

APPENDIX

APPENDIX 1 MEMBER LIST OF THE STUDY TEAM

(1) Basic Design Field Survey

Name	Position	Affiliation
Hiroyuki Kinomoto, Mr.	Leader	Team Director, Water Resources Development and Environment Management Team, Project Management Group III, Grant Aid Management Department, JICA
Ayako Ito, Mrs.	Grant Aid Scheme	Africa Section, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Yukihiko Ejiri, Mr.	Procurement Planning	Director General, Project Management Department, Japan International Cooperation System
Yoichi Inoue, Mr.	Planning Management	Water Resources Development and Environment Management Team, Project Management Group III, Grant Aid Management Department, JICA
Shoichi Yokogi, Mr.	Chief Consultant / Groundwater Development	Japan Techno Co., Ltd.
Junzo Yoshiwaka, Mr.	Hydrogeology	Japan Techno Co., Ltd.
Mikiko Azuma, Mrs.	Maintenance Planning/ Socio-Economic Survey 2	Japan Techno Co., Ltd.
Toshifumi Ando, Mr.	Socio-Economic Survey 1	Japan Techno Co., Ltd.
Naoki Taira, Mr.	Construction Plan/ Cost Estimation	Japan Techno Co., Ltd.

(2) Explanation of Draft Final Report

Name	Position	Affiliation
Hiroyuki Kinomoto, Mr.	Leader	Team Director, Water Resources Development and Environment Management Team, Project Management Group III, Grant Aid Management Department, JICA
Yoichi Inoue, Mr.	Planning Management	Water Resources Development and Environment Management Team, Project Management Group III, Grant Aid Management Department, JICA
Shoichi Yokogi, Mr.	Chief Consultant / Groundwater Development	Japan Techno Co., Ltd.
Junzo Yoshiwaka, Mr.	Hydrogeology	Japan Techno Co., Ltd.

APPENDIX 2 STUDY SCHEDULE

(1) Basic Design Field Survey

No.	Date		Leader (JICA)	Planning Management (JICA)	Grant Aid Scheme (MOFA)	Procurement Planning (JICS)	Chief Consultant / Groundwater Development	Hydrogeology	Construction Plan/ Cost Estimation	Maintenance Planning/ Social Survey 2	Social Survey 1	
			Hiroyuki Kinomoto	Yoichi Inoue	Ayako Ito	Yukihiko Ejiri	Shoichi Yokogi	Junzo Yoshiwaka	Naoki Taira	Mikiko Azuma	Toshifumi Ando	
1	12 Nov. (2006)	Sun	Departure Tokyo									Departure Tokyo
2	13	Mon	Arrive Lusaka, Courtesy Call to EOJ, JICA					Departure Tokyo				Arrive Lusaka, Courtesy Call to EOJ, JICA
3	14	Tue	Courtesy Call to DWA & MLGH					Arrive Lusaka				Courtesy Call to DWA, MLGH
4	15	Wed	Meeting on Minutes of Discussion					Date Collection (Zambia Univ. etc.)				Preparation for Subcontract for Social Survey (Material Distribution, Explanation)
5	16	Thu	Meeting on Minutes of Discussion					Data Collection (UNICEF)				Preparation for Subcontract for Social Survey
6	17	Fri	Signing on Minutes of Discussion, Report to EOJ, JICA					Data Collection (Local Consultant)				Preparation for Subcontract for Social Survey
			Departure Lusaka	Market and Procurement Situation Survey								
7	18	Sat	Transit	Lusaka Mansa				Data Collection, Prep. for Survey			Data Analysis	
8	19	Sun	Arrive Tokyo	Meeting DWA at Mansa, Site Survey				Lusaka Mansa			Data Analysis	
9	20	Mon	Site Survey: Samfya, Mansa Lusaka					Meeting with DWA Mansa, Site Survey				Preparation for Subcontract for Social Survey (Tender: Skill Qualification)
10	21	Tue	Departure Lusaka					Preparation for Subcontract for Social Survey (Tender: Price Qualification)	Site Survey: Mansa			Preparation for Subcontract for Social Survey (Tender: Price Qualification)
11	22	Wed	Arrive Tokyo					Preparation for Subcontract for Social Survey (Making Contract, Sign)	Meeting & Site Survey: Samfya			Preparation for Subcontract for Social Survey (Making Contract, Sign)
12	23	Thu						Lusaka Mansa	Site Survey: Samfya			Preparation for Social Survey (Meeting)
13	24	Fri						Meeting: Milenge	Meeting: Milenge			Preparation for Social Survey (Meeting)
14	25	Sat						Site Survey: Mwense	Site Survey Milenge			Preparation for Social Survey (Meeting)

