

#### Appendix-4 Minutes of Discussions and Technical Notes

1. Minutes of Discussions on the Basic Design Study on the Project for Rural Water Supply in Central Uganda, the Republic of Uganda dated February 20, 2003
2. Technical Notes on the Basic Design Study on the Project for Rural Water Supply in Central Uganda, the Republic of Uganda dated March 19, 2003
3. Minutes of Discussions on the Basic Design Study on the Project for Rural Water Supply in Central Uganda, the Republic of Uganda dated August 8, 2003

**MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR  
RURAL WATER SUPPLY IN CENTRAL UGANDA  
IN THE REPUBLIC OF UGANDA**


In response to the request from the Government of the Republic of Uganda (hereinafter referred to as "Uganda"), the Government of Japan has decided to conduct a basic design study on the Project for Rural Water Supply in Central Uganda (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").


JICA sent to Uganda the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Shinichi Matsuzaki, Deputy Resident Representative, Kenya Office, JICA, and is scheduled to stay in the country from February 13 to March 20, 2003.

The Team held discussions with the concerned officials of the Government of Uganda, and conducted a field survey at the project site.

In the course of the discussions and field survey, both parties have confirmed the main items of the Project as described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Kampala, 20 February 2003

  
Mr. Shinichi Matsuzaki  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency  
Japan

  
Eng. Bezael K. Kabanda  
Permanent Secretary  
Ministry of Water, Lands and Environment  
Republic of Uganda

**ATTACHMENT**

**1. Objective**

The objective of the Project is to improve the health and living standard of the people who live in Masaka, Mukono and Kayunga Districts by providing potable water through the procurement of equipment and construction of water supply facilities.

**2. Project Sites**

The Project sites requested by the Ugandan side are located in Masaka, Mukono and Kayunga Districts as shown in annex-1.

**3. Responsible and Implementing Agencies**

The responsible and implementing organization of the Project is the Directorate of Water Development (DWD), Ministry of Water, Lands and Environment (MoWLE). The organization chart is shown in annex-2.

**4. Items Requested by the Government of Uganda**

After a series of discussions with the Team, the Ugandan side requested the items shown in annex-3, which were different from the original ones. The new list was considered based on the actual situation of related works and strengthening of community enlightenment activity. The Japanese side explained that in Japan's Grant Aid, equipment and materials that are for general use and able to be procured locally would be prioritized lower.

Both sides confirmed that the appropriateness of the request shall be assessed according to the further studies and analysis in Japan and the final components of the Project shall be decided after the assessment.

**5. Japan's Grant Aid System**

- (1) The Ugandan side has understood Japan's Grant Aid system explained by the Team as described in annex-4.
- (2) The Ugandan side will take necessary measures, as described in table 4.1 in annex-4, for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

**6. Schedule of the Study**

- (1) The consultants of the Team will proceed to carry out further studies such as interviews/surveys on





socio-economy, hydrogeological investigation, water quality examination, management condition of the existing machinery and equipment and so on, in Uganda until March 20, 2003.

(2) Based on the Minutes of Discussions and technical examination of the study results, JICA will prepare a draft report in English and dispatch a mission to Uganda in order to explain its contents around May 2003.

(3) If the contents of the draft report are accepted in principle by the Ugandan side, JICA will complete the final report and send it to the Ugandan side around August 2003.

## 7. Other Relevant Issues

The following issues were discussed and confirmed by both sides.

### (1) Coordination with the water and sanitation sector policy of Uganda

The Ugandan side and the Japanese side confirmed that the Project would contribute towards enhancing quality of life of the poor, which is stated in the "Poverty Eradication Action Plan".

As for coordination with the water and sanitation sector policy, both sides agreed that the following issues were to be considered in implementation of the Project.

--- the estimated Project cost considering "value for money" should be reported to the Ugandan side from the Japanese side as soon as possible so that the cost should be reflected in the Medium Term Expenditure Framework.

--- the Project should adopt the "critical requirements" stated in the "Rural water and sanitation Operation Plan: 2002-2007 (OP5)" to a possible extent. Concerning the requirements No.1 to 6 excluding No.4, targets for each requirement would be set according to the result of this study, and facilitation would be conducted in the implementation stage. As for the requirement No.4, both sides agreed that in view of sustainability, to set up a water users committee and collect water fee up to the amount, which would be defined in accordance with the result of this study, are conditions for commencement of construction. If a community cannot fulfill the conditions, it is excluded from the Project sites. Both sides agreed that the necessary procedures towards critical requirements shall be confirmed around May 2003 when the mission for explanation of the draft report comes to Uganda.

--- the Project shall adopt design criteria, guidelines and method of monitoring stated in OP5 as much as possible.

### (2) Proposed Components of the Project

The Ugandan side requested, as one of the components of the Grant Aid, consultancy services ("soft component") for assistance in community enlightenment and education in order to ensure the sustainability of the Project.

After discussions, both sides agreed that the Project would be composed of the following:

- Construction of the maximum number of 150 water supply facilities
- Procurement of equipment and materials
- Assistance for implementation of community enlightenment and education ("Soft Component")

However, the final components of the Project shall be determined according to the result of further studies and analysis in Japan and further discussions between the Ugandan side and the Japanese side.

### (3) Operation and maintenance of facilities

The water supply facilities requested by the Ugandan side shall be properly operated and maintained by the respective villages with support from the sub-counties, districts and DWD.

The Ugandan side promised to facilitate the district administrations to arrange adequate personnel and budget for supporting villages to ensure sustainability of the water supply facilities.

Both sides agreed to confirm the roles of each concerned body and necessary measures to be taken for proper operation and maintenance of the water supply facilities around May 2003 when the mission for explanation of the draft report comes to Uganda together with the district water officers and related personnel.

### (4) Equipment and materials requested for procurement

Both sides agreed that the necessity of the equipment and materials requested by the Ugandan side as stated in annex-3 shall be examined from the view point of purpose of use, future project plan, technical and budgetary availability for operation and maintenance, conditions of the existing equipment, etc. The type, quantity and specification of these equipment and materials shall be determined based on the minimum requirement and the easiest operational level.

The equipment and materials to be procured under the Project shall be properly operated and maintained by the Ugandan side.

### (5) Budget allocation

The Ugandan side ensured to allocate the necessary budget for implementation of the Project.

Both sides agreed that the estimated cost to be covered by the Ugandan side and progress of the budget allocation by the Ugandan side should be confirmed around May 2003 when the mission for explanation of the draft report comes.

### (6) Screening of villages for construction of water supply facilities

The list of the candidate sites for construction of water supply facilities is shown in annex-5. The Ugandan side explained since every village needs water, the list has no priority among the villages. Both sides agreed that the sites are to be examined in terms of socio-economic aspect, ease of construction and hydrogeological conditions. Actual sites will be selected from the list, applying the criteria below;

- demographic condition
- existing water facilities
- accessibility
- hydrogeological conditions
- water quality (applying Ugandan guidelines)
- capacity for operation and maintenance of the facilities at community level

- (7) Type of water supply facilities

(8) Unsuccessful borehole and alternative drilling.

(9) Other Responsibilities of the Ugandan side

The Ugandan side agreed to be responsible for mobilizing villagers for timely construction of access roads, fences around the completed apron and the drainage pit.



PROJECT LOCATION MAP



En



ORGANIZATION OF DIRECTORATE OF WATER DEVELOPMENT (DWD)

## REQUESTED PROJECT

1. Construction of 150 boreholes with hand pump in Masaka, Kayunga and Mukono districts.
2. Provision of the following equipment and materials.

No.	Items	Quantity
<b>1. Survey Equipment</b>		
1.1	High resolution electrical resistivity meters for groundwater surveys and geologging	1 set
1.2	Portable water quality testing kits for Masaka, Kayunga and Mukono	3 sets
1.3	Water level meters/dipper for Masaka, Kayunga and Mukono	3 sets
1.4	4-wheel drive field vehicles - pick up with capacity 2,800 cc for use by the headquarters for supervision	2 nos.
<b>2. Equipment and Materials for Enlightenment and Education</b>		
2.1	Laptop computers with CD rewritable ROMs and internet ready	1 set
2.2	GPS for Masaka, Kayunga and Mukono	3 sets
2.3	Portable color printers for laptop computers and accessories	1 no.
2.4	Visual and audio equipment, some tools and out models of cylinder, hand pump units are mounted on vehicles for DWD staff to educate communities for operation and maintenance	1 set
2.5	Computer compatible 5-video and slide projector to be used as visual aids in seminars and workshops for the communities	1 set
2.6	Digital video camera	1 set
2.7	Digital still camera	1 no.
2.8	Motorbike for Mukono, Kayunga and Masaka	3 nos.
2.9	Bicycles for HPs and Community Development Officers in Mukono, Kayunga and Masaka	1 lot
2.10	Repair tools of hand pump for HPs in Mukono, Kayunga and Masaka	1 lot

3. Software assistance in capacity building of DWD, extension workers and community in order to enable the users to operate and manage the water supply facilities to be constructed under the project.

## JAPAN'S GRANT AID

## 1 Japan's Grant Aid Scheme

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

## (1) Grant Aid Procedures

Japan's Grant Aid Program is executed through the following procedures:

- |                                   |  |
|-----------------------------------|--|
| • Application                     | (Request made by a recipient country)  |
| • Study                           | (Basic Design Study conducted by JICA)   |
| • Appraisal & Approval            | (Appraisal by the Government of Japan and Approval by Cabinet)                   |
| • Determination of Implementation | (The Notes exchanged between the Governments of Japan and the recipient country) |

Firstly, the application or a request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for the Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the smooth implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

## (2) Basic Design Study

## i) Contents of the Study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- i) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- ii) Evaluation of the appropriateness of the Project to be implemented under the Grant

- Aid Scheme from a technical, social and economic point of view.
- iii) Confirmation of items agreed upon by both parties concerning the basic concept of the Project.
- iv) Preparation of a Basic Design of the Project.
- v) Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

## 2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

## (3) Japan's Grant Aid Scheme

## 1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

- 2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consulting firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

- 3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

#### 4) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. These contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

#### 5) Undertakings required to the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- i) To ensure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- ii) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- iii) To secure buildings prior to the procurement in case the installation of the equipment.
- iv) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- v) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- vi) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

#### 6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

#### 7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

#### 8) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the

obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (ATP) issued by the Government of the recipient country or its designated authority.

