payment for grease
- **motorised scheme** spare parts for generators and submersible pumps, pipe repairs, diesel, lubricants, payments to caretakers, attendants and repairmen.

### 8.4 TRAINING

The main types of training to be carried are:

- Training to facilitate implementation of the WATSAN Sub-projects for:
  - ◆ ESRDF officials at regional and sub-regional levels
  - ◆ Government staff at regional, (head of the Water Bureau, the CPP and the CPPA in the Water Bureau and the head of Environmental Department in the Health Bureau), sub-regional, woreda and kebele levels
  - ◆ representatives of implementing agencies and NGOs
- Training for communities to identify their priority needs for assistance and to prepare sub-project proposals. This is described in chapter 5 on Sub-project Preparation and Appraisal
- Training of communities to manage their own WATSAN schemes.



#### 8.4.1 Estimated Training Coverage

Training coverage as well as intensity will depend on the eligibility of programme assistance as described in chapter 3 and also on the specific needs in the respective regions, zones, woredas etc. Thus the training budgets and programmes will differ. Addis Ababa and Harari will not be covered as the programme is rural.

According to the recently published results of the census there are 57 zones and 544 woredas in the 8 regions to be covered. It has been estimated that ESRDF is going to construct about 1100 to 1200 schemes over a five year period. The total number of WATSAN committees cannot be accurately foreseen at this stage but it is assumed that the following numbers will be covered:

Type of committees	Estimated no of committees
Steering committee	1
National WATSAN Steering Group	1
WATSAN Sub-Committee	8
Management Team	8
WATSAN Committee zonal	57
WATSAN Committee Woreda	544
WATSAN Committee Kebele	11500
Total	12119

With an average of 7 members per committee (WATSAN Committees at Kebele level will have five members and two caretakers who will be trained together), the number of trainees will amount to **84833 people** over a five year period.

#### 8.4.2 Estimated training costs

Estimated training cost per day per trainee

i. Trainer (honorarium) (birr/day)	500.00
ii. Trainee costs	
a) Allowance (birr/day)	32.00
b) Accommodations birr/day/trainee	50.00
c) Training material (including stationary)Birr/trainee	100.00
d) Travelling allowances birr/trainee/session	100.00

- Training of Zonal and Woreda staff like community participation promoters and sanitarians
  - i. Trainer (allowance) birr/day 50.00  
Trainers can be those trained from Regional Bureaux
  - ii. Trainees
    - a) Allowances (birr/day) 32.00
    - b) Accommodations (birr/day) 20.00
    - c) Training material (birr/trainee) 100.00
    - d) Travelling allowance (birr/trainee) 50.00
- Training of Local Community Facilitators (LCF) and handpump mechanics/technicians
  - i. Trainers (Those trained from zonal/woreda offices) -  
At zonal level allowance birr/day 50.00  
Training can also be contracted out to training institutions
  - ii. Trainees
    - a) Per diem (allowance) birr/day/trainee 30
    - b) Accommodation birr/day/trainee 15
    - c) Training material (including stationary & hand outs)  
birr/trainee 100
    - d) Travelling allowance birr/trainee 50
- Training of WATSAN Committees and Regional staff through workshops and seminars
 

Regional level (birr/participant/day)	100
Zonal and Woreda level (birr/participant/day)	50
Kebele level (birr/participant/day)	25
- Promotional and training materials
 

Unit Cost	
a) Manuals (up to 100 pages/trainer) birr/page	50.00
b) Posters (over 10,000 lesser unit price) birr/poster	1.50
c) Booklets (10-20 pages) birr/page	25.00
d) Flyer	1.00
e) Radio spots birr/30 sec.	1655.00
f) TV spots birr/30 sec	5075.00

- Community mobilisation/training

The costs for community mobilisation/training will be determined by the incentives paid to the trainers (LCF), the production of training materials and logistics i.e. transport for trainers.

Community training/promotion will also be through radio, posters, flyers, radio and TV. Costs for production are presented below.

Estimated costs for training and promotional materials and numbers distributed per level

Material/Activity	Unit cost Birr	Nos. National	Nos. Each Region	Nos. Each Zone	Nos. Each Woreda	Nos. Kebele / Community	Total distr.	Total costs
Manuals *	50	168 56 times 3 manuals	30 10 times 3 manuals including for 2 IAs	12 4 times 3 manuals	10 5 times 2 Community and Technical	0	6562	328100
Posters	2		5	10	10	5	142050	284100
Booklets	25		5	10	10	2	60450	1,511250
Flyers	1		5	10	10	10	278050	278050
Radio spots (30 secs.)	1655						156	258180
TV spots (3 secs.)	5075						104	527800
TV Prog.							5	
Videos							5-10	
Drama shows							50	
Minimum total cost								3,729980

These numbers seems to be a minimum. Additional copies will be required for implementing agencies and NGOs of different kinds, private sector entrepreneurs and other WATSAN programmes operating in the same areas. As a planning tool some indicative training costs are shown below.

## Tentative training costs:

Participants Training	No. of participants	No. of days	Cost/day Birr	No. of sessions	Allowances per session	Total
National	56	2	100	5	0	56000
Regional	24	6	82	5	200	35808
Zonal CPPs	171	40	52	1	150	381330
Woreda CPPAs	1632	10	52	1	150	1093440
Community Facilitators	5440	40	45	1	150	10608000
Handpump Technicians	100 * depends on no. and type of schemes	30 1 week class room and 3 weeks on the job	45	2	150	1350000
Caretakers	25000	5	40	2	50	7500000
<b>Total</b>	<b>32423</b>					<b>21024578</b>
<b>Seminars workshops**</b>						
National	8	1	N.A.	5*	N.A.	
Regional Steering Committee	32	1	N.A.	5*	N.A.	
Regional Management Team	24	1	N.A.	5*	N.A.	
Zonal WATSAN	570	1	N.A.	3	N.A.	
Woreda WATSAN	3808	1	N.A.	5	N.A.	
Kebele WATSAN ***	87500	1	N.A.	5	N.A.	
<b>Total</b>	<b>124365</b>					

\*About 1 hand pump mechanic per 100 hand pumps

\*\*While these committees meet 4 times a year workshops are proposed to be held once a year.

\*\*\*12500 schemes with 5 committee members and 2 caretakers

For the sake of sustainability and feasibility no funds have been allocated for the participants in workshops. This would endanger the sustainability and feasibility of the entire programme. It is also not recommended that an allowance should be paid for workshop participation since this will set a precedence and will not be possible to maintain after the programme. (If 87500 would receive 25 Birr/session, this would amount to 10937500 Birr or 1.73 million USD).

Tentative training costs thus amounts to 21 million Birr and training materials about 3,7 million birr. Together this will be 24,7 million which equals approximately USD 4,3 million. This represents only 5,7% of the total WB WATSAN allocation of 5,7 million USD.

There is a need for a consultancy to further elaborate on the training component of this major WATSAN programme. Issues to consider comprise for example:

Refinement and updating of training costs for programme planning purposes.

Actual training costs need to be calculated per region, zone, woreda and kebele based on the results of the assessment of eligibility.

## 9. Procurement and Contracting

## 9. PROCUREMENT AND CONTRACTING

### 9.1 PROCUREMENT MANAGEMENT

All procurement practices for works, goods and services for the ESRDF RWSS sub-projects shall comply with the guidelines provided in chapter 12 of the ESRDF Operational Manual. The main features of these rules and their specific application to the RWSS programme are:

- The Central ESRDF Office (CO) will manage all international procurements through Procurement and Marketing Information Services Enterprise (PMISE). The CO may purchase small items through Local Shopping (LS) procedures
- Local procurement is the responsibility of the Implementing Agency (IA) but CO or the Regional Office (RO) may be utilised to act on behalf of IA
- The CO will monitor all local procurement activities
- Contracts for civil works > US\$500,000 and for goods > US\$100,000 will be procured by International Competitive Bidding (ICB)
- Contracts below these figures may be procured by Local Competitive Bidding (LCB)
- In remote areas goods < US\$50,000 may be procured through Local Shopping (LS). Civil works < US\$100,000 shall be procured under lump sum fixed price contracts awarded on the basis of quotations from 3 domestic contractors
- ~~Aggregate values for LCB and LS will have to be adhered to by ROs~~
- IDA clearance is required for :
  - all international contracts
  - all other contracts > US\$ 100,000
  - all competitive contracts for consultancy and training
  - services > US\$ 50,000 for firms or > US\$ 25,000 for individuals and all single source consultancy or training contracts
  - the first five sub-project contracts in each region.

For each sub-project, the implementing agency along with the project officer, will be responsible for overseeing procurement and enforcing compliance with guidelines.

## 9.2 TYPES OF GOODS AND SERVICES FOR PROCUREMENT

The goods and services to be procured under the RWSS are:

- Training and capacity building
- Production of communication and materials like radio programmes, posters, booklets, participatory tools, stationary etc.
- Consultancy services i.e. KAP studies, monitoring and evaluation studies, water resources surveys
- Equipment for training i.e. overhead projectors and flip chart boards
- Survey and construction equipment and materials (terrameters, measuring tapes, pipes, pumps, cement, etc.)
- Construction of water supplies
- Supervision of contracts.

Contracts for similar types of goods (e.g. Training equipment, pumps, participatory tools), would be packaged wherever possible.

Preference for **training and consultancy services** will be given to local firms/individuals.

Construction sub-projects will be done in batches and carried out in the following way:

- **Springs and dug wells** will be grouped into lots of 10 to 20 per contract preferably on a Woreda by Woreda basis and tendered within Regions. Local small scale contractors and NGOs will be encouraged to apply and will receive training in tendering and drawing up Bills of Quantity (BOQ)
- **Shallow wells and boreholes** will be grouped in lots preferably of 15 to 30 wells also favouring clustering i.e. on a Woreda basis. The tenders will be advertised nationally
- **The other construction technologies i.e. sub-surface dams and infiltration galleries** will be tendered based on the construction capacity available either through local shopping or direct contracting
- **Handpumps of standard design** will be procured through international competitive bidding until the local private sector can meet the demand. Third party inspection will be carried by a competent quality assurance firm on contract.



### 9.3 EVALUATION OF IMPLEMENTATION AGENCY CAPACITY

Implementing Agencies ( IAs ) will either be:

- the community through WATSAN committees;
- Non Governmental Organisations;
- private contractors and consultants;
- water works construction enterprises (national and regional)
- local government bureaux.

In all cases either individually or as combination of two or more of the above agencies with financial and/or professional support as appropriate must display:

- acceptable legal and organisational status
- sufficient knowledge and experience for the technical and social interventions
- sufficient knowledge and experience of appropriate training/construction procedures involving community participation at all stages and the appropriate sensitivity to the gender, environmental and sustainability issues
- sufficient commitment, knowledge and experience on capacity building within the community to fully take over future responsibility
- sufficient knowledge and experience of procurement procedures

Evaluation of implementation agents for providing **consultancy services** is more difficult for a number of reasons:

- According to experiences consultancy assignments are usually **designed by clients alone**. As they are in need to buy the services this means that the kind of job they want to have done is usually beyond the competence of the client to carry out.
- Experience from management consultancies for example show that a substantial proportion of the **assignments are wrongly conceived**. Key problems may not have been properly identified and solutions suggested to be elaborated by the consultant may therefore be inappropriate or only partially relevant.
- **Outdated solutions** to a problem may be proposed by the consultant who is not conversant with the developments in the field of the consultancy.
- Many consultancy companies may not adhere to the professional code of conduct which clearly stipulate that **consultancy assignments need to be assessed in terms of professional soundness and adherence to professional ethics**.
- Another common problem is that the time frame given for the consultancy is unrealistically short. This happens easily when **the client** does not know the

field of competence and as a result tend to **underestimate the work** to be carried out. This may easily influence the quality.

**The solution to these problems is:**

- that the client and the consultant meet and analyse the need for the consultancy and rewrite the terms of reference together. This should be a fact finding meeting in which both the client and the consultant openly discuss and brainstorm on problems encountered and solutions tried or thought of as appropriate
- that the client tries to learn enough about the subject matter to be able to discuss it with the consultant and that the consultant tries to learn about the situation and circumstances in which the client is.
- that the client describes the problems experienced rather than by himself come up with the solution in terms of the consultancy design. There is otherwise a great risk that the consultant will buy a product he does not need or which may be in the form which is not suited to the intended purpose. ( An example can be to buy a code of conduct which tells people exactly what to do in an attempt to devise a manual for participatory approaches in rural development. It goes without saying that the new straight-jacket or blue-print version will not be more successful than the previous one unless it is including careful explanations on not only what to do but also **why and how and is matched with proper experience based training sessions**).

**Purchase of consultancy services should at a minimum include:**

- Careful checking whether the consultant has carried out the services requested before and to the satisfaction of the client and if possible customers of the client. - Take references and contact them.
- Has the consultant got the professional staff required ? Many consultants claim to have staff in the professional field but very often these people may at best have some general experience but not **the academic training required**. Experience is not enough. A new situation is always different and that is when the professional training which is based on accumulated experiences world-wide is needed as a base for decisions on actions to take. The more important a consultancy is for the organisation in terms of long term impact the more necessary is it to ensure that it is correctly staffed. Always ask what is the main intention of the work and ensure that enough key staff in this field are to be recruited.
- If a large important consultancy is to be purchased, assistance may be required in purchasing it. Professional assistance is recommended.

The client should have regular professional meetings with the consultant to review progress and to supply important information which may be needed throughout the consultancy which could not be foreseen beforehand. A consultancy is a process which should be flexible and receptive to needs which may become apparent after initial investigations. Changes should be mutually agreed upon and recorded as addendum to the contract.

- All materials pertaining to the work should be made available in good time
- The consultant should be introduced and presented to all people who may need to be contacted.

#### 9.4 CONSTRUCTION SUPERVISION

During the construction period the following will be carried out:

- daily inspection of works by construction supervisors appointed/contracted by the Regional Water Bureau.
- monthly visits to sites by the PO
- monthly reports by the IA as per required format including
  - progress against programme
  - material and labour utilisation
  - financial report
  - constraints and actions proposed/taken
  - planned activities for the coming period
- monitoring by ESRDF against the requirements of the Financing Agreement (FA)

( See sample bills of quantities, agreement forms and inspection reports in annex 4)

## 10. Post-Construction Follow-up

## 10. POST-CONSTRUCTION FOLLOW-UP

### 10.1 COMMISSIONING OF THE WATER SYSTEM

- Commissioning is when the community finally takes full responsibilities for their water system
- The community receives all relevant information about their water system
- Prior to commissioning an inspection of completed works is carried out and certified by ESRDF, the implementing agency and the community
- An agreement giving a description of the water supply, equipment provided and roles responsibilities of community and sector agencies is signed during commissioning

### 10.2 RESPONSIBILITIES FOR OPERATION AND MAINTENANCE

#### 1. Village Level:

Responsibility for O&M at source and supply level lies with the WATSAN committee. The committee is to inform the community on rules and conditions governing the use of the water system, supervise caretakers, collect and manage funds for maintenance and repairs. The committee reports any problem beyond its capacity to the Water Bureau.

The WATSAN committee is responsible for signing all relevant agreements and contracts with ESRDF and implementing agency. The committee promotes improved hygienic and sanitation practices among water users.