No.	Date		Leader (JICA)	Planning Management (JICA)	Grant Aid Scheme (MOFA)	Procurement Planning (JICS)	Chief Consultant / Groundwater Development	Hydrogeology	Construction Plan/ Cost Estimation	Maintenance Planning/ Social Survey 2	Social Survey 1		
			Hiroyuki Kinomoto	Yoichi Inoue	Ayako Ito	Yukihiko Ejiri	Shoichi Yokogi	Junzo Yoshiwaka	Naoki Taira	Mikiko Azuma	Toshifumi Ando		
15	26	Sun					Mansa Nchelenge, Site Survey	Meeting with DWA Mwense			Lusaka Mansa		
16	27	Mon					Site Survey: Chiengi	Site Survey: Mwense			Site Survey: Mansa		
17	28	Tue					Site Survey: Kawambwa, Move to Mansa	Site Survey: Mwense			Site Survey: Mansa		
18	29	Wed					Mansa Lusaka	Meeting & Site Survey: Nchelenge			Departure Tokyo	Mansa Nchelenge, Site Survey	
19	30	Thu					Visit to Private Company	Site Survey: Nchelenge			Arrive Lusaka	Site Survey: Nchelenge	
20	1 Dec.	Fri					Visit to Private Company	Site Survey: Kawambwa			Courtesy Call to DWA, Visit to Private Company in Lusaka	Site Survey: Nchelenge	
21	2	Sat					Team Meeting	Site Survey: Kawambwa			Visit to Private Company in Lusaka	Departure Tokyo	Site Survey: Kawambwa
22	3	Sun					Data Analysis	Meeting & Site Survey: Chiengi			Data Collection	Arrive Lusaka	Site Survey: Kawambwa
23	4	Mon					Meeting with DWA, Visit to Private Company	Move to Mansa, Data Analysis			Courtesy Call to JICA, Meeting with DWA Unit of Drilling, Visit to Private Company in Lusaka	Courtesy Call to JICA, DWA, DISS	Site Survey: Kawambwa
24	5	Tue					Meeting with DWA, Visit to Private Company	Supplement Survey: Mansa, Milenge			Visit to Private Company in Lusaka	Hearing Survey for NGO, Local Consultant	Site Survey: Chiengi
25	6	Wed					GTZ/KfW, UNICEF Hearing Survey	Lusaka Kasama			Visit to Private Company in Lusaka	UNICEF, GTZ/KfW Hearing Survey	Nchelenge Mansa, Site Survey
26	7	Thu					Visit to Private Company in Copperbelt Prov.	Data Collection about Project of Northern Province, Move to Lusaka			Visit to Private Company in Lusaka	Lusaka Mansa	Site Survey: Mwense
27	8	Fri					Visit to Private Company in Lusaka	Data Analysis			Visit to Private Company in Lusaka	Meeting with Province Office of DWA, MLGH, MOE, Hearing Survey for NGO	Site Survey: Mwense
28	9	Sat					Team Meeting	Data Analysis			Visit to Private Company in Lusaka	Meeting with D-WASHE, Site Survey: Mansa	Site Survey: Milenge
29	10	Sun					Data Analysis	Departure Lusaka			Data Collection	Meeting with D-WASHE, Site Survey: Nchelenge	Site Survey: Mansa
30	11	Mon					Survey of DWA Drilling Team	Transit			Visit to Private Company in Lusaka	Meeting with D-WASHE, Site Survey: Chiengi	Site Survey: Mansa

No.	Date		Leader (JICA)	Planning Management (JICA)	Grant Aid Scheme (MOFA)	Procurement Planning (JICS)	Chief Consultant / Groundwater Development	Hydrogeology	Construction Plan/ Cost Estimation	Maintenance Planning/ Social Survey 2	Social Survey 1
			Hiroyuki Kinomoto	Yoichi Inoue	Ayako Ito	Yukihiko Ejiri	Shoichi Yokogi	Junzo Yoshiwaka	Naoki Taira	Mikiko Azuma	Toshifumi Ando
31	12	Tue					Meeting with MLGH, Visit to Private Company	Arrive Tokyo	Visit to Private Company in Lusaka	Meeting with D-WASHE, Site Survey: Kawambwa	Site Survey: Samfya
32	13	Wed					Meeting with DWA, Visit to GTZ Groundwater Database Plan		Visit to Private Company in Lusaka	Meeting with D-WASHE, Site Survey: Mwense, Samfya	Site Survey: Mansa
33	14	Thu					Meeting with DWA, Data Collection		Visit to Private Company in Lusaka	Meeting with D-WASHE, Site Survey: Milenge	Site Survey: Samfya
34	15	Fri					Visit to Private Company		Visit to Private Company in Lusaka	Hearing Survey for NGO, Mansa Lusaka	Site Survey: Samfya
35	16	Sat					Visit to Technical Assistance Project (Mumbwa)		Visit to SOMAP Project (Mumbwa)	Visit to SOMAP Project (Mumbwa)	Mansa Lusaka
36	17	Sun					Data Analysis		Data Analysis	Data Analysis	Data Analysis
37	18	Mon					Report to MLGH, DWA, EOJ, JICA		Report to DWA & MLGH, EOJ & JICA		
38	19	Tue					Departure Lusaka		Departure Lusaka	Hearing Survey with NGO, Local Consultant	Departure Lusaka
39	20	Wed					Arrive Tokyo		Arrive Tokyo	Hearing Survey with NGO, Local Consultant	Arrive Tokyo
40	21	Thu								Departure Lusaka	
41	22	Fri								Arrive Tokyo	