#### 9) Authorization to Pay (ATP)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

#### 2 Grant Aid Procedure

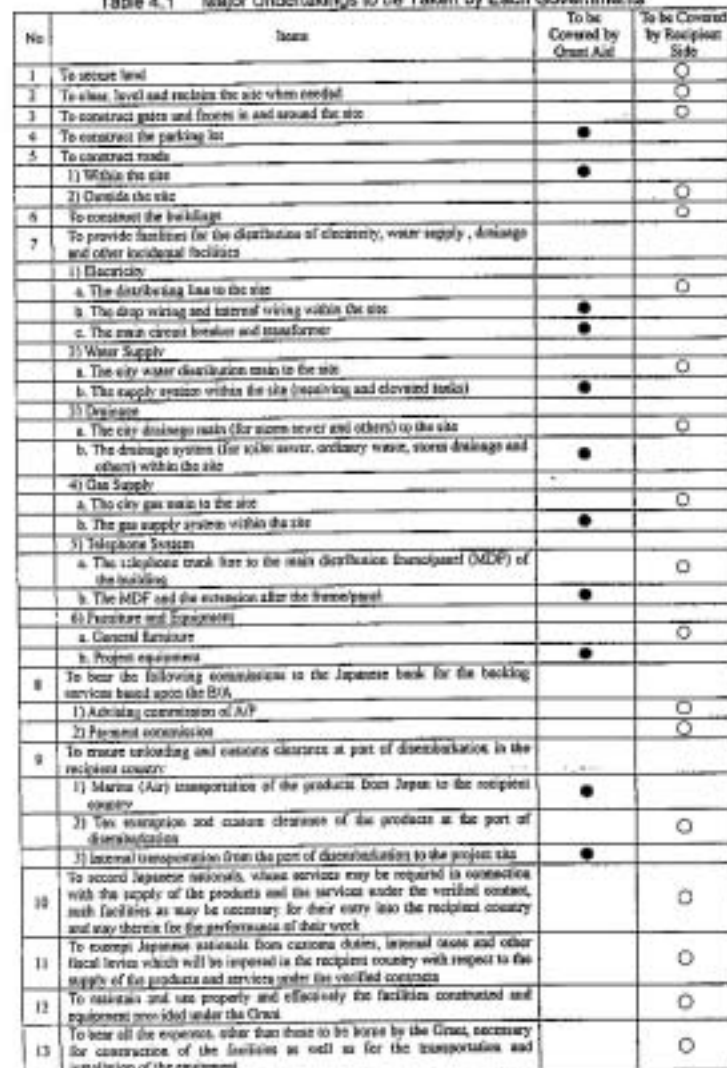
- (1) Flowchart of Japan's Grant Aid Procedures

Refer to Fig. 4.1.

- (2) Major Undertaking to be taken by Each Government

Refer to Table 4.1.

Table 4.1 Major Undertakings to be Taken by Each Government



AIP: Authorization to Print

**List of the Candidate Villages for Beehive Construction**  
**MATACZ.David**

Country/ Region	Origin City	Name of Village	District	Sub-District	Population	Religion	Notes	Other notes
Mal-1	1	Koromali	Koromali	Koromali	400	2	2nd	
Mal-2	2	Koromali	Koromali	Koromali	700	2	2nd	
Mal-3	3	Koromali PG	Koromali	Koromali	500	1	2nd	
Mal-4	4	Koromali	Koromali	Koromali	400	2	2nd	
Mal-5	5	Koromali	Koromali	Koromali	1000	2	2nd	
Mal-6	6	Koromali	Koromali	Koromali	400	1	2nd	
Mal-7	7	Koromali	Koromali	Koromali	200	1	2nd	
Mal-8	8	Koromali	Koromali	Koromali	400	1	2nd	
Mal-9	9	Koromali &	Koromali	Koromali	400	1	2nd	
Mal-10	10	Koromali	Koromali	Koromali	700	2	2nd	
Mal-11	11	Koromali	Koromali	Koromali	400	1	2nd	
Mal-12	12	Koromali	Koromali	Koromali	400	1	2nd	
Mal-13	13	Koromali	Koromali	Koromali	1000	2	2nd	
Mal-14	14	Koromali PG	Koromali	Koromali	1000	2	2nd	
Mal-15	15	Koromali	Koromali	Koromali	400	1	2nd	
Mal-16	16	Koromali	Koromali	Koromali	500	1	2nd	
Mal-17	17	Koromali PG	Koromali	Koromali	100	1	2nd	
Mal-18	18	Koromali	Koromali	Koromali	700	2	2nd	
Mal-19	19	Koromali PG	Koromali	Koromali	500	1	2nd	
Mal-20	20	Koromali	Koromali	Koromali	400	1	2nd	
Mal-21	21	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-22	22	Koromali	Koromali	Koromali	700	2	2nd	
Mal-23	23	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-24	24	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-25	25	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-26	26	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-27	27	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-28	28	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-29	29	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-30	30	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-31	31	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-32	32	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-33	33	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-34	34	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-35	35	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-36	36	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-37	37	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-38	38	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-39	39	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-40	40	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-41	41	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-42	42	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-43	43	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-44	44	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-45	45	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-46	46	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-47	47	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-48	48	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-49	49	Koromali PG	Koromali	Koromali	400	1	2nd	
Mal-50	50	Koromali PG	Koromali	Koromali	400	1	2nd	

the self-released village.

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General Market	Original Market	Name of Village	Owner	Sub-Owner	Population	Household units	Access	Water supply
	8	Bohange ABC	Bahamand	Bohange	235	1	1	10000 ft
	9	Bohange B	Bahamand	Bohange	240	1	1	10000 ft
	10	Bohange	Bahamand	Bohange	191	2	1	10000 ft
	21	Bohange C	Bahamand	Bohange	490	3	1	10000 ft
	24	Bohange D	Bahamand	Bohange	508	1	1	10000 ft
	25	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	26	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	27	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	28	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	29	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	30	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	31	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	32	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	33	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	34	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	35	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	36	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	37	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	38	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	39	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	40	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	41	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	42	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	43	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	44	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	45	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	46	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	47	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	48	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	49	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	50	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	51	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	52	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	53	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	54	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	55	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	56	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	57	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	58	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	59	Bohange	Bahamand	Bohange	508	1	1	10000 ft
	60	Bohange	Bahamand	Bohange	508	1	1	10000 ft

**Use of controlled reflect**

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## BULINDI District

Community No.	Original No.	Name of Village	Country	Sub-county	Population	Primary well number	Access	Water point
Mb-1	22	Kilima	Tanzania	Bulindi				
Mb-2	1	Makimani	Tanzania	Bulindi				
Mb-3	4	Katibani	Tanzania	Kamali				
Mb-4	23	Lupata Kibini	Tanzania	Kamali				
Mb-5	29	Lubali	Tanzania	Haji				
Mb-6	18	Makutu	Tanzania	Haji				
Mb-7	11	Mwani	Tanzania	Nyagathi				
Mb-8	24	Katibani	Tanzania	Nyagathi				
Mb-9	14	Budavilla	Tanzania	Nyagathi				
Mb-10	30	Sukia	Tanzania	Nyagathi				
Mb-11	26	Makimani	Tanzania	Nyagathi				
Mb-12	37	Kibini	Tanzania	Nyagathi				
Mb-13	17	Tangale I	Tanzania	Nyagathi				
Mb-14	19	Qari	Tanzania	Idi				
Mb-15	34	Kibini F.I.	Tanzania	Idi				
Mb-16	28	Makutu	Tanzania	Watu				
Mb-17	32	Diani Makutu A	Tanzania	Watu				
Mb-18	30	S.C. Hara Makutu B	Tanzania	Watu				
Mb-19	2	Katibani	Tanzania	Qara				
Mb-20	38	Makutu	Tanzania	Qara				
Mb-21	44	Makutu	Tanzania	Qara				
Mb-22	43	Makutu	Tanzania	Qara				
Mb-23	47	Katibani	Tanzania	Qara				
Mb-24	6	Katibani	Tanzania	Kibini				
Mb-25	46	Katibani	Tanzania	Kibini				
Mb-26	48	Katibani	Tanzania	Kibini				
Mb-27	39	Katibani	Tanzania	Kibini				
Mb-28	12	Makutu	Tanzania	Kibini				
Mb-29	13	Makutu	Tanzania	Kibini				
Mb-30	51	Katibani	Tanzania	Kibini				
Mb-31	36	Katibani	Tanzania	Kibini				
Mb-32	19	Katibani	Tanzania	Kibini				
Mb-33	34	Katibani	Tanzania	Kibini				
Mb-34	38	Katibani	Tanzania	Kibini				
Mb-35	3	Katibani	Tanzania	Kibini				
Mb-36	5	Katibani	Tanzania	Kibini				
Mb-37	42	Katibani	Tanzania	Kibini				
Mb-38	40	Katibani	Tanzania	Kibini				
Mb-39	7	Katibani	Tanzania	Kibini				
Mb-40	17	Katibani	Tanzania	Kibini				
Mb-41	8	Katibani	Tanzania	Kibini				
Mb-42	41	Katibani	Tanzania	Kibini				
Mb-43	35	Katibani	Tanzania	Kibini				
Mb-44	31	Katibani	Tanzania	Kibini				
Mb-45	33	Katibani	Tanzania	Kibini				
Mb-46	18	Katibani	Tanzania	Kibini				

No. of selected villages

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Community No.	Original No.	Name of Village	Country	Sub-county	Population	Primary well number	Access	Water point
	21	Katibani	Tanzania	Bulindi	2200	0		2 F-Sp
	39	Katibani	Tanzania	Bulindi				1 F-Sp
	41	Katibani	Tanzania	Bulindi				1 F-Sp
	42	Katibani	Tanzania	Bulindi				1 F-Sp
	43	Katibani	Tanzania	Bulindi				1 F-Sp
	44	Katibani	Tanzania	Bulindi				1 F-Sp
	45	Katibani	Tanzania	Bulindi				1 F-Sp
	46	Katibani	Tanzania	Bulindi				1 F-Sp
	47	Katibani	Tanzania	Bulindi				1 F-Sp
	48	Katibani	Tanzania	Bulindi				1 F-Sp
	49	Katibani	Tanzania	Bulindi				1 F-Sp
	50	Katibani	Tanzania	Bulindi				1 F-Sp
	51	Katibani	Tanzania	Bulindi				1 F-Sp
	52	Katibani	Tanzania	Bulindi				1 F-Sp
	53	Katibani	Tanzania	Bulindi				1 F-Sp
	54	Katibani	Tanzania	Bulindi				1 F-Sp
	55	Katibani	Tanzania	Bulindi				1 F-Sp
	56	Katibani	Tanzania	Bulindi				1 F-Sp
	57	Katibani	Tanzania	Bulindi				1 F-Sp
	58	Katibani	Tanzania	Bulindi				1 F-Sp
	59	Katibani	Tanzania	Bulindi				1 F-Sp
	60	Katibani	Tanzania	Bulindi				1 F-Sp
	61	Katibani	Tanzania	Bulindi				1 F-Sp
	62	Katibani	Tanzania	Bulindi				1 F-Sp
	63	Katibani	Tanzania	Bulindi				1 F-Sp
	64	Katibani	Tanzania	Bulindi				1 F-Sp
	65	Katibani	Tanzania	Bulindi				1 F-Sp
	66	Katibani	Tanzania	Bulindi				1 F-Sp
	67	Katibani	Tanzania	Bulindi				1 F-Sp
	68	Katibani	Tanzania	Bulindi				1 F-Sp
	69	Katibani	Tanzania	Bulindi				1 F-Sp
	70	Katibani	Tanzania	Bulindi				1 F-Sp
	71	Katibani	Tanzania	Bulindi				1 F-Sp
	72	Katibani	Tanzania	Bulindi				1 F-Sp
	73	Katibani	Tanzania	Bulindi				1 F-Sp
	74	Katibani	Tanzania	Bulindi				1 F-Sp
	75	Katibani	Tanzania	Bulindi				1 F-Sp
	76	Katibani	Tanzania	Bulindi				1 F-Sp
	77	Katibani	Tanzania	Bulindi				1 F-Sp
	78	Katibani	Tanzania	Bulindi				1 F-Sp
	79	Katibani	Tanzania	Bulindi				1 F-Sp
	80	Katibani	Tanzania	Bulindi				1 F-Sp
	81	Katibani	Tanzania	Bulindi				1 F-Sp
	82	Katibani	Tanzania	Bulindi				1 F-Sp
	83	Katibani	Tanzania	Bulindi				1 F-Sp
	84	Katibani	Tanzania	Bulindi				1 F-Sp
	85	Katibani	Tanzania	Bulindi				1 F-Sp
	86	Katibani	Tanzania	Bulindi				1 F-Sp
	87	Katibani	Tanzania	Bulindi				1 F-Sp
	88	Katibani	Tanzania	Bulindi				1 F-Sp
	89	Katibani	Tanzania	Bulindi				1 F-Sp
	90	Katibani	Tanzania	Bulindi				1 F-Sp
	91	Katibani	Tanzania	Bulindi				1 F-Sp
	92	Katibani	Tanzania	Bulindi				1 F-Sp
	93	Katibani	Tanzania	Bulindi				1 F-Sp
	94	Katibani	Tanzania	Bulindi				1 F-Sp
	95	Katibani	Tanzania	Bulindi				1 F-Sp
	96	Katibani	Tanzania	Bulindi				1 F-Sp
	97	Katibani	Tanzania	Bulindi				1 F-Sp
	98	Katibani	Tanzania	Bulindi				1 F-Sp
	99	Katibani	Tanzania	Bulindi				1 F-Sp
	100	Katibani	Tanzania	Bulindi				1 F-Sp