The caretakers, 2 at each water source, of whom 1 must be a woman, will show people how to use the pump properly, carry out preventive maintenance, work with technicians and/or O&M teams from Water Bureau for major repairs, organise community/users in cleaning around source and promote hygienic handling of water by users.

The community must understand and accept the rules and conditions for use and the aspects regarding payment for O&M services and repairs. These rules and conditions are explained by the WATSAN committee during regular meetings.

#### 2. Woreda Level:

The private sector will carry out repairs beyond the capacity of caretakers i.e. in cases of deep pump settings. The private sector will manufacture pumps and spare parts as well as establish dealerships for supply of spares. Two options for sale of spare parts are shop outlets and/or pump mechanics/technicians.

The supplier/manufacturer of pumps and contractor of the water supply must give a warranty on the equipment and spares provided and construction of the water supply.

2 self employed mechanics/technicians will cover repairs at woreda level. The repairs are paid for by the WATSAN committee through tariffs and they cover the costs for labour, tools, transportation and profits.

At least 1 private spare part dealer will sell spares in a woreda. Selection and training of mechanics and spare part dealers are briefly described in the Social Manual.

### **3. Follow-up and Backstopping:**

Follow up and backstopping of community management of water and sanitation system is provided by:

- 1) The Water Bureau staff and Water Bureau staff at Regional Zonal and Woreda levels
- 2) The Health Bureau staff at Regional, Zonal and Woreda levels
- 3) WATSAN committees at Kebele, Woreda, Zonal and Regional levels.

#### **The Water Bureau staff**

- Carry out water quality monitoring
- Give advice on a water source when needed
- Assure quality control on new and rehabilitated water sources
- Supervise contractors
- Advice on tariff rates
- Ensure quality control of repairs by pump mechanics/technicians
- The community participation staff carry out retraining of caretakers and committees.

#### **The Health Bureau staff**

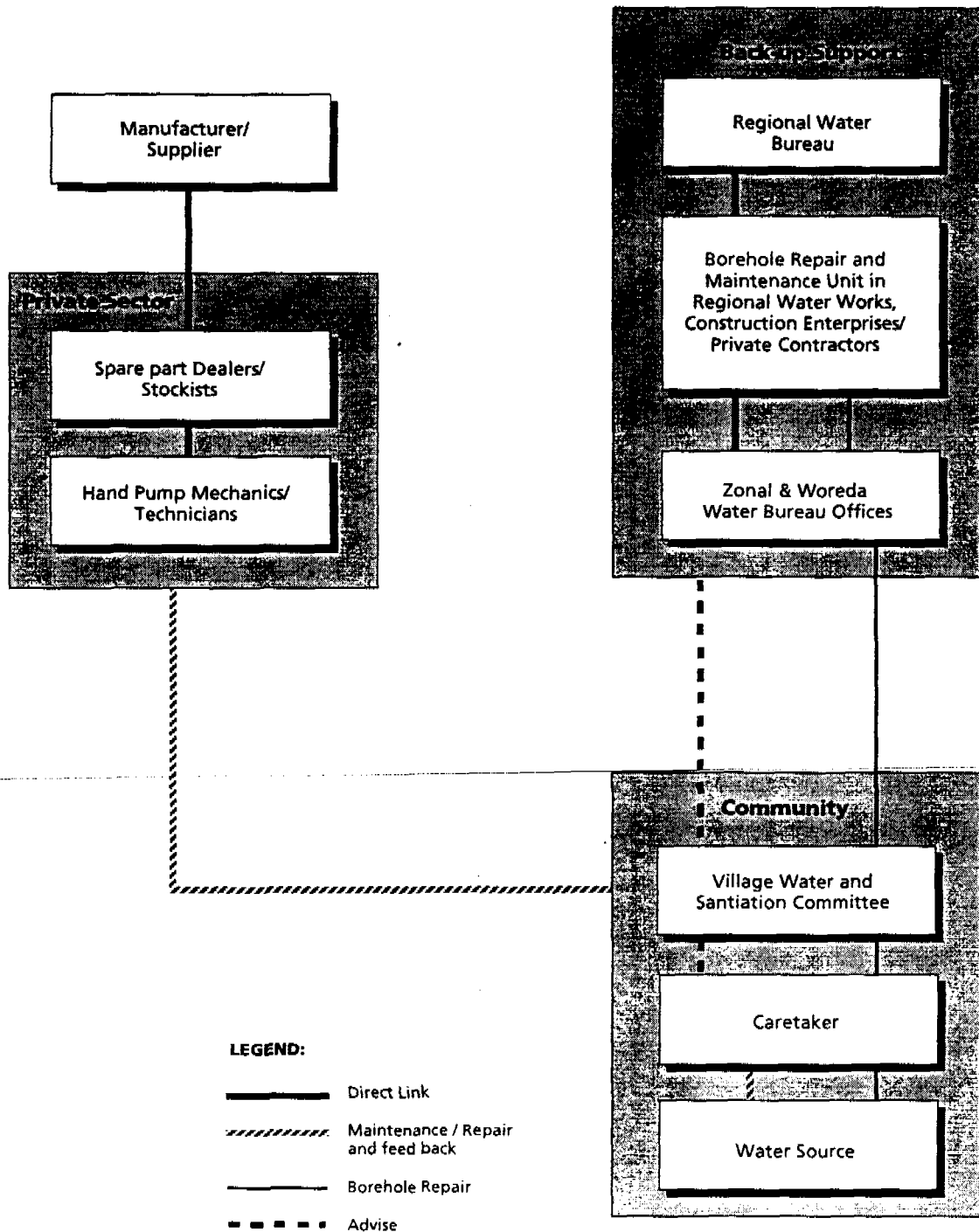
- Give advice on the water source, especially on aspects of environmental hygiene
- Work with WATSAN committees, caretakers, local leaders, religious leaders, peasant associations and the community to implement hygiene education which will enhance hygienic use and appropriate operation and maintenance of sanitation and water facilities.

**The WATSAN Committees at Kebele, Woreda, Zonal and Regional levels**

- Monitor the work of the source WATSAN committee and ensure accountability of community funds
- Ensure the communities are not overcharged by the mechanics/technicians
- Monitor the work of the extension staff

Regular follow up monitoring visits will be made to water sources by extension Health and Water Bureau staff. During these visits on the job training and support is provided to communities.

## Operation and Maintenance System





## 11. Monitoring and Evaluation

## 11 MONITORING AND EVALUATION

### 11.1 BASELINE DATA FOR AN IMPACT EVALUATION

Evaluation is the measuring and analysis of the **impact** of the programme activities - which in essence are the communities' own activities - on their living-conditions.

A programme of this magnitude must be properly monitored and evaluated. This will be done by using two approaches which are both needed for the impact evaluation:

- The “before and after” approach, which means that a baseline is established in the form of measurements of the water and sanitation conditions before the project interventions, during and finally after.
- Use of control groups/areas. This will be done to a limited extent in the vicinity of each major each project area to control the impact of general developments on the project results. It will otherwise not be possible to know what behaviour changes are due to the project activities and which are the results of general improvements in public awareness happening in the area.

The baseline survey will cover a random sample of kebeles in the country.

The **impact** to be measured against the initial baseline data will comprise of the following main components in addition to the monitoring indicators to be included: (The most essential indicators are indicated by bold font.)

Baseline Survey	Indicators
1 Social changes	<ul style="list-style-type: none"> <li>• autonomy</li> <li>• self-concept, self-confidence</li> <li>• creativity</li> <li>• leadership</li> <li>• respect, status, social network</li> <li>• group strength, identity, resources</li> <li>• leisure</li> <li>• conflict</li> <li>• <b>roles, responsibilities, activities</b></li> <li>• <b>control and access to resources and benefits</b></li> </ul>
2 Economic change	<ul style="list-style-type: none"> <li>• <b>time savings and reallocations</b></li> <li>• cash production as a result of above</li> <li>• improved production, child-care or house-keeping due to time savings</li> <li>• increase in expenditures on preventive health like sanitation facilities</li> <li>• <b>decrease in expenditures on health</b></li> </ul>

Baseline Survey	Indicators
3 Changes in health situation	<ul style="list-style-type: none"> <li>• increased activities in preventive and promotive health - construction of facilities, cleaning of compounds etc.</li> <li>• environmental sanitation in community</li> <li>• decrease in attendance at clinics</li> <li>• decrease in diarrhoea, skin diseases, worm infestations etc.</li> <li>• increase in nutritious foods grown due to time savings and /or by use of soak-away water</li> </ul>
4 Changes in environment	<ul style="list-style-type: none"> <li>• reduced deforestation or reforestation</li> <li>• improved sanitation</li> <li>• increased cultivation</li> </ul>

## 11.2 MONITORING

**Monitoring** are the activities which are necessary to review the process of implementation. The information will be used to revise approaches and work-plans to better suit the local situation in a flexible and need-based approach.. The purpose is however not only to provide information for programme implementers. Perhaps the most important aspect of monitoring is to direct attention to the WATSAN conditions in the community **among the community members themselves**. If you monitor something the purpose is to detect changes. You are therefore geared towards changes and this will influence the general expectations. The mere fact that you are observing or asking about something will automatically influence the attitudes to this aspect. A social pressure will be created.

Monitoring is an activity which must be carefully planned in terms of resource required. Particular attention need to be paid to the use of the data collected, time to be devoted by all staff at different levels and costs involved. Only the minimum information pertinent for programme adjustments should be collected.

The monitoring will use four different sources of information:

- The management information system - executive progress, costs etc.
- The monitoring information system on the rate of adoption of improved hygiene and sanitation behaviour in terms of proportion of households out of total number.
- Key informant interviews on information and training - focused on the extent to which messages were received, understood (quality), accepted and used in practice.
- In-depth studies to compare with the results on the baseline survey.

### 11.2.1 Collection of Monitoring Data

**Regular monthly monitoring** data will mainly be collected by the WATSAN committee under the supervision of locally available staff like the Community Participation Promotion Assistants, Sanitarians, Health Assistants, Health Agents,

local leaders, representatives of local groups or others who have been trained to carry out the programme at this level.

**Participatory monitoring** will also be done at household level. Members of the households in the community will be adequately informed by the WATSAN committee members about aspects they are expected to monitor themselves. Participatory monitoring and evaluation is not a case of mere delegation of these activities to community level. It requires commitment and organisational structures at all levels. It also depends on the communities interest in becoming involved in these activities. The success depend on capacity building and support from the levels above, and perhaps above all on the commitment from individuals at community level. Inspection formats have been designed which can be used by any member of the household. These formats are mainly pictorial and do not require that the user is literate. These are included in the Social Manual.

**Follow up activities** by programme staff at community level will be combined with monitoring visits. These comprise visit to water points, participation in WATSAN Committee and/or Community meetings, household visits and training of caretakers and/or community health workers since follow up activities can very well be combined with monitoring. When someone visits a household or a water source it is natural to talk and give advice at the same time as monitoring is carried out. This is a practical combination, particularly in areas where there is a long distance to travel in order to reach individual homes.

Other follow up activities comprise of **household inspections** on latrine construction, maintenance and hygiene behaviour to establish the improvements in hygiene and sanitation status of the area and **Follow up Meetings on Hygiene and Sanitation**.

While the situation with reference to individual households will be recorded on the lowest level and compiled for a community under one WATSAN committee and forwarded to the Woreda, the same compilation will be carried out by means of basically the same forms at Woreda level compiling information from different communities/ Kebeles. At the next level, the zones the information is again compiled, analysed and discussed with reference to the Woredas under this zone. This information is forwarded to the Regional Office for further analysis and compilation before being submitted to the Central level enclosed in the Progress Reports. At each level the records on the progress will be reviewed and appropriate corrective action agreed upon.

### 11.3 MONITORING AND EVALUATION INDICATORS

#### 11.3.1 Monitoring of Gender Aspects

Gender aspects will require special attention. The mechanism for this has been described in the Social Manual and comprise basically that monitoring of gender aspects are included in all monitoring activities. Involvement of women need a special

emphasis and the awareness can be well promoted through monitoring and evaluation activities.

- **A checklist for involvement of women** is given in the **Social Manual**. This can be used by the ESRDF Project Officer in appraising the project proposals, but it is useful throughout the project implementation by all actors involved.
- **Participation of women in WATSAN committee meetings** is also to be assessed by means of an evaluation tool included in the Social manual.
- **A pictorial tool developed for individual participatory monitoring of a woman's participation in committee meetings** has been developed for this programme.
- An evaluation tool prepared to assess "**who decided what**" has been created intended to measure general community participation in project implementation from planning and onwards. This is also pictorial and intended to be used by community members at follow up visits.
- Proportion of women among trainers, among committee members and among committee members in management positions.

### 11.3.2 WATSAN Indicators

The over-all objective of the programme is to assist the communities to build their capacity to manage community based WATSAN and to get assistance in constructing them, and to use them in a hygienic manner. There are several important over-all aspects which will be measured:

- **Programme delivery**
  - on schedule
  - as planned
  - at anticipated costs
  - reasons for failures (unrealistic planning or unforeseen constraints)
- **Programme quality**
  - targeting of intended consumers/ audiences in terms of coverage of number of households and distance to protected water source respectively proportion using safe excreta removal methods
  - Understanding of messages
  - acceptability
  - credibility
- **Programme utilisation**
  - use of funds
  - use of resources like staff and materials, private sector involvement
  - use of lessons learnt and experiences gained in- or out-side the programme.

- **Sustainability** which refers to the long-term survival of the system put in place. This is mainly an effect of capacity building, choice of technology and financial viability.
- **Effective use** refers mainly to amounts of water used, consistent use of the protected source, safe handling and storage of the water before drinking and consistent and proper use of latrines and hand-washing facilities including their maintenance.
- **Replicability** means the spread or transfer of programme activities to other areas or households living nearby or who have heard or seen the activities by other means and try to do the same.

The indicators of sustainability, effective use and replicability are listed below. The most essential indicators are marked with bold font.