(2) Explanation of Draft Report

No.	Date		Leader (JICA)	Planning Management (JICA)	Chief Consultant / Groundwater Development	Hydrogeology
			Hiroyuki Kinomoto	Yoichi Inoue	Shoichi Yokogi	Junzo Yoshiwaka
1	6 Oct. (2007)	Sun	Tokyo Johannesburg via Hongkong			
2	7	Mon	Arrive Lusaka, Courtesy Call to JICA Zambia Office			
3	8	Tue	Courtesy Call to EOJ, DWA, MLGH and Explanation of Draft Report to DISS/MLGH			
4	9	Wed	Explanation of Draft Report to DISS and Meeting on Minutes of Discussion			Data Compilation
5	10	Thu	Meeting on Minutes of Discussion			Data Compilation
6	11	Fri	Signing on Minutes of Discussion, Report to EOJ, JICA			
	12	Sat	Departure Lusaka		Lusaka Mansa	
7	13	Sun	Arrive Tokyo		Site Survey: Mansa, Mwense	
8	14	Mon			Site Survey in Mansa, move Mansa Kapiri Mposhi	
9	15	Tue			Kapiri Mposhi Lusaka, Market Survey in Lusaka	
10	16	Wed			Departure Lusaka	
11	17	Thu			Arrive Tokyo	

APPENDIX 3 LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

Ministry of Local Government and Housing (MLGH)

Mr. Maswabi M. Maimbolwa	Ministry of Local Government and Housing (MLGH)	Permanent Secretary
Mr. Peter Lubambo	Department of Infrastructure & Support Service (DISS/MLGH)	Director
Mr. Davies C. Zulu	DISS/MLGH	Assistant Director
Mr. Mbaala Matengu	DISS/MLGH	Principal Economist
Mr. Rees Mwasambili	Rural Water Supply and Sanitation Unit (RWSSU), DISS/MLGH	Head
Mr. Sylvester Mphande	DISS/MLGH	Chief, Purchasing & Supplies Unit
Mrs. Etambuyu Siwale	RWSSU, DISS/MLGH	Senior Sociologist
Mr. Lytone Kanowa	RWSSU, DISS/MLGH	Senior Engineer
Mr. Malama Munkonge	RWSSU, DISS/MLGH	Sanitation Engineer
Mr. Davy Ng'oma	RWSSU, DISS/MLGH	Monitoring and Evaluation Officer
Mr. Itsuro Takahashi	(SOMAP), DISS/MLGH	JICA Expert

Ministry of Finance and National Planning (MFNP)

Mr. David Ndopu Ndopu	Economic & Technical Cooperation Department	Director
Mr. Bernard P. Phiri	Economic & Technical Cooperation Department	Principal Economist
Mr. Wamupu S. Akapelwa	Economic & Technical Cooperation Department	Senior Economist
Mr. Hakushi Hamaoka	Economic & Technical Cooperation Department	JICA Expert (Adviser)

Ministry of Energy and Water Development (MEWD)

Mr. Adam Hussen	Department of Water Affairs (DWA)	Director
Mr. Peter Chola	DWA	Assistant Director
Mr. Simon Kang'omba	DWA	Principal Hydrogeologist
Mr. Ngosa H. Mpamba	DWA, Drilling Section	Principal Hydrogeologist
Mr. Alex Lusaka	DWA	Principal Water Engineer
Mr. Jack Nkhoma	DWA	Hydrogeologist

Luapula Province

Mr. Joel M. Ngo

Permanent Secretary

Provincial Local Government Office, Mansa

Mr. Alfred Nyanbose

Acting Provincial Local
Government Officer

Provincial Education Office, Mansa

Mr. Davies B. Chisenga

Provincial Education
Officer

Mr. Chama

Human Resources

Mr. Chisha

Principal Education
Standard Officer

Provincial Water Affairs Office, Mansa

Mr. Stanalaus M. Chilufya

Provincial Water
Engineer

Mr. Nyoni

Deputy Provincial Water
Officer

Mr. Stephen Synkala

Water Engineer

Mr. Christopher Mtonga

Plumber

Mansa District

Mr. Bwanga Kapumpa

Municipal Council

Town Clerk
(D-WASHE Chairperson)

Mr. Sampa Chienge

Planning Department, Municipal
Council

District Planning Officer
(D-WASHE
Vice-Chairperson)

Mr. Bodex Kaputu

Department of Water and Sewerage,
Municipal Council

Officer in Charge
(D-WASHE Coordinator)

Mr. Steven Ngoi

Department of Health

District Health Inspector
(Member of D-WASHE)

Nchelenge District

Mr. Chibwe J. Kasanda

District Council

Director of Works
(RWSS Focal Point)

Mr. Lawrence Mwewa

Department of Health

Environmental Health
Technician
(Member of D-WASHE)

Mr. Benson Bwalya

Department of Water Affairs

Water Development
Officer
(D-WASHE Coordinator)