No. of excluded villages

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## KAYINGA District

Community No.	Original No.	Name of Village	COUNTRY	SUB-COUNTY	Population	Primary well number	Access	Water point
Ky-1	47	Katibani	Tanzania	Bulindi	847	2		
Ky-2	48	Katibani	Tanzania	Bulindi	847	2		
Ky-3	49	Katibani	Tanzania	Bulindi	847	2		
Ky-4	50	Katibani	Tanzania	Bulindi	847	2		
Ky-5	51	Katibani	Tanzania	Bulindi	847	2		
Ky-6	52	Katibani	Tanzania	Bulindi	847	2		
Ky-7	53	Katibani	Tanzania	Bulindi	847	2		
Ky-8	54	Katibani	Tanzania	Bulindi	847	2		
Ky-9	55	Katibani	Tanzania	Bulindi	847	2		
Ky-10	56	Katibani	Tanzania	Bulindi	847	2		
Ky-11	57	Katibani	Tanzania	Bulindi	847	2		
Ky-12	58	Katibani	Tanzania	Bulindi	847	2		
Ky-13	59	Katibani	Tanzania	Bulindi	847	2		
Ky-14	60	Katibani	Tanzania	Bulindi	847	2		
Ky-15	61	Katibani	Tanzania	Bulindi	847	2		
Ky-16	62	Katibani	Tanzania	Bulindi	847	2		
Ky-17	63	Katibani	Tanzania	Bulindi	847	2		
Ky-18	64	Katibani	Tanzania	Bulindi	847	2		
Ky-19	65	Katibani	Tanzania	Bulindi	847	2		
Ky-20	66	Katibani	Tanzania	Bulindi	847	2		
Ky-21	67	Katibani	Tanzania	Bulindi	847	2		
Ky-22	68	Katibani	Tanzania	Bulindi	847	2		
Ky-23	69	Katibani	Tanzania	Bulindi	847	2		
Ky-24	70	Katibani	Tanzania	Bulindi	847	2		
Ky-25	71	Katibani	Tanzania	Bulindi	847	2		
Ky-26	72	Katibani	Tanzania	Bulindi	847	2		
Ky-27	73	Katibani	Tanzania	Bulindi	847	2		
Ky-28	74	Katibani	Tanzania	Bulindi	847	2		
Ky-29	75	Katibani	Tanzania	Bulindi	847	2		
Ky-30	76	Katibani	Tanzania	Bulindi	847	2		
Ky-31	77	Katibani	Tanzania	Bulindi	847	2		
Ky-32	78	Katibani	Tanzania	Bulindi	847	2		
Ky-33	79	Katibani	Tanzania	Bulindi	847	2		
Ky-34	80	Katibani	Tanzania	Bulindi	847	2		
Ky-35	81	Katibani	Tanzania	Bulindi	847	2		
Ky-36	82	Katibani	Tanzania	Bulindi	847	2		
Ky-37	83	Katibani	Tanzania	Bulindi	847	2		
Ky-38	84	Katibani	Tanzania	Bulindi	847	2		
Ky-39	85	Katibani	Tanzania	Bulindi	847	2		
Ky-40	86	Katibani	Tanzania	Bulindi	847	2		
Ky-41	87	Katibani	Tanzania	Bulindi	847	2		
Ky-42	88	Katibani	Tanzania	Bulindi	847	2		
Ky-43	89	Katibani	Tanzania	Bulindi	847	2		
Ky-44	90	Katibani	Tanzania	Bulindi	847	2		
Ky-45	91	Katibani	Tanzania	Bulindi	847	2		
Ky-46	92	Katibani	Tanzania	Bulindi	847	2		
Ky-47	93	Katibani	Tanzania	Bulindi	847	2		
Ky-48	94	Katibani	Tanzania	Bulindi	847	2		
Ky-49	95	Katibani	Tanzania	Bulindi	847	2		
Ky-50	96	Katibani	Tanzania	Bulindi	847	2		
Ky-51	97	Katibani	Tanzania	Bulindi	847	2		
Ky-52	98	Katibani	Tanzania	Bulindi	847	2		
Ky-53	99	Katibani	Tanzania	Bulindi	847	2		
Ky-54	100	Katibani	Tanzania	Bulindi	847	2		

No. of selected villages

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*Enkaded Village								
Comm. No.	No.	Name of Village	COUNTRY	SUB-COUNTY	Population	Primary well number	Access	Water point
	49	Handu	Tanzania	Bulindi	279	1		SP
	50	Bunguini	Tanzania	Caluwa	441	2		SP
	51	Kalima	Tanzania	Caluwa	441	2		SP
	52	Nyoloni II	Tanzania	Karoma	1055	3		SP
	53	Kilisi	Tanzania	Karoma	789	2		SP
	54	Buriki	Tanzania	Kang'abwili	1171	4		2-1-SP
	55	Kang'abwili	Tanzania	Kang'abwili	608	3		2-1-SP
	56	Kang'abwili	Tanzania	Kang'abwili	720	2		2-1-SP
	57	Kang'abwili	Tanzania	Kang'abwili	800	3		SP


TECHNICAL NOTES  
ON  
THE BASIC DESIGN STUDY  
ON  
THE PROJECT FOR RURAL WATER SUPPLY  
IN  
CENTRAL UGANDA,  
THE REPUBLIC OF UGANDA

Based on the Minutes of Discussions (hereinafter referred to as "M/D") on the Basic Design Study on the Project for Rural Water Supply in Central Uganda (hereinafter referred to as "the Project") signed on February 20, 2003 between the Basic Design Study Team (hereinafter referred to as "the Team") of Japan International Cooperation Agency (hereinafter referred to as "JICA") and Directors of Water Development (hereinafter referred to as "DWD"), of the Government of the Republic of Uganda, the consultant members of the Team had a series of discussions and conducted field surveys from February 20 to March 19, 2003.

As a result of the discussions and the surveys, both sides confirmed the technical conditions described as per the attached.

Kampala, March 19, 2003

  
Naoki Matsuo  
Chief Consultant,  
JICA Basic Design Study Team for  
the Project for Rural Water Supply  
in Central Uganda

  
Eng. Magisha Shilling  
Assistant Commissioner,  
Directorate of Water Development,  
Ministry of Water, Lands and Environment,  
Government of the Republic of Uganda

ATTACHMENT

Both parties agreed upon and confirmed the following items.

1. Villages Requested for Construction of Boreholes with Hand Pump  
It is confirmed that the 150 villages listed in Table 1 are requested for the construction of boreholes with hand pump. The implementation of construction will be determined after examination as stipulated in M/D.
2. Equipment and Materials Requested  
It is confirmed that the equipment and materials listed in Table 2 are requested to be procured under the Project. The details and specifications of these equipment and materials are to be examined in the studies to be made in Japan as stipulated in M/D.
3. Numbers of Hand Pump Mechanics in Sub-counties  
Ugandan side agreed to confirm the available Hand Pump Mechanics (HPMs) in each sub-county and assign the proper specialists in case no HPM is available in the sub-county by the commencement of the project implementation.
4. Use of Procured Survey Equipment  
Both sides confirmed that the procured equipment will be used as follows:
  - High resolution electric resistivity meters and geo-logging equipment:  
There are four (4) hydrologists who can operate these geophysical survey equipment, and they can operate them by the instruction manuals attached to the equipment.
  - Portable water quality testing kits:  
Water quality testing kits will be attached to the District Water Offices, and will be used by the staff thereof for monitoring the water quality of the existing boreholes. The staff will be able to use these kits providing simple training by the laboratory staff of the Water Resources Management Department of DWD.
  - Water level meters/dippers  
The water level meters/dippers will be used for monitoring groundwater levels in the existing boreholes, and will be used by the staff of the District Water Offices.
5. Communication between Head Quarter of DWD and the District Water Offices  
The Ugandan side agreed to clearly inform the concerned district officers of the basic issues relating to the Project such as the agreed items of M/D, etc. in order to avoid misunderstanding by the district officers about the Project.
6. Water Quality of Existing Borehole in Mukono and Kayunga Districts  
The Ugandan side agreed to confirm the water quality data (especially Nitrate) of the existing boreholes in the Mukono and Kayunga Districts which the Team pointed out, and to inform the Team of the results as soon as possible. Re-analyses should be made for the new samples taken in some boreholes selected among those with doubtful data.