No.	Indicators of sustainability	Verification
1	<b>Established Institutional Framework</b> <ul style="list-style-type: none"> <li>• Clear roles and responsibilities</li> <li>• Clear policies and procedures</li> <li>• Inter-sectoral collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Awareness of guidelines and job descriptions</b></li> <li>• WATSAN and ESRDF policies</li> <li>• <b>WATSAN Committees at all levels with inter-sectoral representatives.</b></li> </ul>
2	<b>Competent communities</b> <ul style="list-style-type: none"> <li>• Functional WATSAN Committees</li> <li>• <b>Autonomy and mandate</b></li> <li>• Supportive Leadership</li> <li>• Accountability and Transparency</li> <li>• Service-oriented</li> <li>• Established procedures for re-election, on-the-job-training and hand-over</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Records and book-keeping of WATSAN Committees</b></li> <li>• <b>Functional water supplies</b></li> <li>• Up-dated lists of users</li> <li>• Up-dated lists on household visits indicating hygiene and sanitation facilities</li> <li>• Records on O&amp;M</li> <li>• Community meetings held and decisions taken.</li> <li>• Leaders promoting WATSAN through active participation evidenced by minutes</li> <li>• <b>Community members aware of financial position of WATSAN committee accounting</b></li> <li>• Community members pleased with WATSAN committee</li> <li>• <b>Re-election, introduction and on-the-job training recorded as carried out in minutes.</b></li> </ul>

No.	Indicators of sustainability	Verification
3	<p><b>Competent communities</b></p> <ul style="list-style-type: none"> <li>• Aware and knowledgeable of policies, procedures, roles and responsibilities</li> <li>• Confident and capable to influence</li> <li>• Motivated and development-oriented</li> <li>• Aware of linkages between water, sanitation and health</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Community members conversant with policies etc.</b> evidenced from follow up visits.</li> <li>• Community participate in decisions evidenced from the monitoring form "Who decided what ?"</li> <li>• Motivation reflected in participation in community meetings (number and activity)</li> <li>• Awareness reflected in adoption of hygiene and sanitation facilities recorded through household visits.</li> </ul>
4	<p><b>Functional WATSAN facilities</b></p> <ul style="list-style-type: none"> <li>• Sufficient water quality and quantity</li> <li>• Cost recovery</li> <li>• O&amp;M procedures followed</li> <li>• Private sector involved</li> </ul>	<ul style="list-style-type: none"> <li>• <b>litre/capita/day</b></li> <li>• Average brake-down time during rainy respectively dry seasons.</li> <li>• Caretakers records on flow per minute (filling of a pot of 38.5 l)</li> <li>• <b>Proportion of households paying for their water use and money available for O&amp;M.</b></li> <li>• Records on O&amp;M and spare parts purchased</li> <li>• Private sector spare parts bought and private technicians contracted.</li> </ul>
5	<p><b>Environmental protection</b></p> <ul style="list-style-type: none"> <li>• Catchment area protection</li> <li>• Reduced deforestation around sources</li> <li>• Protection of sources and maintenance of soak-aways</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Existence of (live) fence around water point</b></li> <li>• Planting of trees, crops or other agricultural products in the vicinity of the waterpoint using waste-water</li> <li>• <b>Catchment area and source /water point protected from pollution.</b></li> <li>• <b>Soak-aways maintained</b></li> </ul>
6	<p><b>Participative Monitoring and Evaluation</b></p> <ul style="list-style-type: none"> <li>• Water and sanitation sector using simple monitoring system</li> <li>• Committees monitor and record themselves</li> <li>• Communities involved in monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring forms completed, compiled and forwarded to the Regional Office on a monthly basis</li> <li>• <b>WATSAN Committees carry out and compile data for monitoring</b></li> <li>• Community members complete monitoring forms for WATSAN Committees.</li> </ul>

No	Indicator of effective use	Verification
1	<p><b>Optimal use</b></p> <ul style="list-style-type: none"> <li>• Number and characteristics of users</li> <li>• Quantity of water used</li> <li>• Time taken to use the water facilities</li> <li>• Conservation of water resources</li> <li>• Hygienic use</li> <li>• Water quality at home</li> <li>• Water transport and storage practices</li> <li>• Home practices to preserve water quality</li> <li>• Site and home cleanliness</li> <li>• Personal hygiene practices</li> <li>• Consistent use</li> <li>• Pattern of daily use</li> <li>• Pattern of seasonal use</li> </ul>	<ul style="list-style-type: none"> <li>• List of households using the source</li> <li>• List of households with latrines and other sanitary improvements.</li> <li>• Litres per household per day divided by average number of household members = litres/capita/day</li> <li>• Time taken to fill an ordinary clay pot checked by care-takers.</li> <li>• Time taken to fetch water/distance to source.</li> <li>• Interview of non-users at traditional source.</li> <li>• Protection of source and catchment area, fencing, planting using soak-away etc. verified by observation.</li> <li>• Sample tests of water quality</li> <li>• Cleanliness of containers, lid, elevated storage, separate scoop kept away from floor verified by household visits by WATSAN Committee.</li> <li>• Absence of children's faeces in compound, garbage pit, clean compound, latrines used and maintained clean, hand-washing facilities, bath shelters</li> </ul>



No	Indicators of replicability	Verification
1	<b>Proportion and role of specialised personnel</b> A minimum number of project staff involved, and training of community members as supporting agents	<b>Proportion of community members running the programme through WATSAN committees compared to government and hired staff.</b>
2	<b>Established institutional framework</b> <ul style="list-style-type: none"> <li>• Use of existing institutional framework</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Already existing government and private staff, NGOs and groups used for project implementation</b></li> </ul>
3	<b>Budget size and contributions</b> <ul style="list-style-type: none"> <li>• Average cost per capita for water</li> <li>• Average cost per capita for sanitation activities</li> </ul>	<ul style="list-style-type: none"> <li>• Communities have assumed a reasonable proportion of construction costs and all costs for basic O&amp;M. as per project proposals - verified by <b>funds available for O&amp;M</b> according to WATSAN committee book-keeping.</li> <li>• <b>Hygiene and sanitation training activities carried out per community in terms of days and visual training materials used.</b></li> </ul>
4	<b>Documented planning and implementation procedure</b>	<ul style="list-style-type: none"> <li>• <b>Documented simplified procedures that all can use at all levels</b></li> </ul>

## 12. ESRDF Role in Sector Development

## 12 ESRDF ROLE IN SECTOR DEVELOPMENT

### 12.1 GENERAL ROLE

The ESRDF component on water and sanitation is expected to have a substantial impact on the development of the water and sanitation sector. This is due to:

- the size of the programme which enables a 10% increase approximately of coverage in access to protected water supplies in the country,
- the emphasis on hygiene and sanitation as integral components of the programme
- the availability of funds for studies which are recommended to be utilised for:
  - an investigation of the water resources in the country - a study which will have both short and long term benefits for the sustainable and successful development of water supplies throughout the country and
  - implementation of a baseline survey in a random sample of villages in the country later followed by an impact survey in the areas of sub-project implementation compared to control areas
  - a survey of training needs assessment of Local Community Facilitators in view of their job requirements.

The effective utilisation of this fund for research is of fundamental importance for the effective development of the WATSAN sector in Ethiopia.

The scale and the resources of this programme means a unique opportunity for successful and conscientious implementation based on world-wide sector experiences. Because of the opportunities offered through this programme it is expected that :

**ESRDF will have the following role in the WATSAN sector development:**

- Initiate and implement surveys in collaboration with existing training institutes or the University, the MOWR and the MOH
- Organise WATSAN seminars on the dissemination of survey findings
- Monitor and assess the effectiveness of training carried out in the sector
- Promote a standardisation of use of hand-pumps and designs for sanitation
- Promote interagency collaboration at all levels as a support to the institutional framework

- Furnish the training institutions in the WATSAN sector with training opportunities, experiences and research results to contribute to the development of skilled manpower.

## 12.2 ADAPTATION OF DESIGN

The design of this programme has been detailed but it is not yet implemented according to the designed approach. It is imperative that a clear approach is followed in order to enable assessment of effectiveness of implementation procedures. Adaptation of design will only be possible if a design is followed.

Proposals can otherwise be prepared without the stipulated community and women participation and without due consideration to social, financial and environmental feasibility. Funds for rural development on a national scale have been implemented in other countries like for example in Nepal. Experiences from these show that:

- NGOs and agencies tend to develop very fast and become new income-generating activities. These will often have a less than satisfactory competence to implement the sub-projects. The management as well as the technical competence of these NGOs need to be assessed beforehand. **ESRDF therefore need to develop methods for assessing these NGOs before they are contracted for implementation.**
- There is a need to devise both **management and technical training for these NGOs** to enable them to implement the sub-projects according to guidelines.
- While it is a positive development to **develop a private sector** in rural development it is imperative to **strengthen the public sector**. Is otherwise a great risk for marginalisation and brain-drain of the public service sector departments in ministries, bureaux and councils. This is not a desirable development. All countries need a viable public service sector in responsible control of the development of the infrastructure.
- There is a risk that the most active NGOs, agencies and associations quickly develop proposals in their respective areas thereby allowing these to get access to more than their equitable share of programme resources.
- Similarly, the more backward areas with few NGOs and other organised groups will be at a clear disadvantage. The objective of assisting the poor may thereby easily be jeopardised. The usual motto in WATSAN development "some for all" may turn into "all for some".

This design need to comprise the following key aspects:

- Monitoring of proposal, appraisal and approval procedures against the given criteria as mentioned in chapter 3
- Monitoring of NGOs and agencies in their adherence to procedures

- Safeguarding the role of government agencies and staff in relation to their involvement, control and taking over of responsibility for the back-stopping and monitoring of the programme. The ESRDF programme should supplement not compete with or replace the government structure.
- Assist NGOs and agencies to develop their capacity for implementation of WATSAN sub-projects
- Build capacity of WATSAN personnel at all levels
- Promote community based management of RWSS
- Promote private sector involvement at all levels

### 12.3 POLICY SUPPORT

There are few WATSAN policies developed and endorsed. This is perceived as the key constraint of the sector among the personnel. There are a number of policies under development under the MOH, and a water sector policy is under development with UNICEF funding. It is important that experiences gained in the ESRDF programme are utilised in the development of these policies.

### 12.4 LINKAGES TO SECTOR INSTITUTIONS

As mentioned above it is proposed that ESRDF establish linkages to the existing sector institutions like:

- The University of Addis Ababa
- The Arba Minch Training Institute
- Training of institutions in the health sector
- Ethiopian Institute of Geological Surveys

The purpose of this linkage is two-fold to get access to the latest sector developments in and outside the country and to promote student research and training opportunities through the ESRDF WATSAN programme. This will be "a give and take arrangement" benefiting both parties.

## 12.5 PROCEDURES FOR MODIFICATION OF PROJECT RULES

It is envisaged the half yearly and yearly progress reports will be discussed in the established committees and analysed in terms of appropriateness of rules and procedures. It is especially important that the results after one year are scrutinised in terms of actual feasibility of adherence to procedures with special reference to the competence of the staff implementing the programme. The capacity required both in terms of general professional background as well as the need for in-service training is too easily understated. The training needs will only emerge in relation to the tasks undertaken.

The programme has not yet gained full momentum and it is very important to closely monitor the quality of implementation right from the start. There is otherwise a risk of losing one year of experience in following the rules. The sub-project implemented with poor adherence to proper procedures cannot be evaluated in terms of sustainability, impact etc. since their implementation is not representative of the proper procedures. Naturally, the deviations will however be easy to study.

The modification which may be needed should be carefully analysed and tried out on an experimental basis under careful observation before the modification is widely used. There is an evident risk of simplifications and short-cuts in order to get more sub-projects approved and schemes implemented. **Quality may not be replaced by quantity or the resources are quickly wasted.** The objectives of revising the guidelines are to :

- Ensure uniformity and consistency in implementation and as a result equity and quality
- Provide agreed upon refinement of procedures approaches and methods which may need to be considered in the light of experiences gained and as an adaptation to local circumstances in a region
- Minimise uncertainty which may arise from inexperienced staff not knowing exactly what to do in a given situation.

It is recommended that an outside consultant will be engaged in the review of procedures. For fieldwork and specific tasks the existing training institutions could be invited to participate. The suggested revisions need to be agreed upon by ESRDF Regional and Central Offices in their yearly workshops.

## 12.6 WORKSHOPS

Workshops will be the means to accomplish many of the tasks mentioned above. The following workshops in relation to the role of ESRDF are suggested:

- Annual workshop for CO and ROs to review and assess progress, procedures and results.

- Annual regional workshops for ROs, Health and Water Bureaux, NGOs and other implementers in the region with the same purpose as above.
- A series of workshops on Sanitation awareness for CO staff, staff from MOH, MOWR, ROs , NGOs and implementing agencies with a purpose to **seriously** plan and implement sanitation within the WATSAN context
- Workshops on survey findings with POs from the regions and representatives of existing WATSAN training institutions.

ANNEX 1

COMMUNITY REQUEST FORM

- 1. **Project Title:** .....
- 2. **Requesting Community/Agency  
Project Location:** .....
- 3. **Region:** .....
- 4. **Zone:** .....
- 5. **Woreda:** .....
- 6. **Total estimated investment cost:** .....
- 7. **Out of which community contribution:** .....
- 8. **Out of which requested by ESRDF:** .....
- 9. **Total estimated operation and maintenance costs:** .....
- 10. **Methods of community contribution to these costs:**  
.....  
.....  
.....
- 11. **Consumers to be served in number of households:** .....
- 12. **Woreda rating in terms of priority:** .....

Signed on behalf of the Woreda WATSAN Committee:

Signature: .....

Name: .....

Position in the committee .....

Description of project

- 13. **Aims and Objectives:**  
.....  
.....  
.....



.....  
.....  
.....

14. Scope of Work and Details

Describe:

1. Why the project is needed

- Include a short description of the project area and the population
- Type of traditional water source in use, average distance to the traditional water source and time required to fetch water ( includes topography of the landscape, queuing etc.)

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

2. What it is intended to achieve  
Justifications for the project

.....  
.....  
.....  
.....

3. How this will be done

- Type of the water/sanitation project selected by the community in question and the justifications for it.

.....  
.....  
.....  
.....  
.....  
.....

4. By whom ( different role players)

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 When it would be most appropriate to start doing it ?  
.....  
.....

15. Estimated design standards and type of scheme

.....  
 .....  
 .....

Conformity with ESRDF Guidelines for proposal preparation

16. Preparatory Community Meeting held Yes, on / 199.. No ( )

17. Community Meeting held Yes, on / 199.. No ( )

18. WATSAN Committee elected Yes on / 199.. No ( )

19. Composition of members ..... men and ..... women

Is any of the following positions held by women ? Tick the ones which are if any

20. Chairperson ( ) Name: .....

21. Secretary ( ) Name: .....

22. Treasurer ( ) Name: .....

23. Environmental issues discussed: Yes ( ) No ( )

24. If yes which ones

.....  
 .....  
 .....

25. Additional comments justifying this project: .....

.....  
 .....  
 .....

26. Application signed by WATSAN Committee Chairperson:

Name: .....

27. Assistance to prepare this proposal has been given by:

Name: .....

28. Position of the person helping the community ( for example NGO / Agency/ LCF)

.....

## ANNEX 2 GUIDELINES FOR SUB-PROJECT PREPARATION

Chapter 5 of the Community and Institutional Development Manual contains information on how to prepare a sub-project. Appendix 1 The Community Request Form reflects the main components needed in the project proposal. Further details on how to go about is contained in the Community and Institutional Development Manual chapter 6 on Mobilisation and Training where the guidelines on community meetings are given. There is also a trouble shooting guide enclosed to the Community and Institutional Development Manual as an Appendix.