Mr. Boyd C. Nguwbe

Department of Education

(D-WASHE Secretary)

Chiengi District

Mr. P. C. Musonda	District Council	Acting Council Secretary (D-WASHE Chairperson)
Mr. C. M. Kasongo	District Council	District Planning Officer (RWSS Focal Point/ D-WASHE Coordinator)
Mr. John Malama	District Council	Director of Works (Member of D-WASHE)
Mr. James Mulanga	District Council	Council Treasurer (D-WASHE Treasurer)
Mr. F. S. Ndalama	Department of Health	(Member of D-WASHE)
Ms. Mercy Lungu	Department of Community Development	Community Development Officer (Member of D-WASHE)
Mr. Sydney Chipi	Department of Social Welfare	(Member of D-WASHE)
Mr. Chama Mwila	Department of Agriculture	(Member of D-WASHE)
Mr. Joseph N. Tembo	Department of Education	Plumber (Member of D-WASHE)

Kawambwa District

Mr. Frank Mupesha	District Council	Director of Works (D-WASHE Coordinator)
Mr. Emmanuel Chileya	District Council	Planning Assistant (Member of D-WASHE)
Mr. Hendrix Ntalasha	Ministry of Agriculture and Cooperatives - TSB	(Member of D-WASHE)
Mr. Obed Chanda	Ministry of Agriculture and Cooperatives - TSB	(Member of D-WASHE)
Mr. Love G. Mumba	Ministry of Agriculture and Cooperatives - TSB	(Member of D-WASHE)
Mr. John Nzala	Building Department	Work Supervisor (Member of D-WASHE)
Mr. Ng'andu Zyoli	AAH-UNHCR	WATSAN Engineer (Member of D-WASHE)
Mr. Peter Sinyangwe	ZANIS	District Information Officer (Member of D-WASHE)
Mr. Michael Mutale	Department of Education	Buildings Officer (Member of D-WASHE)
Ms. Mary Chabala	Women Group	(Member of D-WASHE)

Mwense District

Mr. M. M. Kasumpa		District Commissioner
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Mr. Mbuluwe Kalama	Department of Water Affairs	Officer in Charge (D-WASHE Coordinator)
Mr. N. Haninga	District Health Management Team	(Member of D-WASHE)
Mr. K. S. Bwalya	Department of Education	(Member of D-WASHE)
Mr. Lucheta	Department of Education	Planner (Member of D-WASHE)
Mr. Musonda	Building Department	(Member of D-WASHE)

Samfya District

Mr. Mwashya Musonda	District Council	Director of Works (D-WASHE Coordinator)
Mr. N. James Lubemba	District Council	(Member of D-WASHE)
Mr. G. Malamba	Department of Water Affairs	(Member of D-WASHE)
Mr. Fred S. Kosamu	Department of Community Development	(Member of D-WASHE)
Mr. Andrew K. Kalonge	Department of Health	(Member of D-WASHE)

Milenge District

Mr. Eddy Chitalu	District Council	Director of Works (Member of D-WASHE)
Mr. Dominic Bunda	Department of Health	(Member of D-WASHE)
Mr. Frederick Mkungu	Department of Education	(Member of D-WASHE)
Ms. Judith Mwansa	Department of Health	Director (Member of D-WASHE)
Mr. A. M. Chapa	Department of Health	Environmental Health Technician (Member of D-WASHE)

Mumbwa District, Central Province

Mr. D.S. Malindima	District Council	Council Secretary (D-WASHE Chairperson)
Mr. John Banda	District Council	District Planning Officer (Vice Secretary of D-WASHE)
Mr. H. Mwinde	District Council	Sales Officer of SOMAP Shop
Mr. C. Siame	Department of Forest	(Vice Chairperson of D-WASHE)
Ms. Maureen Mutukwa	Department of Water Affairs	Officer in Charge

Mr. Nobert Gandize	Christian Children's Fund (CCF) - Mumbwa	(Secretary of D-WASHE) Programme Coordinator (Member of D-WASHE)
<u>Royal Danish Embassy</u>		
Mr. Peter Sievers		Counsellor, Development
<u>Mr. Mwanza Moffat</u>		Programme Officer, Water Sector
<u>GTZ</u>		
Mr. Helmut Lang		Programme Manager
<u>UNICEF</u>		
Mr. Peter Harvey		Chief, Water and Sanitation
Mr. Giveson Zulu		Programme Officer, WASHE
Mrs. Malama Munkonde		Programme Officer, WASHE
<u>Water Aid</u>		
Mr. Mahesh Mishra		Country Representative
Mr. Moses Moomba		Senior Programme Officer (Mansa)
<u>Plan International</u>		
Mr. Byman Hamududu		WATSAN Advisor
Ms. Lizzy Muzambalika		Programme Unit Manager-Mansa
Mr. Khama Chilema		Programme Coordinator (Health)-Mansa
Mr. Geoffrey Kabwe		Community Development Facilitator-Mansa
<u>World Vision Zambia</u>		
Mr. Wampembe Lukonde		Operations Manager
Mr. Kenny Sondoy		Programme Manager- Chama ADP (Kawambwa)
<u>Embassy of Japan</u>		
Mr. Hideto Mitamura	Ambassador Extraordinary and Plenipotentiary	(At the time of the Draft Final Mission)