Table 1 LIST OF THE VILLAGES REQUESTED FOR BOREHOLE CONSTRUCTION

No.	Village	County	Sub-county	UTM		Altitude	Population	Source of Water	Access	Geology	Topo. Condition	Apparent Suitability
				E	N							
Ma 1	Bubaga B	Bukomambuli	Elgeyo	338794	995276	1229	896	A	B	B	B	A
Ma 2	Kwambiti	Bukomambuli	Kisumu	338931	995308	1230	796	A	B	B	C	A
Ma 3	Kigambiti PS	Bukomambuli	Elgeyo	335320	995434	1278	388	A	B	B	C	B
Ma 4	Kyambiti	Bukomambuli	Elgeyo	335139	995214	1243	646	A	B	B	B	B
Ma 5	Mijerwa	Bukomambuli	Elgeyo	342760	995439	1208	1050	A	B	B	B	C
Ma 6	Idhig PS	Bukomambuli	Elgeyo	348834	995128	1209	433	A	B	B	B	B
Ma 7	Kwala	Bukomambuli	Elgeyo	348253	995726	1306	388	A	B	B	C	A
Ma 8	Kipiti	Bukomambuli	Elgeyo	350240	995041	1296	450	A	B	B	B	B
Ma 9	Kyambiti A	Bukomambuli	Elgeyo	350136	995017	1276	450	A	B	B	B	C
Ma 10	Kigambiti	Bukomambuli	Elgeyo	348948	995033	1240	710	A	B	B	B	B
Ma 11	Kwambiti	Bukomambuli	Elgeyo	348531	995741	1215	640	A	B	B	B	B
Ma 12	Kwambiti	Bukomambuli	Elgeyo	343320	995634	1217	440	A	B	B	B	B
Ma 13	Kwambiti PS	Bukomambuli	Elgeyo	351658	995045	1247	1008	A	B	B	C	C
Ma 14	Kigambiti PS	Bukomambuli	Elgeyo	348820	995004	1248	1023	A	B	B	B	B
Ma 15	Kwambiti	Bukomambuli	Elgeyo	343558	995144	1230	490	A	B	B	B	B
Ma 16	Kyambiti	Bukomambuli	Elgeyo	334620	995233	1273	590	A	B	B	B	A
Ma 17	Kyambiti	Bukomambuli	Elgeyo	344820	995045	1274	320	A	B	B	B	A
Ma 18	Kwambiti	Bukomambuli	Elgeyo	339143	995189	1257	750	A	B	B	B	A
Ma 19	Kyambiti PS	Bukomambuli	Elgeyo	342031	995955	1285	940	A	B	B	B	B
Ma 20	Mijerwa	Bukomambuli	Elgeyo	341524	995854	1258	480	A	B	B	B	A
Ma 21	Kigambiti PS	Bukomambuli	Elgeyo	341348	995242	1258	780	A	B	B	B	C
Ma 22	Kwambiti	Bukomambuli	Elgeyo	341931	995058	1230	680	A	B	B	C	B
Ma 23	Kwambiti PS	Bukomambuli	Elgeyo	341203	995013	1234	427	A	B	B	A	C
Ma 24	Kyambiti PS	Bukomambuli	Elgeyo	335756	995157	1258	388	A	B	B	C	B
Ma 25	Kwambiti	Bukomambuli	Elgeyo	337033	995439	1258	388	A	B	B	A	B
Ma 26	Kwambiti	Bukomambuli	Elgeyo	341983	995159	1287	1483	A	B	B	B	B
Ma 27	Kyambiti	Bukomambuli	Elgeyo	334676	995183	1280	523	A	B	B	B	B
Ma 28	Kyambiti	Bukomambuli	Elgeyo	339642	995412	1248	820	A	B	B	B	C
Ma 29	Kwambiti	Bukomambuli	Elgeyo	341434	995278	1246	328	A	B	B	B	A
Ma 30	Kwambiti	Bukomambuli	Elgeyo	330132	995844	1270	780	A	B	B	B	A
Ma 31	Kwambiti	Bukomambuli	Elgeyo	340934	995243	1261	430	A	B	B	B	C
Ma 32	Kwambiti	Bukomambuli	Elgeyo	340234	995430	1270	430	A	B	B	B	C
Ma 33	Kwambiti	Bukomambuli	Elgeyo	338477	995230	1313	438	A	B	B	B	B
Ma 34	Kwambiti	Bukomambuli	Elgeyo	348148	995116	1228	778	A	B	B	B	C
Ma 35	Kwambiti	Bukomambuli	Elgeyo	338434	995644	1313	450	A	B	B	B	A
Ma 36	Kwambiti	Bukomambuli	Elgeyo	338701	995298	1340	728	A	B	B	C	A
Ma 37	Kwambiti	Bukomambuli	Elgeyo	337270	995742	1258	528	A	B	B	B	A
Ma 38	Kwambiti	Bukomambuli	Elgeyo	338468	995348	1318	548	A	B	B	B	C
Ma 39	Kwambiti	Bukomambuli	Elgeyo	332428	995278	1268	531	A	B	B	B	A
Ma 40	Kwambiti	Bukomambuli	Elgeyo	335081	995230	1268	390	A	B	B	B	C
Ma 41	Kwambiti	Bukomambuli	Elgeyo	332768	995130	1308	860	A	B	B	C	C
Ma 42	Kwambiti	Bukomambuli	Elgeyo	335428	995128	1298	460	A	B	B	B	A
Ma 43	Kwambiti	Bukomambuli	Elgeyo	338605	995368	1387	2400	A	B	B	A	B
Ma 44	Kwambiti	Bukomambuli	Elgeyo	338761	995244	1403	830	A	B	B	A	C
Ma 45	Kwambiti	Bukomambuli	Elgeyo	331335	995439	1312	965	A	B	B	A	C
Ma 46	Kwambiti	Bukomambuli	Elgeyo	332283	995298	1303	170	A	B	B	A	B
Ma 47	Kwambiti	Bukomambuli	Elgeyo	338628	995439	1384	400	A	B	B	B	A
Ma 48	Kwambiti	Bukomambuli	Elgeyo	338642	995230	1278	700	A	B	B	B	B
Ma 49	Kwambiti	Bukomambuli	Elgeyo	338776	995278	1381	134	A	B	B	B	B
Ma 50	Kwambiti	Bukomambuli	Elgeyo	337730	995830	1212	375	A	B	B	B	B
Ma 51	Kwambiti	Bukomambuli	Elgeyo	338628	995441	1318	430	A	B	B	B	B
Ma 52	Kwambiti	Bukomambuli	Elgeyo	337702	995352	1278	490	A	B	B	B	C
Ma 53	Kwambiti	Bukomambuli	Elgeyo	338580	995801	1348	328	A	B	B	B	A
Ma 54	Kwambiti	Bukomambuli	Elgeyo	337538	995430	1380	1880	A	B	B	B	A
Ma 55	Kwambiti	Bukomambuli	Elgeyo	338628	995439	1387	390	A	B	B	B	B

Table 1 LIST OF THE VILLAGES REQUESTED FOR BOREHOLE CONSTRUCTION

No.	Village	County	Sub-county	UTM		Altitude	Population	Source of Water	Access	Geology	Topo. Condition	Apparent Suitability
				E	N							
Ma 56	Kwambiti	Bukomambuli	Elgeyo	340734	995212	1252	480	A	B	B	B	C
Ma 57	Kwambiti	Bukomambuli	Elgeyo	340534	995048	1228	788	A	B	B	B	A
Ma 58	Kwambiti	Bukomambuli	Elgeyo	342187	995179	1288	230	A	B	B	C	B
Ma 59	Kwambiti	Bukomambuli	Elgeyo	341402	995812	1253	1388	A	B	B	A	B
Ma 60	Kwambiti	Bukomambuli	Elgeyo	340714	995431	1148	1120	A	B	B	A	B
Ma 61	Kwambiti	Bukomambuli	Elgeyo	338434	995240	1288	580	A	B	B	A	B
Ma 62	Kwambiti	Bukomambuli	Elgeyo	338002	995144	1283	940	A	B	B	A	B
Ma 63	Kwambiti	Bukomambuli	Elgeyo	340301	995812	1188	331	A	B	B	A	A

Ranking Criteria of Villages

Index	Rank for site selection		
	A	B	C
I. Source of water at present	No water facility	Building of shallow well	Existing of deep well
II. Accessibility to the selected village	Accessible through the year	Accessible with some repair	No access
III. Geologic condition	Sedimentary rocks and swamp deposits	Dolomite and Gneiss complex	Quartz complex
IV. Topographic condition	A village is located in a valley or at foot of mountain	A village is located at hillside	A village is located at hilltop
V. Risk of water availability during seasons of low water	No possibility	A little possibility	Possible

Table 1 LIST OF THE VILLAGES REQUESTED FOR BOREHOLE CONSTRUCTION

No.	Village	County	Sub-county	UDM		Altitude (m)	Population	Source of Water	Access	Geology	Topo. Condition	Apparent Suitability
				E	N							
Mu 1	Chama P/I	Bulawa	Bulawa	49080	001103	1,278	1,300	A	B	B	B	B
Mu 2	Makungu	Grange	Bulawa	49086	001103	1,322	1,300	A	B	B	B	B
Mu 3	Cambaru P/I	Bulawa	Grange	49087	001103	1,381	498	A	B	A	C	B
Mu 4	Lugala Kivuli	Bulawa	Grange	49290	001103	1,289	694	A	B	A	B	C
Mu 5	Lafala	Bulawa	Ngja	51285	001201	1,244	216	A	B	B	B	C
Mu 6	Makulu HC	Bulawa	Ngja	50935	001106	1,230	600	A	B	B	B	A
Mu 7	Boranga	Bulawa	Hajurini	50849	001106	1,321	820	A	B	A	B	B
Mu 8	Elabor P/I	Bulawa	Hajurini	50914	001203	1,480	1,250	A	B	A	B	C.B
Mu 9	Bakuruli	Bulawa	Hajurini	490300	002007	1,314	130	A	B	B	B	A
Mu 10	Bulawa P/I	Bulawa	Hajurini	50910	002009	1,312	338	A	A	B	C	C
Mu 11	Bakuruli	Bulawa	Hajurini	52118	001007	1,338	1,082	A	B	B	B	A
Mu 12	Kiburuli	Bulawa	Hajurini	50438	001013	1,180	480	A	B	B	B	A
Mu 13	Thangila P/I	Bulawa	Hajurini	50424	001014	1,178	790	A	B	B	B	A
Mu 14	Gala	Bulawa	SA	494158	001200	1,321	302	A	B	A	B	B
Mu 15	Kigunda Canal	Bulawa	SA	49088	001201	1,322	130	A	B	A	C	B
Mu 16	Makulu	Bulawa	Wakuli	51104	001102	1,180	1,288	C	A	A	A	A
Mu 17	Quila Wakulu A	Bulawa	Wakuli	51104	001102	1,180	700	A	A	A	B	B
Mu 18	Wakuli Market P/I	Bulawa	Wakuli	51238	001106	1,188	2,400	A	A	A	B	A
Mu 19	Kandara	Makuru	Dama	49033	001203	1,176	218	A	A	B	A	A
Mu 20	Makungu	Makuru	Dama	49098	001103	1,150	375	A	A	B	B	C
Mu 21	Makulu Lower P/I	Makuru	Dama	47040	001009	1,120		A	A	B	A	B
Mu 22	Ngja	Bulawa	Bulawa	50995	001103	1,250	1,000	C	A	B	B	C
Mu 23	Kigunda	Makulu	Hakula	49031	001003	1,080	1,390	C	B	B	B	C
Mu 24	Kandi (B)	Makuru	Kwenda	47041	001009	1,176	1,300	A	A	B	B	B
Mu 25	Kiburuli/Kwenda	Makuru	Kwenda	47043	001104	1,200	480	A	A	B	B	C
Mu 26	Kandara D	Makuru	Makungu	48010	002007	1,208	700	A	B	A	B	B
Mu 27	Kandara	Makuru	Makungu	48022	002008	1,217	386	A	A	A	B	B
Mu 28	Makulu	Makuru	Makungu	47015	002043	1,230	280	A	A	A	B	B
Mu 29	Makungu Sub. Sak	Makuru	Wakuli	49040	001109	1,240	820	A	B	A	B	B
Mu 30	Kigunda	Makuru	Makungu/Kigunda	47070	003004	1,360	1,200	A	B	A	B	A
Mu 31	Makungu	Makuru	Makungu/Kigunda	48046	001108	1,145	2,283	A	B	B	B	A
Mu 32	Ngja	Makuru	Makungu/Kigunda	47044	001109	1,220	720	A	B	B	B	C
Mu 33	Kandara	Makuru	Kwenda	47044	001203	1,180	1,400	A	B	B	B	A
Mu 34	Kigunda P/I	Makulu	Kwenda	48041	001204	1,120	1,000	A	B	B	B	A
Mu 35	Kandara	Makulu	Kwenda	48019	001403	1,182	1,300	A	B	B	A	C
Mu 36	Kwenda	Makulu	Kwenda/Kigunda	48007	001034	1,138	1,590	A	A	B	B	B
Mu 37	Kandara	Makulu	Kwenda/Kigunda	48010	001038	1,131	1,000	A	A	B	B	C
Mu 38	Kandara B	Makulu	Kwenda	47014	001032	1,142	810	A	A	B	B	A
Mu 39	Kandara	Makulu	Kwenda	47148	001111	1,130	1,000	A	B	B	A	C
Mu 40	Makulu	Makulu	Kwenda	47142	001000	1,160	1,110	A	A	B	C	C
Mu 41	Dakuli	Makulu	Kwenda	48047	001220	1,112	620	A	B	B	B	A
Mu 42	Makungu	Makulu	Kwenda	48019	001209	1,172	450	A	B	B	B	B
Mu 43	Kandara	Makulu	Kwenda	49001	001031	1,100	390	A	B	B	A	B
Mu 44	Kandara	Makulu	Kwenda/Kwenda	48010	001204	1,090	470	A	B	B	B	C
Mu 45	Makungu P.I.S.	Makulu	Kwenda/Kwenda	47003	001000	1,100	430	A	B	B	B	B
Mu 46	Kandara	Makulu	Kwenda/Kwenda	477141	001209	1,034	400	A	B	B	A	A