Below is a checklist of the main points to cover:

1. Project title
2. Requesting Community/Agency
3. Project Location: Region, Zone Woreda and community.
4. Number of household which will be served.
5. Total estimated investment cost, out of which the community contribution should be at east 10 %.
6. Total estimated operation and maintenance costs calculated per household.
7. Methods and of community contribution to these costs.
8. Community participation. Include evidences of:
  - Preparatory Community Meeting
  - Community Meeting
  - Election of WATSAN Committee
  - Composition of members (men and women)
  - Positions held by women and men and their names.
  - Hygiene and sanitation included in the training
9. After commissioning there will be a completely community based management after initial training. The proposal should reflect how this is planned to be accomplished.
10. Description of project :

<b>The project</b>
<ul style="list-style-type: none"> <li>• Short description of the project area and the population</li> <li>• Type of traditional water source in use,</li> <li>• Average distance to the traditional water source</li> <li>• Time required to fetch water ( include queuing.)</li> <li>• Justifications - why the project is needed</li> <li>• Aims and Objectives</li> <li>• Scope of Work and Details</li> </ul> <p>Type of the water/sanitation project selected and the justifications (Estimated design standards and type of scheme)</p>

## 11. Describe how this will be done

<b>← What ? How ? When ? and by Whom ?</b>
<ul style="list-style-type: none"><li>• How will the work be implemented ?</li><li>• By whom (different role players and their contribution)</li><li>• When it would be most appropriate to start and estimated time required</li><li>• Environmental issues considered and action to be taken</li></ul>

## 12. Include information on how this proposal has been prepared

<b>Indicate key people involved in the preparation of the proposal like:</b>
<ul style="list-style-type: none"><li>• The community</li><li>• LCP, NGO / agency, ACPP or other person</li><li>• WATSAN Committee</li><li>• Application must be signed by WATSAN Committee Chairperson</li><li>• Woreda rating in terms of priority</li><li>• Application must be signed on behalf of the Woreda WATSAN Committee</li></ul>

**ANNEX 3 SUB- PROJECT APPRAISAL FORMS**

**I. DESK APPRAISAL**

The desk appraisal is the first screening of the sub-project proposal aiming at a initial control that the ESRDF guidelines for project preparation have been followed. This is reflected in the completion of the Sub-project request form (Annex 1). The procedure to follow for this initial screening is detailed in the ESRDF Manual.

**II. FIELD VISIT REPORT FORMAT**

The ESRDF checklist for appraisal during field visit is a comprehensive guideline aiming at verification of the information recorded in the Sub-project request form.

Below is a form for recording observations during the field visit. The data can be computerised based on the form.

**A. Proposal within mandate and objective of ESRDF ?**

*1 Number of indicated households to benefit from the project is:*

- 1 Much too high ( )
- 2 Too high ( )
- 3 Too low ( )
- 4 Reasonably correct ( )

*2 Does the project reflects the priority need in the community ?*

- 1 No ( )
- 2 One of them ( )
- 3 Yes the number one priority ( )

*3 Will there be any other interfering activities in the community in the planned project period ?*

- 1 Yes ( ) 2 No ( )

If yes give details .....

**B. Degree of Community Participation in planning and implementation****4 Minutes from Initial and or / Community Meeting exists:**

1 No ( ) 2 Yes ( )

*Is the community willing and able to***5 Pay 10 % of construction costs ?**

1 No ( ) 2 Yes, but with difficulty ( ) 3 Yes ( )

**6 Pay all O&M costs**

1 No ( ) 2 Yes, but with difficulty ( ) 3 Yes ( )

Note: Talk to at least 5 - 10 different community members you happen to meet while walking around in the community to verify this. Make sure they represent different socio-economic groups. Focus on the poor. Then discuss this with the WATSAN Committee.

**7 Will Woreda Council assist in implementation**

1 No ( ) 2 Probably ( ) Definitely ( )

**8 Were women involved in the preparation of the proposal ?**

1 No ( ) 2 Some ( ) 3 Yes at least 40 % ( )

Check this by looking at records of meetings held and talk to women you meet in the community to find out if they were present and involved in the planning.

**9 Were the women actually participating actively in the planning ?**

1 No ( ) 2 To some extent ( ) 3 Yes ( )

**10 Are community members aware of what indicators of project achievements they could participate in measuring ?**

1 No ( ) 2 To some extent ( ) 3 Yes ( )

**11 In what form is the community contributions to the project**

- 1. Only in labour ( )      2. Only in kind (materials) ( )
- 3. Labour and kind ( )    4. Only in cash ( )
- 5. Labour and cash ( )    6. Labour, kind and cash ( )

**12 Are the community members fully aware of their planned inputs ?**

- 1 no ( )    2 fairly well ( )    3 fully aware ( )

**How is the community motivation to:**

**13 Participate in management and implementation ?**

- 1 low ( )    2 acceptable ( )    3 high ( )

(Judge from proportion of people willing to participate)

**14 Utilise services to be provided:**

- 1 low ( )    2 acceptable ( )    3 high ( )

**15 Contribute to maintenance and sustainability:**

- 1 low ( )    2 acceptable ( )    3 high ( )

**C. Administration and Managerial capacity for implementation:**

**16 List existing local institutions, associations and groups who could and are willing to participate.**

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....
- 6 .....

**17 List existing infrastructure**

- 1 Bank ( )    2 Spare part dealer ( )    3 Clinic ( )    4 School ( )

**18 Existence of external supervisor to project implementation ?**



1 No ( ) 2 Yes, but at a distance or not ideal ( ) 3 yes ( )

If yes, indicate who: .....

**19 Has Woreda / Zonal technical staff been consulted and are they prepared to supervise and monitor implementation ?**

1 No ( ) Yes ( )

**20 Is the community capable to fully participate in the implementation of the project?**

1 No ( ) 2 Partly ( ) Yes ( )

If 1 or 2 what is missing ? .....

#### **D Implementation related issues**

**21 Access road**

1 No ( ) 2 yes but bad ( ) 3 yes OK ( )

Will the following requirements be provided ?

**22 Labour**

1 No ( ) 2 With difficulty ( ) 3 Yes ( )

**23 Transport**

1 No ( ) 2 With difficulty ( ) 3 Yes ( )

**24 Material**

1 No ( ) 2 With difficulty ( ) 3 Yes ( )

**25 Will resettlement be an effect of the project ?**

1 Yes ( ) 2 Perhaps ( ) 3 No ( )

If yes or perhaps : Explain how, number of households affected and solutions / compensations discussed on a separate sheet of paper.

**26 Other inputs, services, inter-sectoral collaboration etc. required to maximise the benefit of the project ?**

1 No ( ) 2 Some ( ) 3 Yes ( )

If some or yes please clarify: .....  
.....  
.....  
.....  
.....

**27 How do you rate this project in terms of environmental impact ?**

- 1 Potentially negative impact ( )
- 2 Neutral impact ( )
- 3 Positive impact ( )

**28 List indicators for monitoring**

1 Progress

.....  
.....  
.....

2 Achievement of objectives

.....  
.....  
.....

3 Over all objective of improving living conditions

.....  
.....  
.....

**29 Any conditions which have to be met to implement the project?**

.....

.....

.....

.....

**30 Comment on procurement methods and schedule**

.....

.....

.....

**31 Comment on Work programme for implementation, milestones etc and the feasibility of the plan.**

.....

.....

.....

**E Cost and Economics**

**32 Verify the realism of the budget. Is it**

1 Unrealistic ( ) 2 A bit optimistic ( ) 3 Realistic ( )

Comment .....

.....

.....

.....

**33 Will the operation and maintenance be feasible as outlined ?**

1 Unrealistic ( ) 2 A bit optimistic ( ) 3 Realistic ( )

Comment .....

.....

.....

.....

**F. Social Feasibility Information to serve as a baseline for an impact evaluation**

Please complete the attached form designed for an in-depth evaluation of project impact by a "before and after approach".

### CHECKLIST FOR APPRAISAL OF SOCIAL FEASIBILITY OF WATSAN SUB-PROJECTS

Components	Points 1	Points 2	Points 3
<b>1. Leadership</b>			
• Which groups does the leadership represent?	A few or the elite	The majority	Focus on the poor
• Is the leadership paternalistic/authoritarian?	Yes	To some extent	No, democratic
• How does the leadership respond to poor or marginalised people in the community (whose children are the most affected by WATSAN diseases)?	Mainly for the better off	To some extent	Focus on the poor
• Does a charismatic leader exist who might not allow for mechanisms for continuity of the leadership to be developed or otherwise may not promote community participation?	Yes, strong	In control	Facilitates
• What is the attitude of the leadership towards water and above all sanitation?	Mainly other interests	Some positive attitudes, mainly to water	Positive and aware of the need for both water and sanitation
<b>2. Community participation</b> <i>Questions to community key informants</i>			
• Has a community meeting been held?	No	Yes, with leaders	Yes
• If yes, how many participated?	Below 25	25-50	Above 50
• About how many of these were women?	Less than 25%	25-50%	Above 50%
• How were the needs identified?	Mainly by facilitators	Mainly by the committee	Mainly by the community
• Were other aspects than water and sanitation discussed?	No	A few	Several
• Did the participants walk through their village before discussion of their priorities?	No	Uncertain	Yes
• Was a map prepared?	No	Uncertain	Yes

Components	Points 1	Points 2	Points 3
<ul style="list-style-type: none"> <li>Did women participate actively?</li> <li>Was a separate meeting held for women in case of different priorities?</li> <li>What was the result of the prioritisation in terms of the top three priorities?</li> <li>Was a WATSAN Committee elected?</li> <li>If yes, composition in terms of gender and positions:                      Chairperson                      Secretary                      Treasurer</li> </ul>	No  No  1. .... ..... ..... .....  No  Male Male Male	Uncertain          Unclear Unclear Unclear  Unclear	Yes  Yes  3. .... ..... ..... .....  Yes  Female Female Female
<b>3. Resource Mobilisation</b>			
<ul style="list-style-type: none"> <li>Is the community prepared and able to contribute:                      Labour                      Part of installation costs                      Operation and maintenance costs</li> <li>Has tariffs been discussed and agreed upon with community members?</li> </ul>	No No No  No	Unclear Unclear Unclear  Unclear	Yes Yes Yes  Yes
<b>4. Management</b>			
<ul style="list-style-type: none"> <li>What government staff exist in the community willing to assist?</li> <li>Are there any NGOs or voluntary organisations or groups willing to play a role?</li> </ul>	None  None	Uncertain  Uncertain	Yes, specify: ..... ..... ..... .....  Yes, specify: ..... ..... ..... .....
<ul style="list-style-type: none"> <li>How have these organisations or groups focused on water and sanitation in the past?</li> <li>What role has community participation played in these programme activities in the past?</li> </ul>	No WATSAN experience  No role	Uncertain  Limited role	Experienced in WATSAN  Prominent role

Components	Points 1	Points 2	Points 3
<ul style="list-style-type: none"> <li>Who staff these organisations - trained personnel?</li> </ul>	Not trained	Trained in administration	Trained in community participation
<ul style="list-style-type: none"> <li>Are they flexible and willing to follow new guidelines?</li> </ul>	No	Uncertain	Yes

**Annex 4**

**ESRDF RWSS SUB-PROJECT**

**VOLUME I : SAMPLE BIDDING DOCUMENTS**

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**SECTION I BIDDING REQUIREMENTS**

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## INVITATION FOR BID

1. Interested Contractors with valid license must submit the following:
  - a) company profile to include list of completed projects and works at hand,
  - b) profile of key personnel,
  - c) a copy of their work permit Certificate,
  - d) data assuring their financial capability,
  - e) data about their experience and typical management plan for doing a similar job of the same magnitude,
  - f) their capacity of mobilising minimum number of key machinery and sources of the machinery.
2. Prospective Contractors being considered for award must meet the qualification criteria and must make a detail of their qualification in writing (in English).
3. Duplicate copies of bid offer and qualification data should be produced in different wax sealed envelopes and must be placed in the bid box arranged for this purpose on or before-----.
4. Bid offers will be opened if and only if the evaluation result of the qualification data is believed to be satisfactory. The project Office is not expected to provide reasons for not qualifying any bidder and for subsequent rejection of the bid.
5. A complete set of bidding document shall be available against payment of a non refundable fee of Birr 1,000 (One Thousand).
6. Bids should be submitted along with a bid security of an acceptable form amounting to 1% of the total bid amount.
7. The Qualification data will be opened on -----in the ESRDF Regional Office of ----- in the presence of bidders or their representatives.
8. Bid offers of the qualified bidders will be opened 15 days after the opening of the qualification data.
9. Lobbying will result in an automatic rejection of the bid.

The ESRDF reserves the right to accept or reject any or all the bids.

## INSTRUCTIONS TO BIDDERS

### A. GENERAL

#### 1. SCOPE OF BID

- 1.1 The ----- hereinafter "the Employer", wishes to receive bids for the construction of Rural Water Supply Scheme."
- 1.2 The successful bidder will be expected to complete the works within--- months from the date of receipt of notice for commencement of the works.
- 1.3 Through out these bidding documents, the terms "bid" and "tender" and their derivatives (bidder/tenderer, bid/tendered, bidding/tendering, etc.) are synonymous, and 'day' means calendar day.

#### 2. SOURCE OF FUNDS

The Ethiopian Social Rehabilitation and Development Fund has allocated sufficient budget for financing the construction and supervision of Rural Water Supply Schemes.

#### 3. ELIGIBLE BIDDERS

- 3.1 This invitation to bid is open to all local bidders.

#### 4. QUALIFICATION OF THE BIDDER

- 4.1 To be qualified for award of the contract, bidders shall provide evidence satisfactory to the Employer of their capability and adequacy of resources to carry out the Contract effectively.

Qualification will be based on meeting all the following minimum pass/fail criteria: regarding the bidder's general and particular experience, personnel and equipment capabilities, as demonstrated by the bidder's responses in the forms attached to this document. The Employer reserves the right to waive minor deviations, if they do not materially affect the capability of a bidder to perform the contract. Subcontractors' experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria.

Bids shall include the following information.

- a) Copies of original documents defining the constitution or legal status, place of registration and principal place of business; written power of attorney of the signatory of the bid to commit the bidder;
- b) Performance as Prime Contractor on works of a similar nature and volume over the last three years, and details of other work in hand and contractual commitments;
- c) Major items of construction equipment proposed for carrying out the

**Contract;**

- d) The qualifications and experience of key personnel proposed for administration and execution of the Contract, both on and off site;
- e) Proposals for subcontracting elements of the Works;
- f) Proposal of work methods and schedule, in sufficient detail to demonstrate the adequacy of the bidder's proposals to meet the technical specifications and the completion time referred to in Sub-Clause 1.2 above.

4.2

- a) Successful experience as a Contractor in the execution of at least one project comparable to the proposed Contract.
- b) The bidder must have suitably qualified personnel to fill the following positions.

Position	Total Experience (Year)	In similar works

- c) The bidder should own, or have assured access to (through hire, lease, purchase agreement, or other means), the following key items of equipment in full working order, and must demonstrate that, based on known commitments, they will be available for use in the proposed contract. The bidder may also list alternative equipment which he would propose for the Contract, together with an explanation of the proposal.

Equipment type and Capacity                      Min. No. Required

- d) organisational capability in construction

4.3 First the Qualification data will be evaluated and then only bids of the qualified bidders will be opened.

**5. ONE BID PER BIDDER**

- 5.1 Each bidder shall submit only one bid either by himself, or as a partner in a joint venture. A bidder who submits or participates in more than one bid will be disqualified.

**6. COST OF BIDDING**

- 6.1 The bidder shall bear all costs associated with preparation and submission of his bid and the employer will in no case be responsible or liable for the costs, regardless of the conduct or out-come of the bidding process.