Mr. Masaaki Miyashita	Ambassador Extraordinary and Plenipotentiary	(At the time of the Basic Design Survey)
Mr. Yuichi Hirata		Second Secretary

JICA Zambia Office

Mr. Shiro Nabeya	Resident Representative	(At the time of the Draft Final Mission)
Mr. Eiji Inui	Resident Representative	(At the time of the Basic Design Survey)
Mr. Minoru Miyasaka	Deputy Resident Representative	(At the time of the Draft Final Mission)
Mr. Katsuichiro Sakai	Deputy Resident Representative	(At the time of the Basic Design Survey)
Ms. Yuki Shibuya		Assistant Resident Representative
Mr. Takeshi Matsuyama		Assistant Resident Representative

APPENDIX 4 MINUTES OF DISCUSSIONS

- (1) Minutes of Discussions on the Outline Design Study
- (2) Minutes of Discussions on the Basic Design Study

MINUTES OF DISCUSSIONS
ON
THE OUTLINE DESIGN STUDY
ON
THE PROJECT FOR GROUNDWATER DEVELOPMENT
IN LUAPULA PROVINCE
IN THE REPUBLIC OF ZAMBIA

Based on the results of the Preliminary Study, the Government of Japan decided to conduct an Outline Design Study on the Project for Groundwater Development in Luapula Province in the Republic of Zambia (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Zambia the Outline Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Hiroyuki KINOMOTO, Team Director, Water Resources Development and Environmental Management Team, Project Management Group 3 Grant Aid Management Dept., JICA, and is scheduled to stay in the country from November 13 to December 21, 2006.


The Team held discussions with the officials concerned of the Government of Zambia.

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

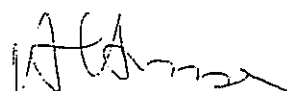
Lusaka, November 17, 2006



Hiroyuki KINOMOTO
Leader
Outline Design Study Team
Japan International Cooperation Agency (JICA)




Peter Lybambo
Director, Department of Infrastructure and
Support Services (DISS)
Ministry of Local Government and Housing
(MLGH), The Republic of Zambia



Adam Hussen
Director, Department of Water Affairs (DWA)
Ministry of Energy and Water Development
(MEWD), The Republic of Zambia

(Witness)



David Ndopu Ndopu
Director
Economic and Technical Cooperation
Department,
Ministry of Finance and National Planning
(MOFNP), The Republic of Zambia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the living standard of rural population by providing potable water through development of groundwater supply facilities.

2. Project sites

The area of the Project is the selected villages in the Districts of Mwense, Chiengi, Milenge, Samfya, Mansa, Kawambwa and Nchelenge in the Luapula Province.

The location of the Project area is shown in Annex-1.

3. Responsible and Implementing Agency

The issue of Responsible and Implementing Agency shall be concluded by the Zambian side by the end of November 2006. The Japanese side requested the Zambian side to inform the result by writing letter to the Embassy of Japan and the Zambian side agreed on it.

4. Items requested by the Government of Zambia

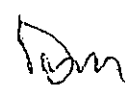
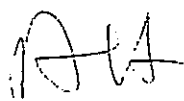
After discussions with the Team, the items described in Annex-3 were finally requested by the Zambian side. JICA will assess the appropriateness of the request through further study and will recommend to the Government of Japan for approval.

5. The Grant Aid for Community Empowerment

5-1) The Japanese side explained that the Ministry of Foreign Affairs of Japan decided that this Project should be implemented through the Grant Aid for Community Empowerment if the Government of Japan finally decide to implement the Project, and local resources such as contractors and consultants will be utilized to construct boreholes fitted with hand pumps under the Project.

The Japanese side explained the gist of the scheme of the Grant Aid for Community Empowerment as attached in Annex-4, and also explained its features as follows and the Zambian side understood them.

a) Contractors and suppliers are not tied to Japanese companies only, and local contractors in Zambia and nearby countries (hereinafter referred as "local contractors") are expected to join the Project.



Both sides confirmed that construction supervision of local contractors is very important to avoid quality problems as much as possible, which will be caused by local contractors. Thus, the Japanese side explained that Japanese consultants will supervise contractors during construction stage in collaboration with local consultants.

The consulting firm who participates the Outline Design Study will be recommended to the Government of Zambia as the Consulting firm for Detailed Design and Supervision by JICA after the Exchange of Notes.

b) Contractors will be selected by tendering and they are responsible for quality of boreholes fitted with hand pumps.

c) Conditions of contract for contractors including warranty period will be studied further through this Study.

Construction fees will be paid to contractors according to Bill of Quantity. It means that the total number of successful boreholes may not be secured.

d) Technical transfer of drilling skills cannot be included in the Project, because the Japanese side cannot secure technical resources such as Japanese drilling engineers under the Grant Aid for Community Empowerment.