Note: S.S.S. Source secondary school

\* Because the village of Thangila and Makungu listed in the original list are located in Makulu, Ngja and Kigunda are selected as substitutes

Table 1 LIST OF THE VILLAGES REQUESTED FOR BOREHOLE CONSTRUCTION

No.	Village	County	Sub-county	UDM		Altitude	Population	Source of Water	Access	Geology	Topo. Condition	Apparent Suitability
				E	N							
Ky 1	Gyona	Elkulu	Elkulu	48049	012011	1,870	947	A	A	B	B	A
Ky 2	Makungu	Elkulu	Elkulu	48018	001104	1,812	526	A	B	B	B	A
Ky 3	Gyona	Elkulu	Kwenda	47960	001038	1,880	234	A	B	B	A	A
Ky 4	Kigunda	Elkulu	Kwenda	48007	001038	1,882	431	A	B	B	B	B
Ky 5	Namakwa	Elkulu	Kwenda	48009	001103	1,814	790	A	B	B	A	B
Ky 6	Kwenda	Elkulu	Kwenda	48021	011037	1,807	625	A	B	B	B	C
Ky 7	Wakuli	Elkulu	Kwenda	48027	011038	1,800	408	A	B	B	B	B
Ky 8	Kandara	Elkulu	Kwenda	48016	010031	1,880	710	A	B	B	A	C
Ky 9	Makulu	Elkulu	Kwenda	48043	001031	1,882	219	A	B	B	B	C
Ky 10	Namakwa	Elkulu	Kwenda	48041	010031	1,877	307	C	B	B	B	C
Ky 11	Makulu A	Elkulu	Kwenda	48040	001030	1,880	130	A	B	B	B	A
Ky 12	Makulu B	Elkulu	Kwenda	48040	001030	1,880	130	A	B	B	B	A
Ky 13	Kigunda C	Elkulu	Kwenda	48040	001030	1,880	130	A	B	B	B	A
Ky 14	Kigunda	Elkulu	Kwenda	48047	001030	1,880	200	A	A	B	B	A
Ky 15	Kwenda	Elkulu	Kwenda	48004	001042	1,800	1193	A	B	B	B	B
Ky 16	Makulu (B)	Elkulu	Kwenda	48013	001034	1,803	264	C	B	B	A	A
Ky 17	Kigunda A	Elkulu	Kwenda	48040	001030	1,877	803	A	A	B	B	A
Ky 18	Makungu	Elkulu	Kwenda	48038	001101	1,802	416	A	B	B	B	B
Ky 19	Makulu	Elkulu	Kwenda	48040	001030	1,880	130	A	A	B	B	C
Ky 20	Makulu	Elkulu	Kwenda	48047	001034	1,879	894	A	A	B	B	B
Ky 21	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 22	Kwenda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 23	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 24	Makungu	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 25	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 26	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 27	Makulu	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 28	Makungu W	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 29	Makungu	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 30	Kandara	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 31	Kandara	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 32	Kandara	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 33	Kwenda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 34	Makungu	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 35	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 36	Makungu	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 37	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 38	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 39	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 40	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B
Ky 41	Kigunda	Makungu	Kwenda	48040	001030	1,880	130	C	A	B	B	B

Table - 2 List of Equipment and Materials Requested

No.	Items	Quantity	Remarks
<b>1. Survey Equipment</b>			
1.1	High resolution electrical resistivity meters for groundwater surveys and geologging	1 set	Attached to DWD HQ There are four (4) hydrogeologists who can operate the equipment.
1.2	Portable water quality testing kits for Masaka, Kayunga and Mukono	3 sets	Attached to District Water Offices
1.3	Water level meters/dipper for Masaka, Kayunga and Mukono	3 sets	
1.4	4-wheel drive field vehicles - pick up with capacity 2,800 cc for use by the headquarters for supervision	2 nos.	Replace of the existing vehicles Attached to DWD HQ
<b>2. Equipment and Materials for Enlightenment and Education</b>			
2.1	Laptop computers with CD rewritable ROMs and internet ready	1 set	Attached to DWD HQ
2.2	GPS for Masaka, Kayunga and Mukono	3 sets	Attached to District Water Offices
2.3	Portable color printers for laptop computers and accessories	1 no.	Attached to DWD HQ
2.4	Visual and audio equipment, some tools and cut models of cylinder, hand pump units are mounted on vehicles for DWD staff to educate communities for operation and maintenance	1 set	Attached to DWD HQ The equipment will be utilized in consultation with two (2) socio-scientists of DWD.
2.5	Computer compatible S-video and slide projector to be used as visual aids in seminars and workshops for the communities	1 set	
2.6	Digital video camera	1 set	
2.7	Digital still camera	1 no.	
2.8	Motorbikes for Mukono, Kayunga and Masaka	3 nos.	Attached to District Water Offices Assistant Officers and County Water Officers will use motorbikes.
2.9	Bicycles for HPDs and Community Development Officers in Mukono, Kayunga and Masaka	106 nos.	Attached to District Water Offices 53 nos. will be used by CD Assistants in each sub-county, and 53 nos. will be loaned to HPDs of each sub-county.
2.10	Repair tools of hand pump for HPDs in Mukono, Kayunga and Masaka	53 nos.	Attached to District Water Offices The tools will be loaned to HPDs of each sub-county.


**MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR  
RURAL WATER SUPPLY IN CENTRAL UGANDA  
IN THE REPUBLIC OF UGANDA  
(EXPLANATION ON DRAFT REPORT)**


In March 2003, Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched Basic Design Study Team on THE PROJECT FOR RURAL WATER SUPPLY IN CENTRAL UGANDA (hereinafter referred to as "the Project") to the Republic of Uganda (hereinafter referred to as "Uganda"), and through discussion, field survey in Uganda, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult with Uganda on the components of the draft report, JICA sent to Uganda the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Shinichi Matsura, Deputy Resident Representative, Kenya Office, JICA, from 31 July to 8 August 2003.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Kampala, 8 August 2003

  
Mr. Shinichi Matsura  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency  
Japan

  
Eng. Remaid K. Kabanda  
Permanent Secretary  
Ministry of Water, Lands and Environment  
Republic of Uganda

**ATTACHMENT**

**1. Components of the Draft Report**

The Government of Uganda agreed and accepted in principle the components of the draft report explained by the Team.

**2. Minutes of Discussions (26 February, 2003)**

Both sides read and confirmed again all the contents of the previous Minutes of Discussions, on the basic design study of 20 February 2003.

**3. Japan's Grant Aid Scheme**

The Ugandan side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Uganda as explained by the Team and described in Annex-4 of the Minutes of Discussions signed by both parties on 30 February, 2003.

**4. Schedule of the Study**

JICA will complete the final report in accordance with the items confirmed and send it to Uganda around September 2003.

**5. Other Relevant Issues**

The following issues were discussed and confirmed by both sides.

**5.1 Components of the Project**

Both sides agreed that the Project would be composed of the following components when the Japanese Government finally decides to implement the Project.

- Borehole drilling of 11,970m (approximately 120 successful boreholes)
- Installation of casing pipes and screens and construction of superstructures for approximately 120 boreholes
- Procurement of equipment and materials listed in Annex-1
- Support on community enlightenment, sanitation and hygiene education and education for facility operation, maintenance and management by communities ("Soft Component")

**5.2 Villages for borehole construction**

Both sides agreed that the target villages for borehole construction under the Project would be one hundred and twenty (120), one successful borehole for each village. The target villages for borehole construction are listed in Annex-2. The Ugandan side promised to avoid any further duplication with other possible projects in the target villages of the Project. In case there is any duplication, the village





will be excluded from the list in Annex-2 and an alternative village will not be considered.

### 5.3 Operation method towards unit rate contract with limitation of drilling depths

Both sides agreed that under the Project, unit rate contract with limitation of drilling depths (11,970m) was applied. Operation method towards this system is as follows:

- a) In case the total number of water supply facilities does not reach 120 after drilling of 11,970m depths:

The number of water supply facilities constructed under the Project will be less than 120. Contract price for installation of casing pipes and screens and construction of superstructures for the rest of boreholes will be adjusted.

- b) In case the total number of water supply facilities reaches 120 before drilling of 11,970m depths:

Contract price for the rest of drilling depths will be re-distributed for drilling work and superstructure work for appropriate number of water supply facilities. Drilling work and superstructure work will be continued, and the number of water supply facilities constructed under the Project will be more than 120.

### 5.4 Unsuccessful borehole and alternative drilling

Both sides agreed that in case the first attempt at a certain village is unsuccessful, a second attempt would be drilled at an appropriate locality in the same village. However, if the second attempt is unsuccessful, the third one would not be drilled. An alternative drilling would be conducted in a village, which has a large population and is estimated to be capable of operation and maintenance of facilities, from the target villages listed in Annex-2 with due priority consideration.

### 5.5 Operation and maintenance of facilities

Under the Project, software assistance will be done to support community enlightenment, sanitation and hygiene education and education for facility operation, maintenance and management by the respective villages with support from the sub-counties, districts and DWD.

Both sides confirmed importance of monitoring and support by district and central administration to the villages. Directorate of Water Development (DWD), Ministry of Water, Lands and Environment promised to promote to have district administrations of target districts allocate necessary number of water officers and community development assistants to facilitate proper operation and maintenance of the facilities by the villagers by December 2003 for Masaka District and July 2004 for Mukono District and Kayunga District.

### 5.6 Coordination with the "Rural water and sanitation Operation Plan: 2002-2007 (OP5)"

The Project will adopt the "critical requirements" stated in the OP5 through software assistance activity. During pre-construction workshop in the software assistance programme, sensitization for villagers will be done and each village is required to collect maintenance fee of 100,000 Ugandan Shillings as conditions for commencement of construction.

Both sides agreed that if a village cannot fulfill the conditions stated in Annex-3 and is judged that the villagers' willingness to fulfill the conditions is insufficient, it will be excluded from the list in

Annex-2 and an alternative village will not be considered.

### 5.7 Budgetary arrangement of Ugandan side

The Ugandan side agreed to make necessary budgetary arrangement to cover required amount of cost shown in Annex-4.

### 5.8 Other Responsibilities of the Ugandan side

The Ugandan side agreed to be responsible for mobilizing villagers for timely construction of access roads, fences around the completed apron and the drainage pit. Also, it was confirmed that DWD is responsible to instruct usage of water quality analysis kit which will be equipped to each district offices.