**7. EXAMINATION OF PLANS, SPECIFICATION AND SITE OF WORK**

- 7.1 The bidder is advised to examine all contract documents and visit the site(s) of works and its surroundings and obtain for himself on his own responsibility all information that may be necessary for preparing the bid and entering into contract for construction of the works. The costs of visiting the site shall be at the bidder's own expense.
- 7.2 The bidder or any of his personnel or agents will be granted permission by the Employer to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the bidder, his personnel and agents, will release and indemnify the Employer and his personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of the inspection.

**B. BIDDING DOCUMENT****8. CONTENTS OF BIDDING DOCUMENTS**

- 8.1 The bidding documents are those stated below, and should be read in conjunction with any Addenda issued in accordance with Clause 10.

Item	Section	
1.	1	Invitation for Bids
2.	1	Instruction to Bidders
3.		Standard Conditions of Contract for Construction of Civil Works Projects, MOWUD, 1994.
4.		Special Condition of Contract
5.	2	Special Provisions
6.		Design Drawings
7.	3	Form of Bid, and Bid Security
8.	4	Bill of Quantities
9.	5	Form of Agreement
10.	6	Form of Performance Security

- 8.2 The bidder is expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of qualification data and bid submission will be at the bidder's own risk. Pursuant to Clause 27, bids, which are not substantially responsive to the requirements of the bidding documents will be rejected.

## 9. CLARIFICATION OF BIDDING DOCUMENTS

- 9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or by cable (hereinafter, the term "cable" is deemed to mean telex and facsimile) at the Employer's address indicated in the Invitation for Bids. Oral explanations or instruction given before the award of the contract will not be binding. The Employer will respond to any request for clarification which he receives earlier than fifteen days prior to the deadline for submission of bids. Copies of the Employer's response will be forwarded to all purchasers of the bidding documents, including a description of the enquiry but without identifying its source.

## 10. AMENDMENT OF BIDDING DOCUMENTS

- 10.1 At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective bidder, modify the bidding document by issuing addenda.
- 10.2 Any addendum thus issued shall be part of the bidding documents pursuant to sub-clause 8.1, and shall be communicated in writing or by cable to all purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by cable to the Employer.
- 10.2 To afford prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of bids, in accordance with Clause 21

## C. PREPARATION OF BIDS

### 11. LANGUAGE OF BID

- 11.1 The bid, and all correspondence and documents related to the bid exchanged by the bidder and the Employer shall be written in the English Language.

### 12. DOCUMENTS COMPRISING THE BID

- 12.1 The bid submitted by the bidder shall comprise the following: Bid Form and Appendix to Bid; Bid Security; priced Bill of Quantities; alternative offers where invited; and any other materials required to be completed and submitted by Bidders in accordance with these Instructions to Bidders. The documents listed under Sections 3 and 4 of Sub-Clause 8.1 shall be filled-in without exception, subject to extensions thereof in the same format and to the provisions of Sub-Clause 16.2 regarding the alternative forms of bid security.

### 13. BID PRICES

- 13.1 Unless stated otherwise in the bidding documents, the Contract shall be for the whole Works as described in Sub-Clause 1.1, based on the schedule of unit rates and prices submitted by the bidder.
- 13.2 The bidder shall fill in rates and prices for items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.
- 13.3 All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates and prices and the total bid price submitted by the bidder, and the evaluation and comparison of bid by the Employer shall be made accordingly.

### 14. CURRENCIES OF BID AND PAYMENT

- 14.1 The unit rates and the prices shall be quoted by the bidder entirely in Ethiopian Birr.

### 15. BID VALIDITY

- 15.1 Bids shall remain valid and open for acceptance for a period of 30 days after the date of bid opening prescribed in clause 24.
- 15.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request that the bidders extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his bid security for the period of the extension, and in compliance with Clause 16 in all respects.

### 16. BID SECURITY

- 16.1 The bidder shall furnish, as part of his bid, a minimum bid security in the amount of not less than one percent (1%) of the bid amount.
- 16.2 The bid security shall, at the bidder's option, be in the form of a certified check, a bank draft, or a guarantee from a Bank or Insurance Company located in Ethiopia. The format of the Bank Guarantee shall be in accordance with one of the sample forms of bid security included in these bidding documents; other formats may be permitted, subject to the prior approval of the Employer. Letters of Credit, Bank Guarantee and bid bond shall be valid for 30 days beyond the validity of the bid.
- 16.3 Any bid not accompanied by an acceptable bid security will be rejected by the Employer as non-responsive.



- 16.4 The bid securities of unsuccessful bidders will be returned as promptly as possible, but not later than 30 days after the expiration of the period of bid validity.
- 16.5 The bid security of the successful bidder will be returned when the bidder has signed the Agreement and furnished the required performance security.
- 16.6 The bid security may be forfeited
- a) if the bidder withdraws his bid during the period of bid validity.
  - b) if the bidder does not accept the correction of his bid price.
  - c) in the case of a successful bidder, if he fails within the specified time limit to:
    - i) sign the Agreement, or
    - ii) furnish the required performance security

## 17. VARIATION IN BIDDING DOCUMENTS

- 17.1 Bidders shall submit offers which comply fully with the requirements of the bidding documents, including the basic technical design as indicated in the Drawings and the specification.

## 18. BID CLARIFICATION

- 18.1 Bidders requiring clarifications on the tender documents are requested to submit any question in writing or by cable, to reach the Employer not later than two weeks before bid submission date. Written reply will be provided to all bidders.

## 19. FORMAT AND SIGNING OF BIDS

- 19.1 The bidder shall prepare one original and one copy of the documents comprising the bid as described in Clause 12 of these Instructions to Bidders, bound with the volume containing the Form of Bid, and clearly marked "ORIGINAL" and "COPY" as appropriate. In the event of any discrepancy between them, the original shall prevail.
- 19.2 The original and copies of the bid shall be typed or written in indelible ink and shall be signed by a person or person duly authorised to sign on behalf of the bidder. All pages of the bid where entries or amendments have been made shall be initialled by the person or persons signing the bid.

### D. SUBMISSION OF BIDS

## 20. SEALING AND MARKING OF BIDS

- 20.1 The bidder shall seal the original and each copy of the bid in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL" and "COPY".
- 20.2 The inner and outer envelopes shall:

- a) be addressed to the Employer at the following address:
- b) bear the following identification
  - . Bid for Construction of Rural Water Supply Schemes.
  - . Bid Reference Number
  - . DO NOT OPEN BEFORE opening time and date.

20.3 The inner envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" or is otherwise unacceptable.

20.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid. A bid opened prematurely for this cause or any other cause will be rejected by the Employer and returned to the bidder.

## 21. DEADLINE FOR SUBMISSION OF BIDS

21.1 Bids must be received by the Employer at the address specified in the Invitation to Bid no later than the date specified in the Invitation to Bid.

21.2 The Employer may, at his discretion, extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

## 22. LATE BIDS

22.1 Any Bid received by the Employer after the deadline of bids prescribed by the Employer in accordance with Clause 21 will be returned unopened to the bidder.

## 23. MODIFICATION AND WITHDRAWAL OF BIDS

23.1 The bidder may modify or withdraw his bid after bid submission provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline for submission of bids.

23.2 The bidder's modification or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause 20 for submission of bids, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.

23.3 No bid may be modified by the bidder after the deadline for submission of bids.

23.4 Withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in the Form of Bid may result in the forfeiture of the bid security pursuant to Clause 16.

## E. BID OPENING AND EVALUATION

### 24. BID OPENING

- 24.1 The Employer will open the bids, including modifications made pursuant to Clause 23, in the presence of bidders' representatives who choose to attend, at the time and date to be announced on at the following location:- Office of the. The bidders' representatives who are present shall sign a register evidencing their attendance.
- 24.2 Envelopes marked "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 23 shall not be opened.
- 24.3 The bidder's names, the bid prices, the total amount of each bid and of any alternative bid (if alternatives have been requested or permitted), modifications and withdrawals, the presence or absence of bid security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.
- 24.4 The Employer shall prepare minutes of the bid opening, including the information disclosed to those present at the bid opening.

## 25. PROCESS TO BE CONFIDENTIAL

- 25.1 Information relating to the examination, clarification, evaluation and comparison of bids and recommendations for the award of a Contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence the Employer's processing of bids or award decisions may result in the rejection of the bidder's bid.

## 26. CLARIFICATION OF BIDS

- 26.1 To assist in the examination, evaluation and comparison of bids, the Employer may ask bidders individually for clarification of their bids, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction or arithmetic errors discovered by the Employer during the Evaluation of the bids in accordance with Clause 28.

## 27. DETERMINATION OF RESPONSIVENESS

- 27.1 Prior to the detailed evaluation of bids, the Employer will determine whether each bid (i) has been properly signed; (ii) is accompanied by the required securities; (iii) is substantially responsive to the requirements of the bidding documents.
- 27.2 A substantially responsive bid is one which conforms to all the terms, conditions and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one which affects in any substantial way the scope, quality, or performance of the works, or which limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the Bidder's obligations under the contract and the rectification of which deviation or reservation would affect unfairly the competitive position of other responsive bidders presenting substantially responsive bids.

- 27.3 If a bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

## 28. CORRECTION OF ERRORS

- 28.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- a) Where there is a discrepancy between the amounts in figures and in words, the amount in words will govern, and
  - b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.
- 28.2 The amount stated in the Form of Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, his bid will be rejected, and the bid security will be forfeited.

## 29. EVALUATION AND COMPARISON OF BIDS

- 29.1 The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 27.
- 29.2 In evaluating the bids, the Employer will determine for each bid the Evaluated Bid price by adjusting the bid price as follows:
- a) making any correction for errors pursuant to Clause 28
  - b) non-material deviations from or reservations or qualifications to the bidding documents that are quantifiable.
  - c) such other factors as the Employer considers may have a potentially significant impact on Contract performance, contract price and payments, including the effect of items or unit rates in the bid that are unbalanced or unrealistically priced.

- 29.3 The Employer reserves the right to accept or reject any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirement of the bidding documents or otherwise result in the accrual of unsolicited benefits to the Employer shall not be taken into account in bid evaluation.
- 29.4 If the bid of the successful bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract, the Employer may require the bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, the Employer may require that the amount of the performance security set forth in clause 34 be increased at the expense of the successful bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful bidder under the Contract.

## F. AWARD OF CONTRACT

### 30. AWARD

- 30.1 Subject to Clause 31, the Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive of the bidding documents and who has offered the lowest evaluated bid price.

### 31. EMPLOYER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

- 31.1 Notwithstanding Clause 30, the Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer's action.

### 32. NOTIFICATION OF AWARD

- 32.1 Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidders by cable confirmed in writing by registered letter that his bid has been accepted. This letter (hereinafter called "LETTER OF ACCEPTANCE") shall name the sum which the Employer will pay to the Contractor in consideration of the execution, completion and maintenance of the works by the Contractor as prescribed by the Contract (hereinafter called "the Contract Price")

### 33. SIGNING OF AGREEMENT

- 33.1 At the same time that he notifies the successful bidder that his bid has been accepted, the Employer will send the bidder the Form of Agreement provided in the bidding document, incorporating all agreements between the parties.
- 33.2 Within two days of receipt of the Form of Agreement, the successful bidder shall sign the Form and return it to the Employer.

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### 34. PERFORMANCE SECURITY

- 34.1 Within fifteen days of receipt of the notification of award from the Employer, the successful bidder shall furnish to the Employer a performance security in an amount of ten percent (10%) of the Contract price in accordance with the Conditions of Contract. The forms of performance security provided in the bidding documents may be used or some other forms acceptable to the Employer.
- 34.2 If the performance security is to be provided by the successful bidder in the form of a bank guarantee, it shall be issued by a Local Bank.
- 34.3 If the performance security is to be provided by the successful bidder in the form of a bond, it shall be issued by a bonding/insurance company which has been determined by the successful bidder to be acceptable to the Employer.
- 34.4 Failure of the successful bidder to comply with the requirements of clause 33 or clause 34 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.

### G- CONDITIONS OF CONTRACT

#### PART I - GENERAL CONDITIONS

The Conditions of Contract are the "Standard Conditions of Contract for Construction of Civil Work Project", Ministry of Works and Urban Development, December, 1994.

Amendments, additions or deletions to part 1 General Conditions are attached herewith as Part II - CONDITIONS OF PARTICULAR APPLICATION, and/or in other section of the tender document.

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**PART II - SPECIAL CONDITIONS OF CONTRACT**

**CLAUSE 1**

**FORM OF TENDER**

Name of Contract: ESRDF Rural Water Supply and Sanitation Sub- Project

To:

Gentlemen:

1. Having examined the Conditions of Contract, Specification, Drawings, and bill of Quantities and Addenda Nos. \_\_\_\_\_ for the execution of the above-named Works we, the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract, Specification, Drawings, Bill of Quantities and Addenda for the sum(s) of \_\_\_\_\_

(in words)

~~as specified in the Appendix to Tender or such other sums as may be ascertained in accordance with the said Conditions.~~

2. We acknowledge that the Appendix forms part of our Tender.
3. We undertake, if our Tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Tender.
4. We agree to abide by this Tender for the period of ninety (90) days from the date fixed for receiving the same, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Unless and until a formal Agreement is prepared and executed, this Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

---

6. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 19 \_\_\_\_\_

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_

duly authorised to sign tenders for and on behalf of \_\_\_\_\_

---

***[in block capitals or typed]***

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Witness \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Occupation \_\_\_\_\_



## APPENDIX TO TENDER

	<u>Sub-Clause</u>	
Amount of performance	ITB 34.1	10 percent of the Contract Price (for bond), reduced to 5% on completion.
Minimum amount of third party insurance		ETB 100,000 per occurrence with the number of occurrences unlimited
Time for issue of the notice to commence	SP 2.13	14 days
Time for completion of the whole works	SP 2.13	365 days
Amount of liquidated damages		Birr 1/1000 of contract amount for each day of delay
Limit of liquidated damages		10% of the Contract Price
Defects liability period		364 days
Minimum amount of interim payment certificates		ETB 150,000
Retention Money		10 percent of Interim Payment Certificates Reduced to 5% on Completion
Rate of interest upon unpaid sums		15 percent
Initials of Signatory of Tender	_____	

**PROPOSED METHOD OF WORKING AND SCHEDULE**

The bidder should attach descriptions, drawings and charts as necessary to comply with the requirement of the bidding documents.

### DAY WORK SCHEDULE

List of key equipment rental rate and manpower day work rate shall be provided as tabulated below:- The equipment rental rate shall be inclusive of all operating costs including fuel, oil, other consumables, and manpower.

#### LIST OF KEY EQUIPMENT RENTAL RATE AND MANPOWER RATE

##### a - EQUIPMENT RENTAL

ITEM NO.	DESCRIPTION	UNIT	RENTAL RATE BIRR
Drilling			
1.		hr	
2.		hr	

##### MAN POWER

ITEM NO.	DESCRIPTION	UNIT	UNIT RATE
1.	Foreman	hr	
2.	Mason	hr	
3.	Carpenter	hr	
4.	Daily labourer	hr	

#### SECTION 4

#### LIST OF BASIC MATERIALS PRICES ON WHICH THE BID PRICE IS BASED

ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE IN BIRR
1.	Ordinary portland cement	Qt.	
2.	Steel reinforcement bars 6mm - 32 mm	kg.	
3.	Timber formwork	m <sup>3</sup>	
4.	PVC Pipe DN 25mm-DN 100mm	m	
5.	GS Pipe DN 25mm-DN 100mm	m	

**BILL OF QUANTITIES****PREAMBLE TO THE BILL OF QUANTITIES**

1. For the purpose of this Bill of quantities, the following words shall have the meanings hereby assigned to them:

**Unit:** The unit of measurement for each item of work as defined in the Contract.

**Quantity:** The number of units of work for each item.

**Rate:** The payment per unit of work at which the Contractor tenders to do the work.

**Amount:** The product of the quantity and the rate tendered for an item.

**Lump sum:** A price tendered for item of which the extent is described in the Bill of Quantities, the Specifications or elsewhere but the quantity of work is not measured in any units.