5-2) The Zambian side understands the Flow Chart of Funds for Japan's Grant Aid for Community Empowerment explained by the Team, as described in Annex-5.

5-3) The Japanese side explained that the Government of Zambia is requested to open an account in the name of the Government of Zambia in an authorized foreign exchange bank in Japan and to bear expenses for handling commission in accordance with the Grant Aid Scheme for Community Empowerment.

5-4) The Japanese side explained that the Zambian side is requested to conclude an Agent Agreement within one month after the date of entry into force of the Exchange of Notes, with the procurement agent Japan International Cooperation System (JICS) to act on behalf of the Zambian side in accordance with the Grant Aid Scheme for Community Empowerment.

5-5) The Japanese side explained the Procurement Guidelines of the Grant Aid for Community Empowerment.

Both sides confirmed that the Project will be implemented through the Procurement Guidelines for the Grant Aid for Community Empowerment.

5-6) The Zambian side will take the necessary measures, as described in Annex-7, for smooth implementation of the Project, as a condition for the Japan's Grant Aid for Community Empowerment to be implemented.

6. Implementation Structure

6-1) Both sides confirmed that the Government of Japan and the Government of Zambia will establish a committee and working group to implement the Project smoothly. These consist of relevant officials of related Ministries of the Government of Zambia, namely MEWD, MLGH and MOFNP, and an official of the Embassy of Japan. A committee will deal with

administrative issues while a working group will handle technical issues, however the detailed roles of a committee and working group are presented later.

- 6-2) The Japanese side explained the draft implementing structure of the Project as described in Annex-6, and the Zambian side understood it. Both sides confirmed that detailed implementing structure of the Project will be further studied through this Study and the Basic Research Study by the Japanese side.

7. Schedule of the Study

- 7-1) The consultant members of the team will proceed to further studies in Zambia until December 21, 2006.
- 7-2) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in the beginning of June 2007.
- 7-3) In case that the contents of the draft report is accepted in principle by the Government of Zambia, JICA will complete the final report and send it to the Government of Zambia by October 2007.

8. Other relevant issues

8-1) Utilization of Drilling Unit of DWA

The Japanese side explained utilization of Drilling Unit of DWA as follows and the Zambian side understood them.

- a) Drilling Unit of DWA may not be utilized as a "contractor" because tendering of contractor for constructing boreholes will be conducted by JICS on behalf of the Government of Zambia and DWA is a client.
- b) Under the Grant Aid for Community Empowerment, private companies shall be utilized as contractors in principle.
- c) Procurement of construction material such as casing and screen pipes, hand pumps and consumable drilling tools and materials for Drilling Unit of DWA to construct boreholes may be included in the Project. The Japanese side will study possibility of utilization of Drilling Unit of DWA through this Study further.

8-2) Basic Research Study

The Japanese side explained the Basic Research Study for Groundwater Development in Rural Areas of Southern Africa through the Grant Aid for Community Empowerment (hereinafter referred as "Basic Research Study") as follows:

- a) JICA will conduct the Basic Research Study and will dig boreholes in 30 sites of Luapula Province for test borings from the beginning of January to the End of March 2007 using local construction resources in Zambia with construction supervision by the Japanese consultants. Drilling Unit of DWA and two local contractors in Zambia are expected to construct boreholes in 10 sites respectively in the Basic Research Study.

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- b) JICA will fit those boreholes with hand pumps by the end of August 2007 if quantity and quality of the groundwater gained through test borings meets the acceptable standard for drinking purpose by the Zambian side, and JICA will transfer completed boreholes fitted with hand pumps to the Zambian side after its completion.
- c) The objective of the Basic Research Study is to draw lessons in constructing boreholes using local contractors. JICA will study a mode of construction supervision by Japanese consultants and local consultants to avoid quality problems of boreholes which may be caused by local contractors as much as possible.
- d) The Team of this Outline Design Study will select candidate sites of test borings for the Basic Research Study from the candidate sites of the Project (Luapula Province) with consultation and approval of District Authorities.
- e) The result of the Basic Research Study will be reflected in this Outline Design Study.

The Zambian side agreed to conduct test borings in Luapula Province through the Basic Research Study and promised to take necessary measures to conduct the Basic Research Study such as securing necessary lands for 30 sites and mobilization of drilling equipment and engineers of DWA for 10 sites. The Japanese side explained that items of necessary measures to be taken by the Zambian side in the Basic Research Study will be explained by the Japanese side in the beginning of January 2007.

8-3) Number of boreholes to be constructed under the Project

Both sides confirmed that the number of boreholes to be constructed under the Project will be determined through this Study and the Basic Research Study by the Japanese side.

The Japanese side will further survey the 355 candidate sites according to the criteria described in the Minutes of Discussions on the Preliminary Study on the Project (7-2) signed on March 3 2006 and determine the number of boreholes to be constructed under the Project in consideration of scale of Grant, abilities of local contractors and construction period etc.

8-4) Period of the Project

The Japanese side explained that period of the Project will be basically within two years from transfer of the Grant Funds under the Grant Aid Scheme for Community Empowerment and the Team will further study implementing schedule of the Project including period of the Project.