Specification and Quantity of Equipment Covered by Japan's Grant Aid

No.	Item	Quantity	Specification Details	Station
1. Equipment for Field Surveys				
1.1	Electric Resistivity and Georadar Logging Equipment	1 set	Electric Resistivity : Digital stacking type, Range : -10V to +10V Electrical Logging : NR more Slots-on, SP PE 16' or 64', NG 10 KCPs	Rural Water Dpt DWD
1.2	Portable Water Analyzing Kit	3 kits	Portable test (Fluorometer, Total Solids, Total Hardness, Fe, Mn, F, Cl, SO <sub>4</sub> , NO <sub>3</sub> , NO <sub>2</sub> ), Turbidity Meter (0-99.9 NTU), pH Meter (6-14 pH), Reagents (for 200 water samples)	District Office
1.3	Water Level Meter	3 kits	Range: 0-10m with thermometer (100m in length)	
1.4	Vehicles for Supervisory Works	2 units	Displacement: 2800 cc, Double Cab Pick-up type	Rural Water Dpt DWD
2. Equipment for Administrative Training and Facilitation				
2.1	Laptop Computer	1 set	CPU, 3.0 GHz, Memory: 2GB MB, HARD DISK: 40 GB CD-RW, Modem	Rural Water Dpt DWD
2.2	Color Printer	1 set	Color, Max size: A4, Memory: 128 KB	
2.3	GPS	3 kits	Garmin 12 channel, Antenna 2 m, 85% 2D RIMS	
2.4	Sanitation control model of the latrine	3 units	Model: UZUS Handpump	District Office
2.5	Digital Still Camera	3 kits	2 million Pixel, Zoom Lens x 3	
2.6	Motorcycle	2 units	Displacement: 125 cc, Oil-cool type	
2.7	Hand Pump Maintenance Kit	46 sets	Manufacturer standard tools	

Villages for Borehole Construction

No.	Village	County	Subcounty	Dist.	Pop.
Mwanza District (49 Villages)					
Ma 1	Bukanga B	Bukaramamba	Bugaa	1,255	488
Ma 2	Kamukonyi	Bukaramamba	Kinabo	1,256	280
Ma 3	Kipikagazi PS	Bukaramamba	Bugaa	1,279	560
Ma 4	Komomola	Bukaramamba	Bugaa	1,143	900
Ma 5	Miyana	Bukaramamba	Bugaa	1,288	1,060
Ma 6	Mitutu PS	Bukaramamba	Bugaa	1,289	452
Ma 7	Kigila	Bukaramamba	Bugaa	1,286	488
Ma 8	Kyimbila A	Bukaramamba	Bugaa	1,286	450
Ma 9	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 10	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 11	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 12	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 13	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 14	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 15	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 16	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 17	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 18	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 19	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 20	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 21	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 22	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 23	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 24	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 25	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 26	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 27	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 28	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 29	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 30	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 31	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 32	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 33	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 34	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 35	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 36	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 37	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 38	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 39	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 40	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 41	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 42	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 43	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 44	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 45	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 46	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 47	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 48	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 49	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 50	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 51	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 52	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 53	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 54	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 55	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 56	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 57	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 58	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 59	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 60	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 61	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 62	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 63	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 64	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 65	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 66	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 67	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 68	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 69	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 70	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 71	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 72	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 73	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 74	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 75	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 76	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 77	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 78	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 79	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 80	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 81	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 82	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 83	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 84	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 85	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 86	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 87	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 88	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 89	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 90	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 91	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 92	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 93	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 94	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 95	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 96	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 97	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 98	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 99	Kipikagazi	Bukaramamba	Bugaa	1,280	488
Ma 100	Kipikagazi	Bukaramamba	Bugaa	1,280	488

Villages for Borehole Construction

No	Village	Country	Subcounty	Dist	Pop
Mu 2	Mukibwa	Bukwa	Bukwa	1,322	1,260
Mu 3	Kasibwa P/S	Bukwa	Bukwa	1,191	466
Mu 4	Mukibwa B/C	Bukwa	Maga	1,230	608
Mu 7	Kasibwa	Bukwa	Majunje	1,521	993
Mu 8	Kasibwa P/S	Bukwa	Majunje	1,489	1,290
Mu 9	Bukibwa	Bukwa	Nyanga	1,214	150
Mu 11	Bukibwa	Bukwa	Nyanga	1,168	1,682
Mu 12	Kibinda	Bukwa	Nyanga	1,162	830
Mu 13	Kibinda P/S	Bukwa	Nyanga	1,170	390
Mu 16	Mukibwa B	Bukwa	Wakiso	1,150	1,300
Mu 17	Okiso Wakibwa A	Bukwa	Wakiso	1,152	500
Mu 18	Wakiso Market S/C Hill	Bukwa	Wakiso	1,150	2,400
Mu 19	Kasibwa	Mukono	Goma	1,174	218
Mu 21	Mukibwa Lower side	Mukono	Ntusi	1,125	708
Mu 23	Kibinda B	Mukono	Ntusi	1,885	1,260
Mu 24	Kasibwa (B)	Mukono	Kyungu	1,172	1,700
Mu 25	Kibinda/Kibinda	Mukono	Kyungu	202	480
Mu 26	Kasibwa B	Mukono	Ntusi	1,215	760
Mu 27	Kibinda	Mukono	Ntusi	1,211	290
Mu 28	Kibinda	Mukono	Ntusi	1,211	380
Mu 29	Kibinda Lower side	Mukono	Ntusi	1,160	830
Mu 30	Kibinda	Mukono	Ntusi	1,200	1,300
Mu 31	Kibinda	Mukono	Ntusi	1,145	2,200
Mu 32	Kibinda	Mukono	Ntusi	1,165	1,400
Mu 34	Kibinda P/S	Mukono	Ntusi	1,129	1,300
Mu 36	Kibinda	Mukono	Ntusi	1,130	1,500
Mu 38	Kibinda B	Mukono	Ntusi	1,145	810
Mu 41	Kibinda	Mukono	Ntusi	1,155	810
Mu 42	Kibinda	Mukono	Ntusi	1,171	480
Mu 43	Ntusi	Mukono	Ntusi	1,165	590
Mu 45	Ntusi S.S.S	Mukono	Ntusi	1,102	450
Mu 46	Ntusi	Mukono	Ntusi	1,154	480
Kibinda District (28 Villages)					
Kr 1	Kibinda	Bukwa	Bukwa	1,375	647
Kr 2	Kibinda	Bukwa	Bukwa	1,372	650
Kr 3	Kibinda	Bukwa	Bukwa	1,098	250
Kr 4	Kibinda	Bukwa	Bukwa	1,062	421
Kr 5	Kibinda	Bukwa	Bukwa	1,094	290
Kr 6	Kibinda	Bukwa	Bukwa	1,098	408
Kr 7	Kibinda	Bukwa	Bukwa	1,083	713
Kr 8	Kibinda	Bukwa	Bukwa	1,083	588
Kr 9	Kibinda	Bukwa	Bukwa	1,083	588
Kr 10	Kibinda	Bukwa	Bukwa	1,083	588
Kr 11	Kibinda	Bukwa	Bukwa	1,083	588
Kr 12	Kibinda	Bukwa	Bukwa	1,083	588
Kr 13	Kibinda	Bukwa	Bukwa	1,083	588
Kr 14	Kibinda	Bukwa	Bukwa	1,083	588
Kr 15	Kibinda	Bukwa	Bukwa	1,083	588
Kr 16	Kibinda	Bukwa	Bukwa	1,083	588
Kr 17	Kibinda	Bukwa	Bukwa	1,083	588
Kr 18	Kibinda	Bukwa	Bukwa	1,083	588
Kr 19	Kibinda	Bukwa	Bukwa	1,083	588
Kr 20	Kibinda	Bukwa	Bukwa	1,083	588
Kr 21	Kibinda	Bukwa	Bukwa	1,083	588
Kr 22	Kibinda	Bukwa	Bukwa	1,083	588
Kr 23	Kibinda	Bukwa	Bukwa	1,083	588
Kr 24	Kibinda	Bukwa	Bukwa	1,083	588

Villages for Borehole Construction

No	Village	Country	Subcounty	Dist	Pop
Kr 25	Kibinda	Bukwa	Bukwa	1,083	588
Kr 26	Kibinda	Bukwa	Bukwa	1,083	588
Kr 27	Kibinda	Bukwa	Bukwa	1,083	588
Kr 28	Kibinda	Bukwa	Bukwa	1,083	588
Kr 29	Kibinda	Bukwa	Bukwa	1,083	588
Kr 30	Kibinda	Bukwa	Bukwa	1,083	588
Kr 31	Kibinda	Bukwa	Bukwa	1,083	588
Kr 32	Kibinda	Bukwa	Bukwa	1,083	588
Kr 33	Kibinda	Bukwa	Bukwa	1,083	588
Kr 34	Kibinda	Bukwa	Bukwa	1,083	588
Kr 35	Kibinda	Bukwa	Bukwa	1,083	588
Kr 36	Kibinda	Bukwa	Bukwa	1,083	588
Kr 37	Kibinda	Bukwa	Bukwa	1,083	588
Kr 38	Kibinda	Bukwa	Bukwa	1,083	588
Kr 39	Kibinda	Bukwa	Bukwa	1,083	588
Kr 40	Kibinda	Bukwa	Bukwa	1,083	588
Kr 41	Kibinda	Bukwa	Bukwa	1,083	588

Screening Guide and Conditions

Category	Criteria	Standard for Passing
1 Required documents	Letter of introduction of the local MGO/contractor firm by DWD Minimumy MOU/Verbal agreement	Must be "Yes"
2 Women's participation	Proportion of women (WISC executives)	Must be more than 30%. If less than 30%, must have an acceptable/feasible reason. Equality is as important as quantity. even if women occupy more than 50%, it is meaningless if they are not given a chance to express their opinions or participate in O&M activities
	Understanding, willingness, and action toward gender development	Must be "Yes"
3 Promotion of local health, nutrition and hygiene	Understanding, willingness and action toward better stage Understanding, willingness and action toward local health/nutrition/hygiene in relation to safe water	Must be "Yes"
	Leaders, willingness to contribute to improvement of health/nutrition/hygiene of community members	Must be "Yes"
4 Community contribution	Amount of community contribution collected	Must be 100,000 UGS. If less than this amount, must have an acceptable/feasible reason. The amount of money collected is not always proportional to the degree of understanding. What is important is that villagers fully understand that handpumps are not free gifts and that they must understand the necessity of O&M. In case that the amount does not reach 100,000 UGS but the willingness of O&M is recognized, the plan to collect more must be explained
	Understanding of O&M fee and willingness to pay	Must be "Yes". Even if more than 100,000 UGS was collected for community contribution, villagers' willingness to keep paying for O&M must be assured for sustaining sustainable O&M
	Agreement to participate in construction	Must be "Yes"
5 Endorsement of Land and Ownership Conditions	Agreement paper on land certification	Must be "Yes"
6 O&M Plan	Wells (no. per or cost for O&M) Estimated life of capital equipment and parts Spare parts availability and costs Maintenance costs Financial replacement costs Backup support and services by DWD Ways to increase income coverage and cover rate to 99% in the next 4 years	Must be "Yes". What is most important is that villagers understand the importance of O&M and act accordingly