2. This Bill of Quantities forms part of the Contract Documents and shall be read in conjunction with all the other documents comprising the Contract Documents.

3. The quantities entered in this Bill of Quantities are given to enable the Engineer to compare tenders on an equal basis, and are not to be considered as final quantities.

The validity of the contract shall in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment. Work shall be valued at the rates or lump sum prices tendered, subject only to the provisions of the Contract documents.

4. Rates and lump sum prices shall be inclusive of camp construction & operation, field laboratory & testing and first aid station, overheads, profits, incidentals, etc. and shall include full compensation for the completed items of work as specified, and for full compensation for completing and maintaining during the Maintenance Period all the work shown on the Drawings and specified in the Specifications and for all risks, obligations and shall be considered as provided for collectively in the items of payment given in the Bill of Quantities, except in so far as the quantities given in the Bill of Quantities are only approximate.
5. The Contractor shall fill in a rate or lump sum for each item where provision is made thereof even where no quantities are given. Items against which no rate or lump sum is entered in the Tender will not be paid for when executed but payment for such work will be regarded as covered by other rates in the Bill of Quantities.
6. The work as executed will be measured for payment in accordance with the methods described in the Contract under the various pay items notwithstanding any custom to the contrary. Except where otherwise specified, the net measurements of mass of the finished work in place shall be taken for payment, but excluding any volume or mass or work in excess or that ordered, or specified.

7. The quantities or work or material stated in the Bill of quantities shall not be considered as binding or limiting or extending the amount of work to be done or quantity of material to be supplied by the Contractor.
8. The quantities of material or work stated in the Bill of Quantities shall not be regarded as constituting authorisation to the Contractor to order material or execute work. The Contractor shall obtain the Engineer's detailed instructions for all work before ordering any materials for or executing work or making arrangements therefor. No payment on the Materials on Site shall be made.
9. The short descriptions given of pay items in the Bill of Quantities are only for the purpose of identifying the items and providing specific details. Reference shall be made inter alia to the Drawings, specifications, and Conditions of Contract for more detailed information regarding the extent of the work entailed under each item.
10. **UNITS OF MEASUREMENT:** The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the bill of Quantities are as follows:

m	=	metre
km	=	kilometre
m <sup>2</sup>	=	square metre
m <sup>3</sup>	=	cubic metre
ha	=	hectare
kg	=	kilogram
L	=	litre
Lm	=	linear metre
ton	=	ton (1000 kg)
Prov. Sum (P.S.)	=	Provisional Sum
No.	=	number
MN	=	Meganewton
m <sup>3</sup> km	=	cubic metre-kilometre
%	=	percent
hr	=	hour
mth	=	month
v-mth	=	vehicle month
m-mth	=	man month

All rates and sums of money quoted in the Bill of Quantities shall be in Ethiopian Birr.

11. **ITEMS NUMBERS:** The Payment Item in the Bill of quantities refers to the corresponding item number in the Specification.

**BILL OF QUANTITIES**

Refer to annex 9 for sample Bill of Quantity

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**SECTION III CONTRACT FORMS**

Refer to annex 5 for sample contract form

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**SAMPLE CONTRACT FORM**

Contract No. \_\_\_\_\_ awarded following the request for proposals of \_\_\_\_\_, 199\_\_\_\_, concerning Rural Water Supply Project, the works are \_\_\_\_\_

It is hereby agreed,

**BETWEEN:**

The as one party and hereinafter referred to as the "Client",

**AND:**

\_\_\_\_\_ , represented by \_\_\_\_\_, acting in the capacity of \_\_\_\_\_ hereinafter referred to as the "Contractor", as the other party, as follows:

**Article 1: PURPOSE OF THE CONTRACT**

1.1 This contract is for execution of works of in accordance with the specifications and bills of quantities attached hereto.

**Article 2: LOCATION OF WORKS**

2.1 The works described under article 1 shall be performed in the village/s \_\_\_\_\_

**Article 3: AMOUNT OF CONTRACT**

3.1 The amount of the contract, exclusive of taxes, as stated in the approximate breakdown, is the sum of Birr \_\_\_\_\_ on the basis of prices as \_\_\_\_\_, 199\_\_\_\_.

3.2 The prices given in the bills of quantities have been evaluated taking into account the cost prices of labour including taxes. [total cost of the supplies delivered to the work site], the sales cost of work site equipment, including provisions for depreciation, as well as work site installation expenses, overhead and miscellaneous cost of the works, operating burdens, hazards and benefits.

3.3 The total amount of the contract, including taxes is \_\_\_\_\_

**Article 4: DURATION OF THE WORKS**

4.1 While being based on an average number of \_\_\_\_\_ days worked per month, this contract shall be concluded within a completion period of \_\_\_\_\_ months, counting from the date of the services order fixing the beginning date of the works in question.

4.2 The expected date of completion of the works is \_\_\_\_\_, 199\_\_\_\_, or any other date mutually agreed upon by the client and the Contractor.

**Article 5: PENALTIES FOR LATE DELIVERY**

5.1 In the event of a delay in execution of the works in relation to the time periods fixed in the service order, the Contractor is subject to a penalty of \_\_\_ of the amount of the works ordered per day of delay, except in the case of force majeure, in which case the Client will evaluate the additional time to be allowed and so inform the contractor.

**Article 6: SETTLEMENT AND SCHEDULE OF PAYMENTS**

6.1 Monthly bi-weekly invoices shall be prepared on the basis of progress of the works. The invoices will clearly state the amount of the works done during the month/week in question, as well as the

cumulative amount of the works done as of last day of day of that month/week.

- 6.2 These amounts of work are calculated with reference to the bills of quantities, by multiplying these prices by the quantities actually executed, after inspection by the engineer assigned by the Client.
- 6.3 The payments shall be made through a bank check under the responsibility of the financial officer of the Client upon presentation of the invoices prepared by the Engineer and accompanied by works progress statements, certified by the Engineer.
- 6.4 The time of payment shall not exceed thirty (30) days counting from the approval of the Contractor's invoices by officials of the Engineer.

**Article 7: UPDATING AND REVISION**

- 7.1 The contract does not provide for updating or revision of periods given for completion of the works.

**Article 8: MOBILIZATION ADVANCE UPON START - UP OF THE WORKS**

- 8.1 An advance not exceeding \_\_\_ percent of the amount of the contract will be granted to the Contractor, at the time of issuance of the service order.

**Article 9: LIABILITY OF THE CONTRACTOR**

- 9.1 The Contractor is directly and personally liable to the Client, for proper execution and quality of the works. The Contractor agrees to furnish to the engineer assigned by the Client all information, schedules calculations and all supporting documents that may be requested of it.

**Article 10: CONTROL OF THE WORKS**

- 10.1 The works are placed under the control of the engineer assigned by the Client. The Contractor must defer to all written or verbal orders from the Engineer, and the Contractor is responsible for stating any reservation within a period of ten (10) working days.

**Article 11: LABOUR - HEALTH**

- 11.1 The Contractor is subject, in the employment of labour, to regulations under current law at the time the works are performed and, in particular.....

**Article 12: DISPUTES AND LITIGATION**

- 12.1 If over the course of the works, problems arise between the Client and the Contractor, the problem shall be resolved by mutual dialogue.
- 12.2 If the Contractor does not accept this decision, each of the parties, that is, the Client on one hand and the Contractor on the other, agrees to proceed for arbitration in accordance with current regulation in Ethiopia.

**Article 13: CONTRACT DOCUMENTS**

- 13.1 The documents listed below, which the Contractor has full knowledge of, contain all the conditions and terms of this contract:

- The present draft contract;
- The Bills of Quantities
- Bidding documents including any plans.

**Article 14: EFFECT OF CONTRACT**

14.1 The present contract shall take effect when signed by both parties.

**Article 15:**

15.1 This agreement shall have a binding effect on the parties as of the date it is signed by their duly authorised representative.

15.2 IN WITNESS THERE OF, the undersigned, being duly authorised, have signed this agreement in two (2) originals on behalf of the parties hereto, at the place and on the day and year below written.

The Contractor

Representative of the Client

Signature \_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

\_\_\_\_\_

Title \_\_\_\_\_

\_\_\_\_\_

Place \_\_\_\_\_

\_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_

Annex 6

ESRDF RURAL WATER SUPPLY AND SANITATION PROJECT  
CONSTRUCTION INSPECTION DAILY REPORT

FORM NO 002

TYPE OF WATER SYSTEM: SHALLOW WELL WITH A HAND PUMP  
METHOD OF CONSTRUCTION:

i. DIGGING

1.1 WELL DIAMETER: \_\_\_\_\_

1.2 START DATE: \_\_\_\_\_

1.3 DEPTH DUG: \_\_\_\_\_

1.4 TIME ELAPSED: \_\_\_\_\_

1.5 FORMATION / SOIL TYPE ENCOUNTERED

FROM \_\_\_\_\_ m TO \_\_\_\_\_ m \_\_\_\_\_

FROM \_\_\_\_\_ m TO \_\_\_\_\_ m \_\_\_\_\_

FROM \_\_\_\_\_ m TO \_\_\_\_\_ m \_\_\_\_\_

1.6 DEPTH OF WATER ENCOUNTER: \_\_\_\_\_ m

1.7 VOLUME DUG : \_\_\_\_\_ m<sup>3</sup>

II. LINING (CASING)

2.1 LINING MATERIAL : \_\_\_\_\_

2.2 INTERNAL / EXTERNAL DIAMETER : \_\_\_\_\_

2.3 NUMBER OF RINGS INSTALLED:

2.3.1 PERFORATED: \_\_\_\_\_

2.3.2 BLANK : \_\_\_\_\_

III. GRAVEL PACK

- 3.1 GRAVEL TYPE: \_\_\_\_\_
- 3.2 GRAVEL SIZE: \_\_\_\_\_
- 3.3 VOLUME PACKED: \_\_\_\_\_

IV. APRON WORK

- 4.1 MATERIALS USED:
  - CEMENT \_\_\_\_\_ BAGS
  - SAND \_\_\_\_\_ m<sup>3</sup>
  - COARSE AGGREGATE \_\_\_\_\_ m<sup>3</sup>
  - REINFORCEMENT BAR \_\_\_\_\_ kg
- 4.2 PERCENT COMPLETED \_\_\_\_\_ %

V. PUMP INSTALLATION

- 5.1 TYPE OF HAND PUMP (MAKE ) \_\_\_\_\_
- 5.2 COMPLETION DEPTH OF WELL \_\_\_\_\_
- 5.3 PUMP POSITION \_\_\_\_\_
- 5.4 OTHERS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

VI. REMARK (COMMENTS ON THE DAY'S WORK PROGRESS; PROBLEMS ENCOUNTERED AND SOLUTION TAKEN ETC.)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

VII. MAN POWER AND EQUIPMENT DEPLOYED

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

INSPECTOR'S NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**ESRDF RURAL WATER SUPPLY AND SANITATION PROJECT  
 CONSTRUCTION INSPECTION DAILY REPORT**

FORM N° 003

TYPE OF WATER SYSTEM: BOREHOLE DRILLING

METHOD OF CONSTRUCTION (EQUIPMENT USED):

i. DRILLING

1.1 STARTING BIT SIZE: \_\_\_\_\_

1.2 START DATE: \_\_\_\_\_

1.3 DEPTH DRILLED: \_\_\_\_\_

1.4 TIME ELAPSED: \_\_\_\_\_

1.5 FORMATION / SOIL TYPE ENCOUNTERED

FROM \_\_\_\_\_ m TO \_\_\_\_\_ m \_\_\_\_\_

FROM \_\_\_\_\_ m TO \_\_\_\_\_ m \_\_\_\_\_

FROM \_\_\_\_\_ m TO \_\_\_\_\_ m \_\_\_\_\_

1.6 DEPTH OF WATER ENCOUNTER : \_\_\_\_\_ m

ii. CASING

2.1 SURFACE CASING: • DIAMETER \_\_\_\_\_ LENGTH \_\_\_\_\_

• TEMPORARY \_\_\_\_\_

• PERMEANT \_\_\_\_\_

2.2 SCREEN CASING: • MATERIAL TYPE \_\_\_\_\_

• DIAMETER \_\_\_\_\_

• LENGTH \_\_\_\_\_

2.3 BLANK CASING: • MATERIAL TYPE \_\_\_\_\_

• DIAMETER \_\_\_\_\_

• LENGTH \_\_\_\_\_

III. GRAVEL PACK

3.1 GRAVEL TYPE: \_\_\_\_\_

3.2 GRAVEL SIZE: \_\_\_\_\_

3.3 VOLUME PACKED: \_\_\_\_\_

IV. APRON WORK

4.1 MATERIALS USED:

• CEMENT \_\_\_\_\_ BAGS

• SAND \_\_\_\_\_ m<sup>3</sup>

• COARSE AGGREGATE \_\_\_\_\_ m<sup>3</sup>

• REINFORCEMENT BAT \_\_\_\_\_ kg

4.2 PERCENT COMPLETED \_\_\_\_\_ %

V. REMARK (COMMENTS ON THE DAY'S WORK PROGRESS; PROBLEMS ENCOUNTERED AND SOLUTION TAKEN ETC.)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VII. MAN POWER AND EQUIPMENT DEPLOYED









INSPECTOR'S NAME \_\_\_\_\_  
SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

ESRDF RURAL WATER SUPPLY AND SANITATION PROJECT  
CONSTRUCTION INSPECTION DAILY REPORT

FORM NO 001

I. TYPE OF WATER SYSTEM: SPRING CAPPING

II. SITE CLEARANCE & EXCAVATION:

- 2.1 START DATE/TIME: \_\_\_\_\_
- 2.2 TOTAL AREA CLEARED: \_\_\_\_\_ m<sup>2</sup>
- 2.3 EXCAVATION FOR FOUNDATION: \_\_\_\_\_ m<sup>3</sup>
- 2.4 EXCAVATION FOR DRAINAGE: \_\_\_\_\_ m<sup>3</sup>

III. MASONRY WORK

3.1 TYPE OF MATERIAL : \_\_\_\_\_  
\_\_\_\_\_

STONE : \_\_\_\_\_ m<sup>3</sup>  
 CEMENT: \_\_\_\_\_ BAGS  
 SAND : \_\_\_\_\_ m<sup>3</sup>

3.2 PERCENT COMPLETED \_\_\_\_\_ %

IV. CONCRETE WORK:

4.1 MATERIALS USED

- CEMENT \_\_\_\_\_ BAGS
- SAND \_\_\_\_\_ m<sup>3</sup>
- AGGREGATES \_\_\_\_\_ m<sup>3</sup>
- REINFORCEMENT BARS \_\_\_\_\_ KG
- PERCENT COMPLETED \_\_\_\_\_ %

V. PIPE WORK : (INCLUDING VALVES & FITTINGS) \_\_\_\_\_

VI. MAN POWER & EQUIPMENT DEPLOYED \_\_\_\_\_  
\_\_\_\_\_

VII. REMARK: \_\_\_\_\_  
(STATE ANY VARIATION) \_\_\_\_\_  
\_\_\_\_\_

INSPECTOR'S NAME \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE \_\_\_\_\_

Annex 7

ESRDF RURAL WATER SUPPLY PROJECT  
PROJECT COMPLETION REPORT

Source Area Name \_\_\_\_\_

Village Name \_\_\_\_\_ Woreda \_\_\_\_\_

Zone \_\_\_\_\_ Region \_\_\_\_\_

Type of Scheme \_\_\_\_\_

Contractors Name \_\_\_\_\_

All works are completed Y/N, if Y, Date \_\_\_\_\_

- If Y \_\_\_\_\_%

- If N, Explain \_\_\_\_\_

Effectiveness and start up date

Planned \_\_\_\_\_ Actual \_\_\_\_\_

Explain if there is a big difference

Implementation period

Planned \_\_\_\_\_ month Actual \_\_\_\_\_ month

Explain if there is a big difference \_\_\_\_\_

Project Cost

- Estimated cost Birr \_\_\_\_\_ Actual Cost Birr \_\_\_\_\_

- Unused balance Birr \_\_\_\_\_ over spent Birr \_\_\_\_\_

Variations available Y/N \_\_\_\_\_

If Y explain \_\_\_\_\_

Out standing works

Major project components, size, capacity etc.