8-5) Community sensitization and WASHE Committees

The Zambian side emphasized necessity of community sensitization through soft component programs and requested community sensitization to be included in the Project. The Japanese side agreed to study contents of soft component programs of the Project, and the Zambian side promised to arrange necessary members of WASHE Committees for conducting soft component programs if the Government of Japan finally decide to implement the Project and soft component programs.

Both sides confirmed the function of WASHU Committees as described in the Minutes of Discussions on the Preliminary Study on the Project (7-4) signed on March 3 2006.

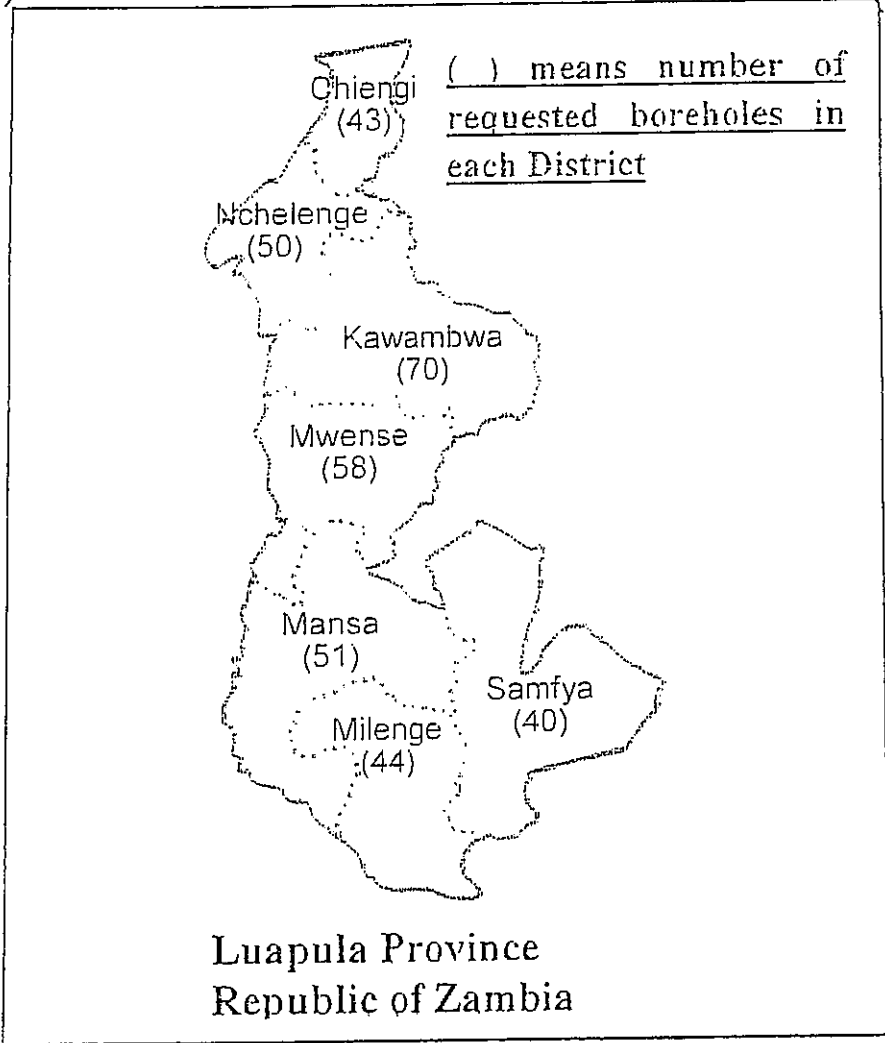
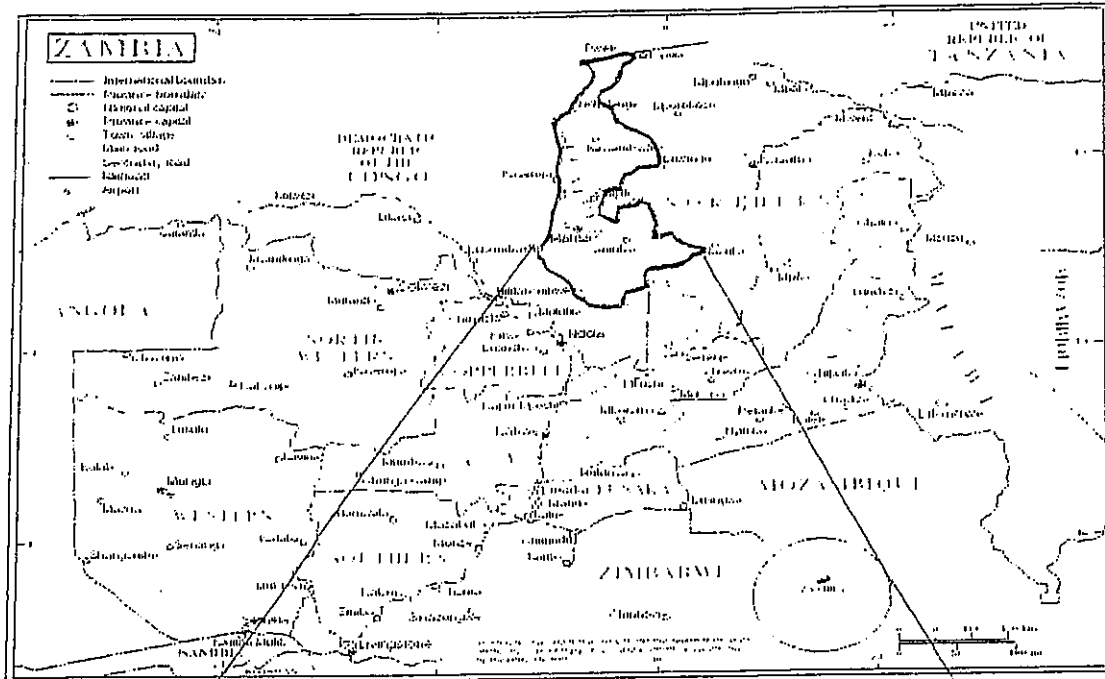
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ANNEX-1: Project Area