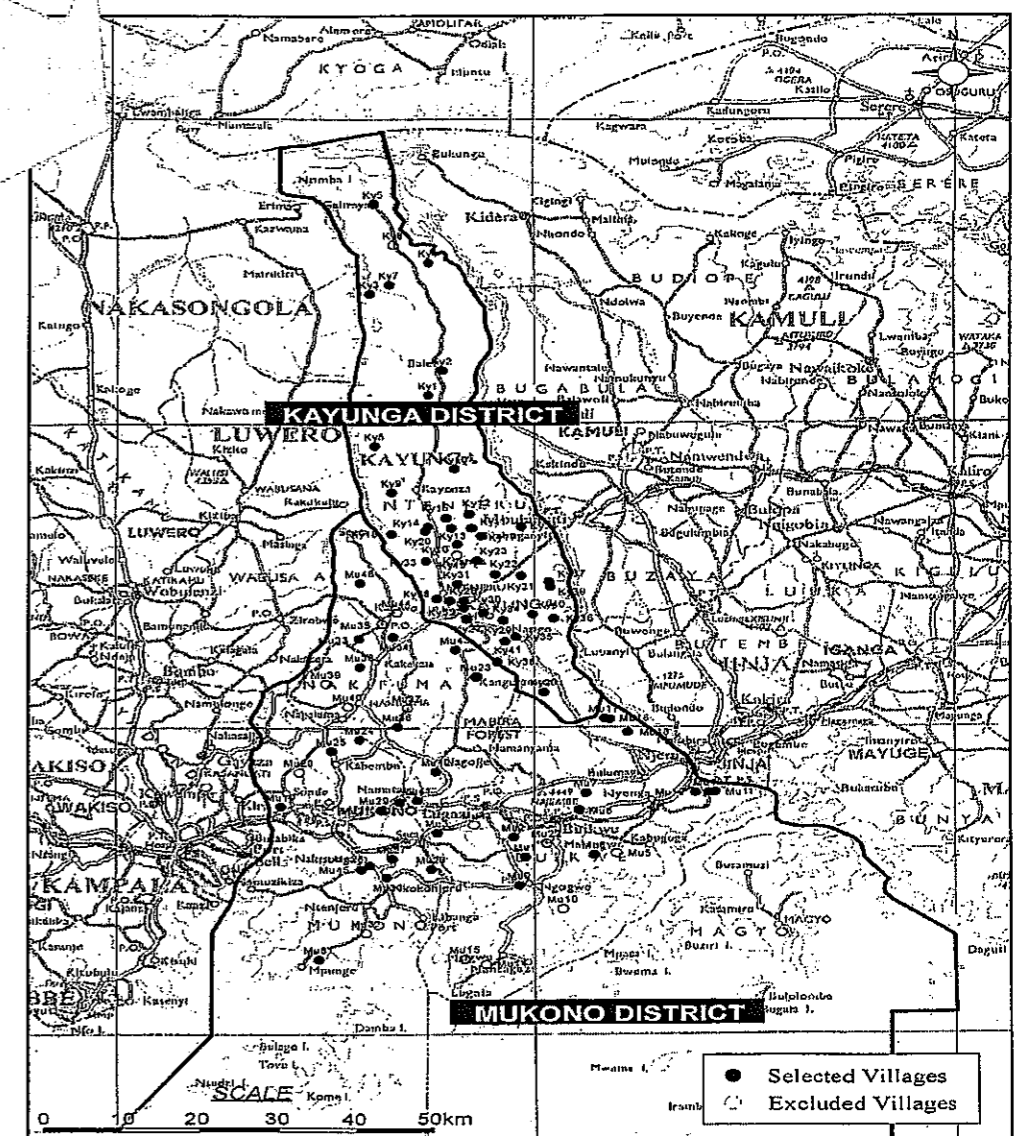
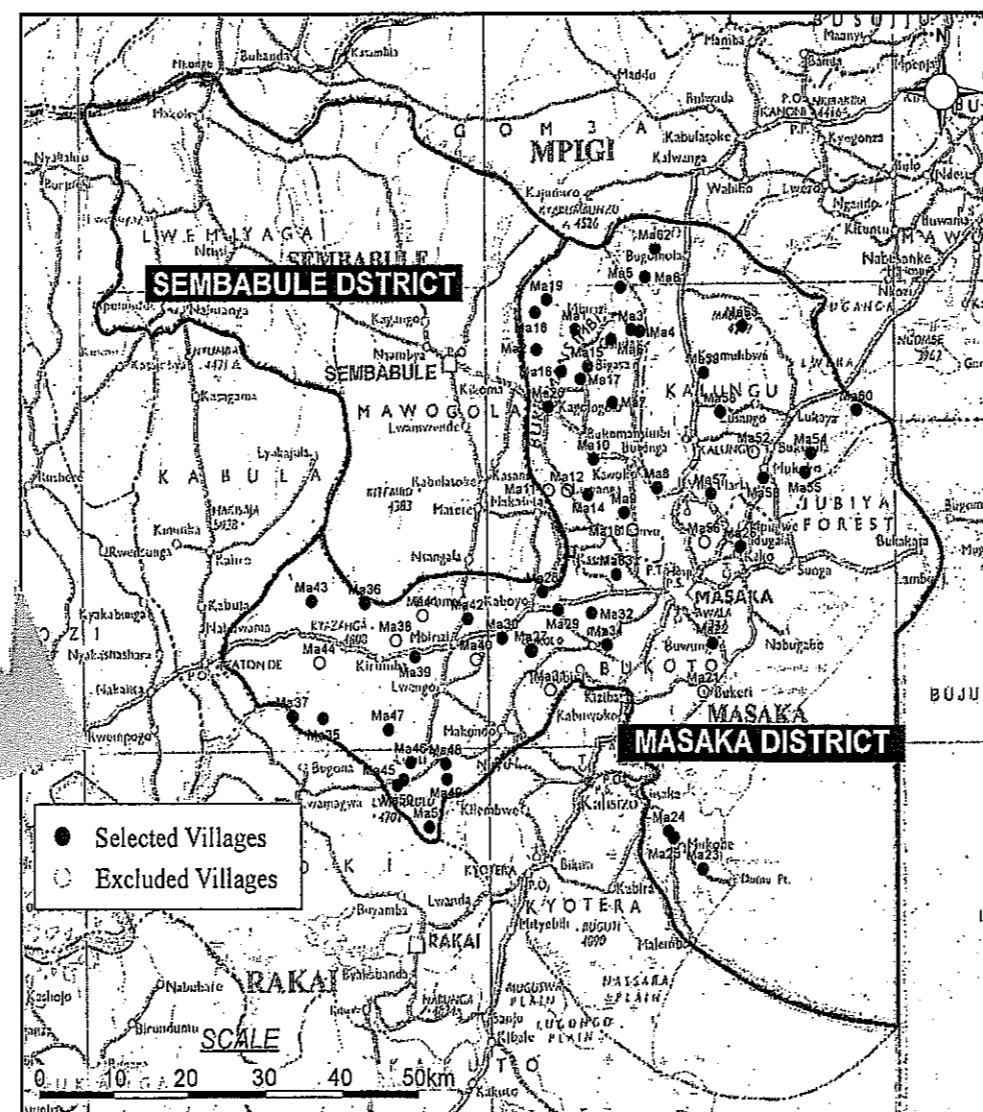
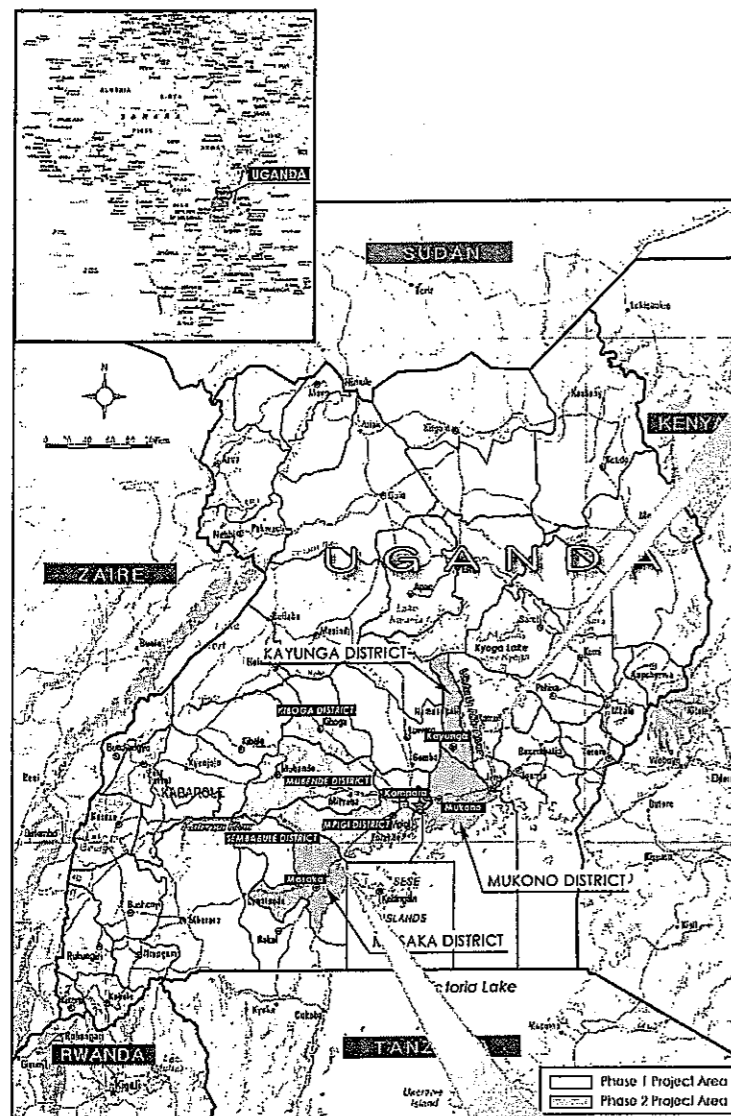
Budget Allocation for the Expenses Borne by the Government of Uganda

Item	Expense	Remarks
(1) Salary and allowances of CBAs and water officers for participation in software assistance	420	Term 1: water officer 4 persons and CBA 19 persons, 19 months Term 2: water officer 8 persons and CBA 27 persons, 20 months
(2) Procurement of bicycles for CBAs and CBAAs	8	82 nos.
(3) Land acquisition of well facilities (including land for construction)	-	Arrangement and coordination between villagers
(4) Securing of land and facilities for equipment and materials	-	Land and building of DWD and District Water Office
(5) Development of access roads to well construction sites	-	By beneficiaries' participation
(6) Well drilling works and finishing well (including equipment facilities)	-	Offering labor of villagers for construction of platform and installation of hand pump
(7) Construction of protection fence and high pit	-	By villagers' participation
Total	428	-