As designed and as completed

Component	As designed	As completed
_____	_____	_____
_____	_____	_____
_____	_____	_____

Cost of Major project components as estimated and as completed.

Component	As Estimated	As completed
_____	_____	_____
_____	_____	_____
_____	_____	_____

Community participation

Labour Estimated \_\_\_\_\_ Actual \_\_\_\_\_

Cash contribution Estimated \_\_\_\_\_ Actual \_\_\_\_\_

Contractor's Performance

Good \_\_\_\_\_

Satisfactory \_\_\_\_\_

Poor \_\_\_\_\_

If poor explain \_\_\_\_\_

Problems on procurement/supply of material Y/N \_\_\_\_\_ If

Y explain \_\_\_\_\_

Institutional performance

Financier \_\_\_\_\_

Sector institutions \_\_\_\_\_

Community \_\_\_\_\_

Others \_\_\_\_\_

Environmental Aspects

Positive aspects \_\_\_\_\_

Negative aspects \_\_\_\_\_

Objective of the project fulfilled \_\_\_\_\_

Not fulfilled \_\_\_\_\_

Any other issues \_\_\_\_\_

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Conclusion and lessons learnt \_\_\_\_\_

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**ANNEX 8****COMMISSIONING AGREEMENT OF COMPLETED SCHEME BETWEEN THE REGIONAL WATER BUREAU/ IMPLEMENTING AGENCY AND COMMUNITIES****COMMISSIONING OF COMPLETED COMMUNITY WATER SUPPLIES**

As mentioned in the community agreement signed in the pre-construction period, the Regional Water Bureau agrees to commission the satisfactorily completed community water system (CWS).

The community is hereby taking over the responsibility for the operation and maintenance tasks of the Community Water Supply through its Water and Sanitation Committee with the support of the Regional Water Bureau.

This Commissioning Agreement Documents is signed between \_\_\_\_\_  
Regional Water Office and the community of \_\_\_\_\_  
found in \_\_\_\_\_  
(Woreda) \_\_\_\_\_

Administrative region, showing that an agreement has been reached between the two parties on the following points regarding the operation and maintenance of the Community Water Supply.

**1. COMMENTS OF THE COMMUNITY**

1.1 The commitments of the community will be carried out through the Water and Sanitation Committee

The committee on behalf of the community is responsible for the following duties.

- a) To promote hygiene and sanitation in co-operation with the local LCF, CHA or Ministry of Health Sanitarian, and/or CFPA's
- b) To recruit pump technicians for hand pump, and caretakers
- c) To pay pump operators in cash and caretakers in cash or hind
- d) To approve money for expenses for operating and maintaining the CWs
- e) To purchase and make available sufficient lubricants and spare parts to keep the system operating properly
- f) To ensure that the caretaker or pump technician carries out his/her regular task as specified in his/her job description
- g) To replace to tools used to maintain the pump if the original tools get lost.
- h) To keep lubricants, tools and spare parts for the CWS in good order

- i) To report breakdowns or malfunctions of CWS to subregional/regional office of the Water Department
- j) To keep proper records on the CWS system and forward these records to ESRDE as stipulated in the reporting formats.

1.2 The Water/Sanitation Committee has the following responsibilities regarding hygiene and sanitation

- a) To control the spread of communicable diseases
- b) To promote the construction and use of individual household pit-latrines.
- c) To select, in consultation with the community and Ministry of Health, one Community Health Worker (CHW). (If he/she has not been selected.

1.3 Commitments of the Water Department

The Water Department is responsible for the following:

- a) Training pump technicians and hand pump caretakers and offer them advice and backstopping
- b) Providing maintenance tool kits appropriate to each hand pump
- c) Carry out all major maintenance and repair work
- d) Making regular inspection and maintenance visit
- e) Carry our appropriate water quality tests upon community requests
- f) Responsible for disinfecting the source when necessary
- g) Responsible for cleaning out or developing the well or borehole when needed
- h) Make follow-up visits to ensure that the CWS is being properly managed and offer advice as needed

1.4 Effective Date of Agreement

This agreement is effective from the date of the signing by both parties as of:

.....19..... E.C. ....199.....G.C.

1.4 Signatures

For the Community

For WSSA Regional Office

Name: \_\_\_\_\_ Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Position: \_\_\_\_\_ Position: \_\_\_\_\_

Name: \_\_\_\_\_ Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Position: \_\_\_\_\_ Position: \_\_\_\_\_

Witnesses for Community:

Witnesses for Regional Water Bureau:

1. Sign.: \_\_\_\_\_  
Name: \_\_\_\_\_

1. Sign.: \_\_\_\_\_  
Name: \_\_\_\_\_

2. Sign.: \_\_\_\_\_  
Name: \_\_\_\_\_

2. Sign.: \_\_\_\_\_  
Name: \_\_\_\_\_

3. Sign.: \_\_\_\_\_  
Name: \_\_\_\_\_

3. Sign.: \_\_\_\_\_  
Name: \_\_\_\_\_

Stamp of Kebele: \_\_\_\_\_

Stamp of Regional Water Bureau: \_\_\_\_\_

**WATER SUPPLY SYSTEM DESCRIPTION**

**1. SOURCES**

A.  Bore Hole  
 Depth \_\_\_\_\_ mt.  
 Yield \_\_\_\_\_ l/s  
 PVC/Steel casing installed \_\_\_\_\_ mt.  
 Surface casing installed \_\_\_\_\_ mt.  
 Riser pipe installed \_\_\_\_\_ inch \_\_\_\_\_ mt. length

B.  Spring  
 Dimensions: m x \_\_\_\_\_ m x \_\_\_\_\_ m  
 of spring box  
 or \_\_\_\_\_ m in diameter & depth \_\_\_\_\_ mt.  
 Yield of spring: \_\_\_\_\_ l/sec.

C.  Shallow Well  
 Depth \_\_\_\_\_ mt  
 Diameter \_\_\_\_\_ mt (internal)  
 Yield \_\_\_\_\_ l/s  
 riser pipe installed \_\_\_\_\_ inch \_\_\_\_\_ mt

D.  Other Sources  
 State type, capacity, dimensions etc.)

**PRESSURE MAIN AND DISTRIBUTION NET WORK**

A. State sizes, lengths and miscellaneous features of the pipe line

B. Reservoir

State type, capacity and conditions of the reservoir:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

**C. SUBMERSIBLE PUMP**

Date installed: \_\_\_\_\_

Type: \_\_\_\_\_

Manufacturer name: \_\_\_\_\_ Country: \_\_\_\_\_

Discharge: \_\_\_\_\_ l/sec

Drive Head: \_\_\_\_\_ mt.

Power: \_\_\_\_\_ HP (KW)

**D. DIESEL GENERATORS**

Date installed: \_\_\_\_\_

Type: \_\_\_\_\_

Model: \_\_\_\_\_

KVA: \_\_\_\_\_

Manufacturer name: \_\_\_\_\_ Country: \_\_\_\_\_

Power: \_\_\_\_\_ HP (KW)

**E. CENTRIFUGAL PUMP**

Date installed: \_\_\_\_\_

Type: \_\_\_\_\_

Model: \_\_\_\_\_

Manufacturer name: \_\_\_\_\_ Country: \_\_\_\_\_

Discharge: \_\_\_\_\_ l/sec: \_\_\_\_\_

Drive Head: \_\_\_\_\_ mt.

Power: \_\_\_\_\_ HP (KW)

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**EDUCATIONAL MATERIALS**

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**LIST OF MATERIALS ETC. ALREADY HANDED OVER TO THE WATER COMMITTEE**

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**LOCATION MAP OF SCHEMES PROVIDED** YES / NO

**SYSTEM DRAWINGS PROVIDED** YES / NO

**PHOTOGRAPHS PROVIDED** YES / NO

**STATE THE TOTAL ACTUAL COST OF THE PROJECT:** \_\_\_\_\_

**TOTAL COST PAID BY NGO:** \_\_\_\_\_

**COMMUNITIVE CASH CONTRIBUTION FOR CONSTRUCTION:** \_\_\_\_\_

**OTHER TOTAL CONTRIBUTION, IF ANY:** \_\_\_\_\_

## GENERAL INFORMATION

1. LOCATION OF THE SCHEME
  - 1.1 Name of the village / town \_\_\_\_\_
  - 1.2 Awraja \_\_\_\_\_
  - 1.3 Administrative Region \_\_\_\_\_
  - 1.4 Distance from the Regional Office \_\_\_\_\_ kms.
  - 1.5 Distance from the nearby town \_\_\_\_\_ kms.
  - 1.6 Name of the nearby town \_\_\_\_\_

## 2. SETTLEMENT PATTERN

- 2.1 Densely populated
- 2.2 Villagized
- 2.3 Scattered
- 2.4 Nomadic

## 3. ESTIMATED SOURCE OF INCOME IN PERCENTAGE

- 3.1 Agriculture
  - Cash crops \_\_\_\_\_ %
  - Livestock \_\_\_\_\_ %
- 3.2 Trade and business \_\_\_\_\_ %
- 3.3 Governmental or non Governmental employees \_\_\_\_\_ %
- 3.4 Nomadic \_\_\_\_\_ %

Annex 8

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4. NUMBER OF LIVESTOCK

4.1 Cattle \_\_\_\_\_

4.2 Sheep and goats \_\_\_\_\_

4.3 Pack animals \_\_\_\_\_



## ANNEX 9

## BILL OF QUANTITIES

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT - TRADITIONAL PIT LATRINES</b>						
<b>TITLE - BILL OF QUANTITIES AND COST ESTIMATES</b>						
<b>BILL NO S1</b>						
ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	REMARK
1	Excavation	m <sup>3</sup>	2.4	10	24	
2	Logs to cover latrine	Each	6	2	12	
3	Poles for walls	Each	8	3	24	
4	Wooden slab	Each	1	12	12	
5	Wattle	Bundle	1	25	25	
6	Nails assorted	kg	1½	9	13.50	
7	Termite-proof point	-	-	-	7.00	
8	Thatching grass	-	-	-	10.00	
9	Labour	-	-	-	50.00	
10	Unforeseen	-	-	-	20.00	
	<b>Total</b>				<b>197.50</b>	

**ESRDF-RWSS PROJECT****SUB - PROJECT - LATRINES WITH SANPLAT, MUD AND WATTLE WALL****TITLE - BILL OF QUANTITIES AND COST ESTIMATES****BILL NO S2**

ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	REMARK
1	Excavation	m <sup>3</sup>	2.4	10	24	
2	Poles for walls	Each	8	3	24	
3	Sanplat	Each	1	30	30	
4	Logs to cover the pit	"	8	2	16	
5	Nails assorted	kg	1½	9	13.50	
6	Thatching grass	-	-	-	10.00	
7	Termite proof paint	-	-	-	7.00	
8	Wattle	Bundle	1	25	25.00	
9	Labour	-	-	-	50.00	
10	Unforeseen	-	-	-	20.00	
	<b>Total</b>				<b>219.50</b>	

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT - VIP LATRINES FOR SINGLE FAMILIES</b>						
<b>TITLE - BILL OF QUANTITIES AND COST ESTIMATES</b>						
<b>BILL NO S3</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>REMARK</b>
1	Excavation	m <sup>3</sup>	5.3	10	53	
2	Cement for lining the hole, Backfilling, building of walls	Bag	10	23	230	
3	Aggregate (Sand & Grand)	m <sup>3</sup>	0.75	100	75	
4	Concrete block for walls and lining	Each	200	1.75	350	
5	PVC 200mm vent pipe, black with fly proof	Each	1	150	150	
6	Seat and cover	"	3	50	50	
7	GI roofing	"	1	50	150	
8	Metallic door	"	1	250	250	
9	Aluminium mosquito net	m	3	30	30	
10	Nails assorted	kg	-	10	30	
11	Labour	-	1	-	150	
12	Binding	bundle	-	12	12	
13		-	-	-	150	
	<b>Total</b>				<b>1680</b>	

**ESRDF-RWSS PROJECT****SUB - PROJECT  
TITLE****- SPRING DEVELOPMENT - WITHOUT BOX  
- BILL OF QUANTITIES AND COST ESTIMATES****BILL NO W 1**

ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	REMARK
1	General Items					
1.1	Site Survey	L.S	-	1050.-	1050.-	
1.2	Mobilisation of man-power, equipment and material	L.S	-	2075.-	2075.-	
1.3	Construction of camp	L.S	-	2830.-	2830.-	
1.4	Demobilisation (85% of mobilisation)	L.S	-	1760.-	1760.-	
2	Earth Work					
2.1	Excavation of top vegetable soil	m <sup>2</sup>	70.00	6	420.-	
2.2	Excavation of soil from spring eye, retaining wall, pavement, steps foundation and drainage ditch around the spring	m <sup>3</sup>	24.00	13.-	312.-	
2.3	Gravel packing so as to conduct filtration	m <sup>3</sup>	19.00	146.-	2774.-	
2.4	Backfill with clay soil on top of the gravel	m <sup>3</sup>	10.00	10.-	100.-	
2.5	Backfill with selected material on top of the clay fill	m <sup>3</sup>	8.00	8.-	64.-	
3	Concrete work					
3.1	Lean concrete	m <sup>3</sup>	0.5	310.-	155.-	
3.2	Reinforced concrete C-20 for foundation of retaining wall and the slab	m <sup>3</sup>	1.00	450.-	450.-	

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT</b>		<b>- SPRING DEVELOPMENT-WITHOUT BOX</b>				
<b>TITLE</b>		<b>- BILL OF QUANTITIES AND COST ESTIMATES</b>				
<b>BILL NO W 1</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>RE-MARK</b>
3.3	Reinforcement bars	Kg	20.00	8.-	160.00	
3.4	Formwork for concrete works	m <sup>2</sup>	2.00	55.-	110.00	
4	Masonry Work					
4.1	Stone masonry retaining wall	m <sup>3</sup>	6.00	222.-	1332.00	
4.2	Stone masonry steps	m <sup>3</sup>	1.00	222.-	222.00	
4.3	Stone pitching	m <sup>2</sup>	50	28.00	1400.00	
5	Supply and install GS pipe drain 50mm	m	3.0	40.-	120.00	
6	Fence around the protected spring	m <sup>2</sup>	36.00	53.-	1908.-	
7	Preparation of as-built drawings and completion report	L.S	-	1717	1717	
	<b>Sub Total</b>				<b>18959.00</b>	
	<b>Contingencies 10%</b>				<b>1895.90</b>	
	<b>GRAND TOTAL</b>				<b>20854.90</b>	

**ESRDF-RWSS PROJECT**

**SUB - PROJECT - SPRING DEVELOPMENT - WITH BOX**  
**TITLE - BILL OF QUANTITIES AND COST ESTIMATES**  
**BILL NO W 2**

ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	RE-MARK
1	General Items					
1.1	Site Survey	L.S	-	1050.-	1050.-	
1.2	Mobilisation of man-power, equipment and material	L.S	-	2075.-	2075.-	
1.3	Construction of camp	L.S	-	2830.-	2830.-	
1.4	Demobilisation (85% of mobilisation)	L.S	-	1760.-	1760.-	
2	Earth Work					
2.1	Excavation of top vegetable soil	m <sup>2</sup>	70.00	6	420.-	
2.2	Excavation for spring box, retaining wall, pavement, and drainage ditch around the spring	m <sup>3</sup>	24.00	13.-	312.-	
2.3	Gravel packing so as to conduct filtration	m <sup>3</sup>	19.00	146.-	2774.-	
2.4	Backfill with clay soil on top of the gravel	m <sup>3</sup>	10.00	10.-	100.-	
2.5	Backfill with selected material on top of the clay fill	m <sup>3</sup>	8.00	8.-	64.-	
3	Concrete work					
3.1	Lean concrete	m <sup>3</sup>	0.05	310.-	155.-	
3.2	Reinforced concrete C-20 for bottom and top cover slab	m <sup>3</sup>	1.00	450.-	450.-	

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT</b>		<b>- SPRING DEVELOPMENT-WITH BOX</b>				
<b>TITLE</b>		<b>- BILL OF QUANTITIES AND COST ESTIMATES</b>				
<b>BILL NO W 2</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>RE-MARK</b>
3.3	Reinforcement bars	Kg	20.00	8.-	160.00	
3.4	Formwork for concrete works	m <sup>2</sup>	2.00	55.-	110.00	
4	Masonry Work					
4.1	Stone masonry retaining wall	m <sup>3</sup>	6.00	222.-	1332.00	
4.2	Stone pitching	m <sup>2</sup>	50	28.00	1400.00	
5	Pipe Work					
5.1	Supply and install GS pipe diameter 100mm for intake	m	2.0	95.-	190.00	
5.2	Supply and install GS pipe diameter 50mm for over flow and outlet	m	30.00	40.-	1200	
5.3	Fittings 15% of pipe costs	L.S	-	150.-	150	
6.0	Fence around the protected spring	m <sup>2</sup>	36.00	53.-	1908	
7	Preparation of as-built drawings and completion report	L.S	-	1717	1717	
	Sub Total				20157.00	
	Contingencies 10%				2015.70	
	<b>GRAND TOTAL</b>				<b>22172.700</b>	

## ESRDF-RWSS PROJECT

**SUB - PROJECT** - HAND DUG WELL WITH HAND PUMP  
**TITLE** - BILL OF QUANTITIES AND COST ESTIMATES  
**BILL NO W 3**

ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	REMARK
1	General Items					
1.1	Site survey	L.S		1050	1050.-	
1.2	Mobilisation of manpower, equipment and construction material	L.S		2075	2075.-	
1.3	Camp construction	L.S		2830	2830.-	
1.4	Demobilisation	L.S		1525	1525.-	
2	Earth Work					
2.1	Excavation of top vegetable soil	m <sup>3</sup>	300	6.-	1800.-	
2.2	Digging					
2.2.1	Digging in soft formation					
a	Up to 2 meters depth	m <sup>3</sup>	4.54	17.-	77.18	
b	Below 2 m up to 4 m depth	m <sup>3</sup>	4.54	25.-	113.50	
c	Below 4 meters depth	m <sup>3</sup>		50.-	680.50	
2.2.2	Digging in medium formation		13.61			
a	Up to 2 meters depth	m <sup>3</sup>		19.-	86.26	
b	Below 2 m up to 4 m depth	m <sup>3</sup>	4.54	36.-	163.44	
c	Below fill with filter	m <sup>3</sup>	4.54	145	1973.45	
2.3	Back fill with filter gravel between the outer periphery of the perforated concrete rings and the wall of the excavated hole		13.61			
		m <sup>3</sup>	15.42	167	905.14	



<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT</b>		<b>- HAND DUG WELL WITH HAND PUMP</b>				
<b>TITLE</b>		<b>- BILL OF QUANTITIES AND COST ESTIMATES</b>				
<b>BILL NO W 3</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>RE-MARK</b>
2.4	Ditto but with clay between the impervious concert ring and the wall of the excavated hole	m <sup>3</sup>	0.82	40.-	32.80	
2.5	Cart away excavated material	m <sup>3</sup>	15.64	15.-	234.60	
3	Concert work					
3.1	Concrete seal C-15 around the concrete ring and the wall of the excavated hole below the approve	m <sup>3</sup>	0.75	311.-	233.25	
3.2	Prefabricated reinforced concrete rings diameter 130/150 cm	PCs.	20.00	698.-	13960.-	
3.3	Transport and install the rings	PCs	20.00	211.-	4220.-	
3.4	Reinforced concrete C-20 for well head cover well approx. and drainage channel	m <sup>3</sup>	0.3	421.-	126.30	
3.5	Form work for the well cover slab and drainage channel	m <sup>2</sup>	14.3	55.-	786.50	
3.6	Reinforcement bars for cover slab and drainage channel	kg	17.8	8.-	142.40	
4	Fence around the well	m <sup>2</sup>	36.0	53.-	1908.-	
5	Supply and install hand pump	Set	1	8500.-	8500.-	
6	Preparation of as-built drawing and completion report	L.S	-	1145.-	1145.-	
	Sub Total				44568.32	
	Contingencies 10%				4456.83	
	<b>GRAND TOTAL</b>				<b>49025.15</b>	

**ESRDF-RWSS PROJECT****SUB - PROJECT****- SHALLOW BOREHOLE DRILLING****TITLE****- BILL OF QUANTITIES AND COST ESTIMATES****BILL NO W 4**

ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	REMARK
1	General Items					
1.1	Site surveying					
	- Conduct and report reconnaissance geological and hydrogeological surveying	L.S		1050	1050	
	- Conduct and report geophysical surveying	L.S		1920	1920	
1.2	Mobilisation of man power, drilling rig and construction material	L.S L.S		11500	11500	
1.3	Construction of camp facilities	L.S		2830	2830	
1.4	Demobilisation (85% of Mobilisation)	L.S		9775	9775	
1.5	Inter site mobilisation of the manpower and the rig (10% of mobilisation)	L.S				
	Drilling	M		1150	1150	
2	Site clearing and rigging up					
2.1	Drilling in soft formation	M		950	950	
2.2	Drilling in medium formation	M		260	5200	
2.3	Drilling in hard formation			302	6040	
2.4				513	10260	

## ESRDF-RWSS PROJECT

**SUB - PROJECT - SHALLOW BOREHOLE DRILLING**  
**TITLE - BILL OF QUANTITIES AND COST ESTIMATES**  
**BILL NO W 4**

ITEM NO.	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE	REMARK
3	Supply and Install Casings					
3.1	Steel surface casing $\phi$ 254mm	M	6	586	3516	
3.2	UPVC blind casing $\phi$ 100mm	M	50	200	10000	
3.3	UPVC screen casing $\phi$ 100mm	M	10	258	2580	
3.4	Observation G.S. pipe $\phi$ 19mm	M	60	18	1080	
4	Supply and pack selected and well rounded river gravel in the space between the outer surface of the screen and casing and the wall of the borehole	M <sup>3</sup>	5	172	860	
5	Clean and develop the borehole	hrs	10	223	2230	
6	Conduct pump testing	hrs	24	160	3840	
7	Conduct chemical analysis	L.S		286	286	
8	Bacteriological analysis	L.S		286	286	
9	Grout with cement-sand to a depth of 5m and construct well head.	L.S		1145	1145	
10	Supply and install hand pump	Set		7870	7870	
11	Preparation of as-built drawing and completion report	L.S		1717	1717	
12	Fencing with barbed wire	M <sup>2</sup>	40	53	2120	
	Sub-Total				88205	
	Contingencies 10%				8820	
	GRAND TOTAL				97025	

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT</b>		<b>- DEEP BOREHOLE DRILLING</b>				
<b>TITLE</b>		<b>- BILL OF QUANTITIES AND COST ESTIMATES</b>				
<b>BILL NO W 5</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>RE-MARK</b>
1	General Items					
1.1	Site Surveying					
	- Conduct and report reconnaissance geological and hydrogeological surveying	L.S		1050	1050*	* to be done separately other than the contractor
	- Conduct and report geophysical surveying	L.S		1920	1920*	
1.2	Mobilisation of manpower, driving rig and construction material	L.S		11500	11500	
1.3	Construction of camp facilities	L.S		2830	2830	
1.4	Demobilisation (85% of mobilisation)	L.S		9775	9775	
1.5	Inter site mobilisation of the manpower and the rig (10% of mobilisation)	L.S		1150	1150	
2	Drilling					
2.1	Site clearing and rigging up	L.S		950	950	
2.2	Drilling in soft formation	m		260	5200	
2.3	Drilling in medium formation	m		302	12080	
2.4	Drilling in hard formation	m		513	15390	
3	Supply and install casing					
3.1	Steel surface casing $\phi$ 254 mm	m	6	586	3516	
3.2	UPVC blind casing $\phi$ 152mm	m	70	200	14000	
3.3	UPVC screen casing $\phi$ 152mm	m	20	258	5160	
3.4	Observation G.S. Pipe $\phi$ 19mm	m	90	18	1620	

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT</b>		<b>- DEEP BOREHOLE DRILLING</b>				
<b>TITLE</b>		<b>- BILL OF QUANTITIES AND COST ESTIMATES</b>				
<b>BILL NO W 5</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>RE-MARK</b>
4	Supply and pack selected and rounded river gravel in the space between the outer surface of the screen and casing and the wall of the borehole.	M <sup>3</sup>	5	172	860	
5	Clean and develop the borehole	hrs	10	223	2230	
6	Conduct pump testing	hrs	24	165	3960	
7	Conduct chemical analysis	L.S		286	286	
8	Conduct Bacteriological analysis	L.S		286	286	
9	Grout with cement - sand to a depth of 5 m and construct well head.	L.S		1145	1145	
10	Supply and install submersible pump, generator, riser pipes and all accessories	Set	1	160000	16000	
11	Construction of generator house with corrugated iron sheet wall and roof	Nos.	1	31000	31000	
12	Preparation of as-built drawing and completion report.	L.S		1717	1717	
13	Supply and install masonry storage tank of 25m <sup>3</sup>	Nos	1	44000	44000	
14	Supply and install public fountain including all pip works	No	4	12650	50600	
15	Supply and install 80 mm GS transmission pipe from the well to the reservoir and public fountain (1000m) including excavation laying backfilling and fittings	m	81	1000	81000	
16	Fencing with barbed wire	m <sup>2</sup>	40	53	2120	
	Sub Total				465345	
	Contingencies 10%				46534.50	

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ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	RE-MARK
	GRAND TOTAL				511879.50	

<b>ESRDF-RWSS PROJECT</b> <b>SUB - PROJECT - SPRING DEVELOPMENT - GRAVITY LINE</b> <b>TITLE - BILL OF QUANTITIES AND COST ESTIMATES</b> <b>BILL NO W 6</b>						
ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	REMARK
1	General Items					
1.1	Site Survey	L.S	-	1050.-	1050.-	
1.2	Mobilisation of man-power, equipment and material	L.S	-	2075.-	2075.-	
1.3	Construction of camp	L.S	-	2830.-	2830.-	
1.4	Demobilisation (85% of mobilisation)	L.S	-	1760.-	1760.-	
2	Earth Work					
2.1	Excavation of top vegetable soil	m <sup>2</sup>	70.00	6	420.-	
2.2	Excavation for spring box, retaining wall, pavement, and drainage ditch around the spring	m <sup>3</sup>	24.00	13.-	312.-	
2.3	Gravel packing so as to conduct filtration	m <sup>3</sup>	19.00	146.-	2774.-	
2.4	Backfill with clay soil on top of the gravel	m <sup>3</sup>	10.00	10.-	100.-	
2.5	Backfill with selected material on top of the clay fill	m <sup>3</sup>	8.00	8.-	64.-	
3	Concrete work					
3.1	Lean concrete	m <sup>3</sup>	0.05	310.-	155.-	
3.2	Reinforced concrete C-20 for bottom and top cover slab	m <sup>3</sup>	1.00	450.-	450.-	

<b>ESRDF-RWSS PROJECT</b>						
<b>SUB - PROJECT</b>		<b>- SPRING DEVELOPMENT-GRAVITY LINE</b>				
<b>TITLE</b>		<b>- BILL OF QUANTITIES AND COST ESTIMATES</b>				
<b>BILL NO W 6</b>						
<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY.</b>	<b>UNIT PRICE</b>	<b>TOTAL PRICE</b>	<b>REMARK</b>
3.3	Reinforcement bars	Kg	20.00	8.-	160.00	
3.4	Formwork for concrete works	m <sup>2</sup>	2.00	55.-	110.00	
4	Masonry Work					
4.1	Stone masonry retaining wall	m <sup>3</sup>	6.00	222.-	1332.00	
4.2	Stone pitching	m <sup>2</sup>	50	28.00	1400.00	
5	Pipe Work					
5.1	Supply and install GS pipe diameter 100mm for intake	m	2.0	95.-	190.00	
5.2	Supply and install GS pipe diameter 50mm for over flow and outlet	m	30.00	40.-	1200	
5.3	Supply and install 80mm GS gravity pipe from the spring up to the public fountains (1000m long) including excavation laying and back filling.	m	1000	70.-	81000	
5.4	Supply and install public fountain including all pipe works	No	4	12650	50600	
		L.S	-	11290	11290	
5.5	Fittings 15% of pipe costs					
6.0	Fence around the protected spring and 4 public fountains with barbed wire	m <sup>2</sup>	100	53.-	5300	
7	Preparation of as-built drawings and completion report	L.S	-	1717	1717	
	Sub Total				166,289	
	Contingencies 10%				16628.9	
	<b>GRAND TOTAL</b>				<b>182917.9</b>	