## Appendix-5 Basic Design Drawings

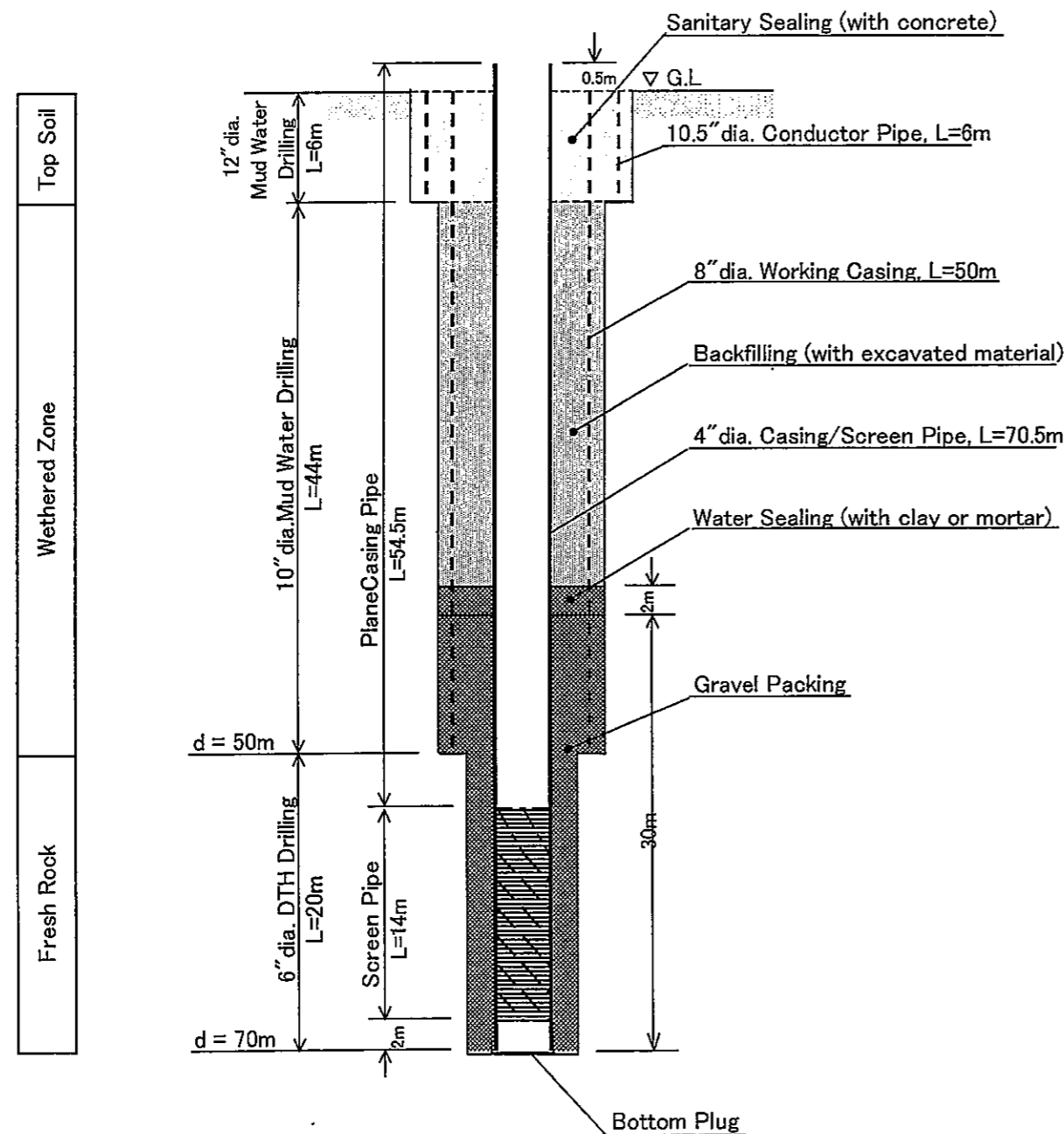
### List of Drawings

Draw. No.	Title of Drawings
1	Location Map of Villages for Borehole Construction
2	Standard Well Structure
3	Installation of Hand Pump and Relating Structure



1. LOCATION MAP OF VILLAGES FOR BOREHOLE CONSTRUCTION

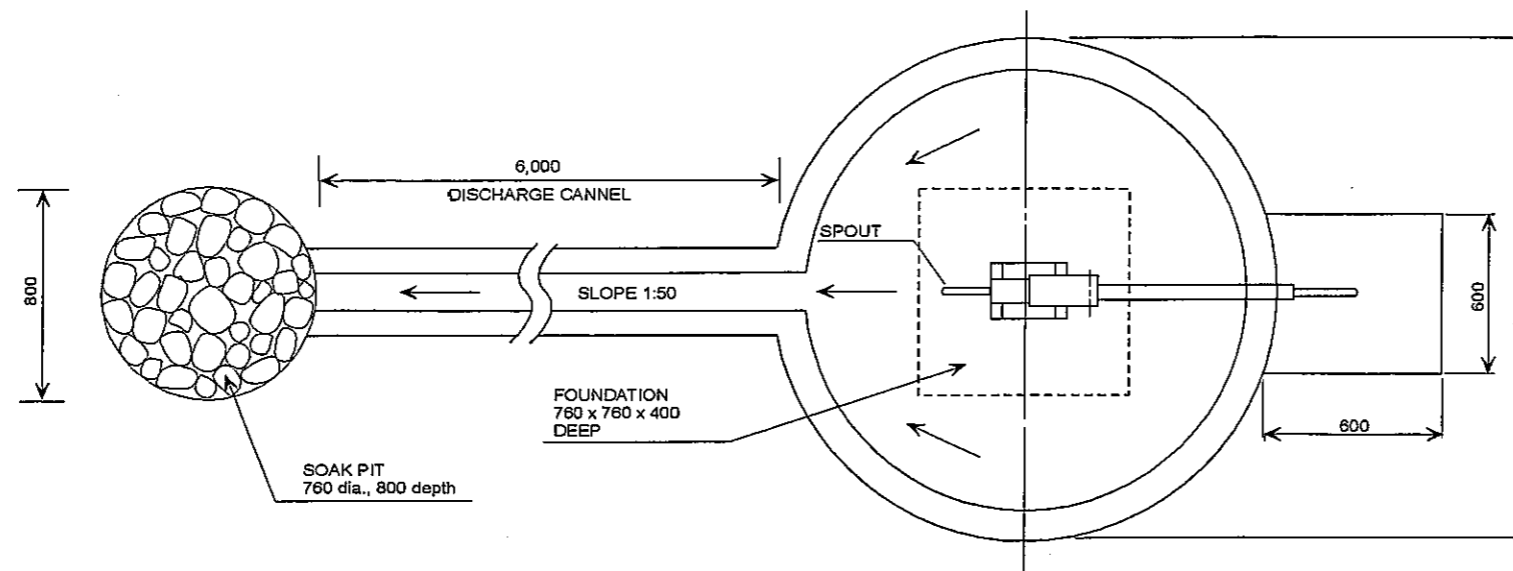
## Design of Standard Well



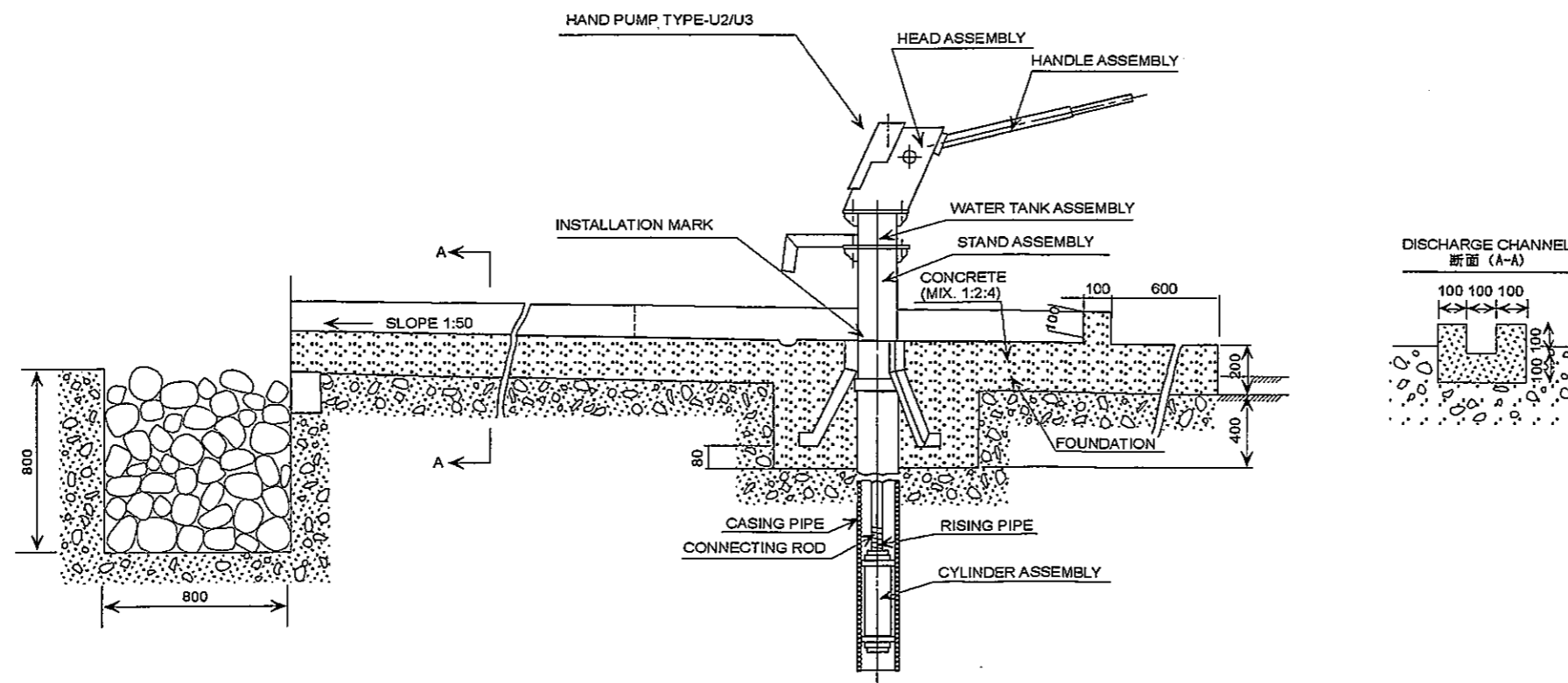
Construction Procedure for Typical Well

Procedure	Explanation
1	The top soils is excavated to 5.50m by the fish tail bit or tricorn bit with 11 inches in diameter by a rotary system of mud water circulation or a reverse circulation system. And then in order to give sufficient head of mud water for prevention of collapse of the top soils, the conductor pipe of more than 9 inches in diameters is installed. The pipe must be fixed by pressing or by hammering to 6 meters.
2	Overburden formation, weathered rock formation or residual deposits is drilled with 8-1/2, 8-3 / 4 inches in diameter by mud water circulation or a reverse circulation system until fresh rocks.
3	The mud water containing drill cuts must be replaced with fresh mud water after mud drilling reach to the fresh rocks.
4	Electric logging shall be carried out immediately for checking the existence of aquifers.
5	Work casing of 8 inches in inner diameter must be installed, and 50cm or more of tip of the casing is fixed by the casing-drill method in the rock. When casing-drill method is difficult, the precedence drilling by DTH inside of the casing can be used together.
6	A base rock is drilled to predetermined depth using DTH with 6 inches in diameter or more. When encounter to water vein during drilling, the yield and depth encountered are recorded.
7	Electric logging of a base rock portion shall be carried out immediately after drilling up to predetermined depth. A well casing schedule is designed based on the result of both the electric loggings.
8	Even if drilling reach to predetermined depth and does not encounter a water vein, besides the result of the electric loggings shows few aquifers so that the drilling work shall be interrupted and the contractor must inform it to the consulting engineer. The contractor resumes the work according to instructions by the engineer.
9	When the existence of aquifers can be confirmed, the screens and well casing pipes shall be installed according to the casing schedule.
10	Immediately after placing gravels up to the predetermined depth immediately, the well development by the air lifting must be started, and the topmost of gravels is always measured in the meantime. When subsidence of the top most of gravels is measured, additional volume of gravels shall be immediately filled up and the level of the top most must be kept always.
11	Yield shall be measured and recorded during the development. The borehole installation works of clay seal, back filling and grouting shall be done immediately after completing well development.
12	A submersible pump is installed and a predetermined well yield testing shall be carried out.
13	A sample for water quality tests must be taken just before the end of the yield testing, and the sample shall be transported to a laboratory immediately.
14	When a water quality test result is satisfied with DWD water quality standard, predetermined, well facility must be constructed and a hand pump must also be installed.

## 2. STANDARD WELL STRUCTURE



PLAN



SECTION

### 3. INSTALLATION OF HAND PUMP AND RELATING STRUCTURE