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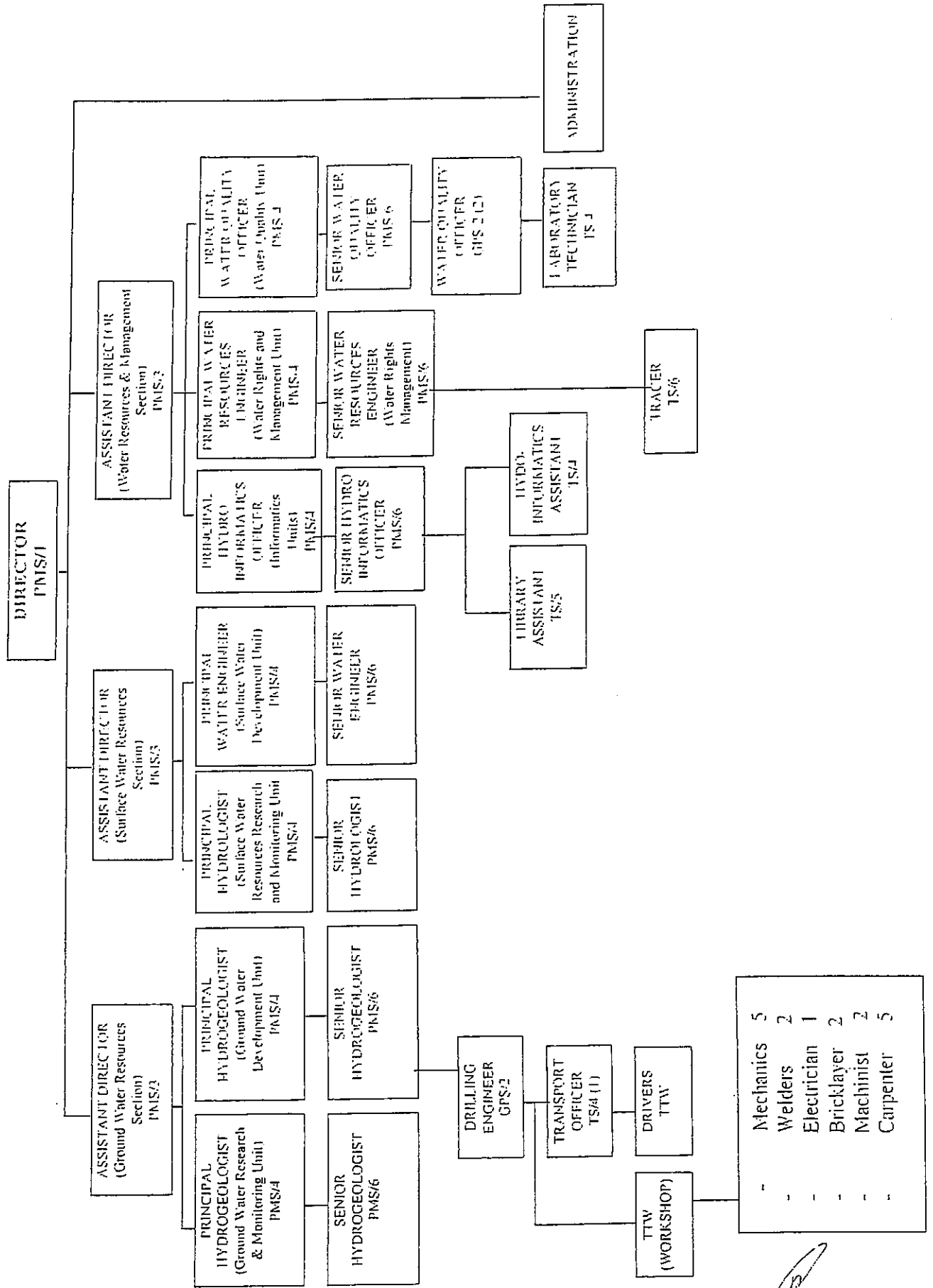
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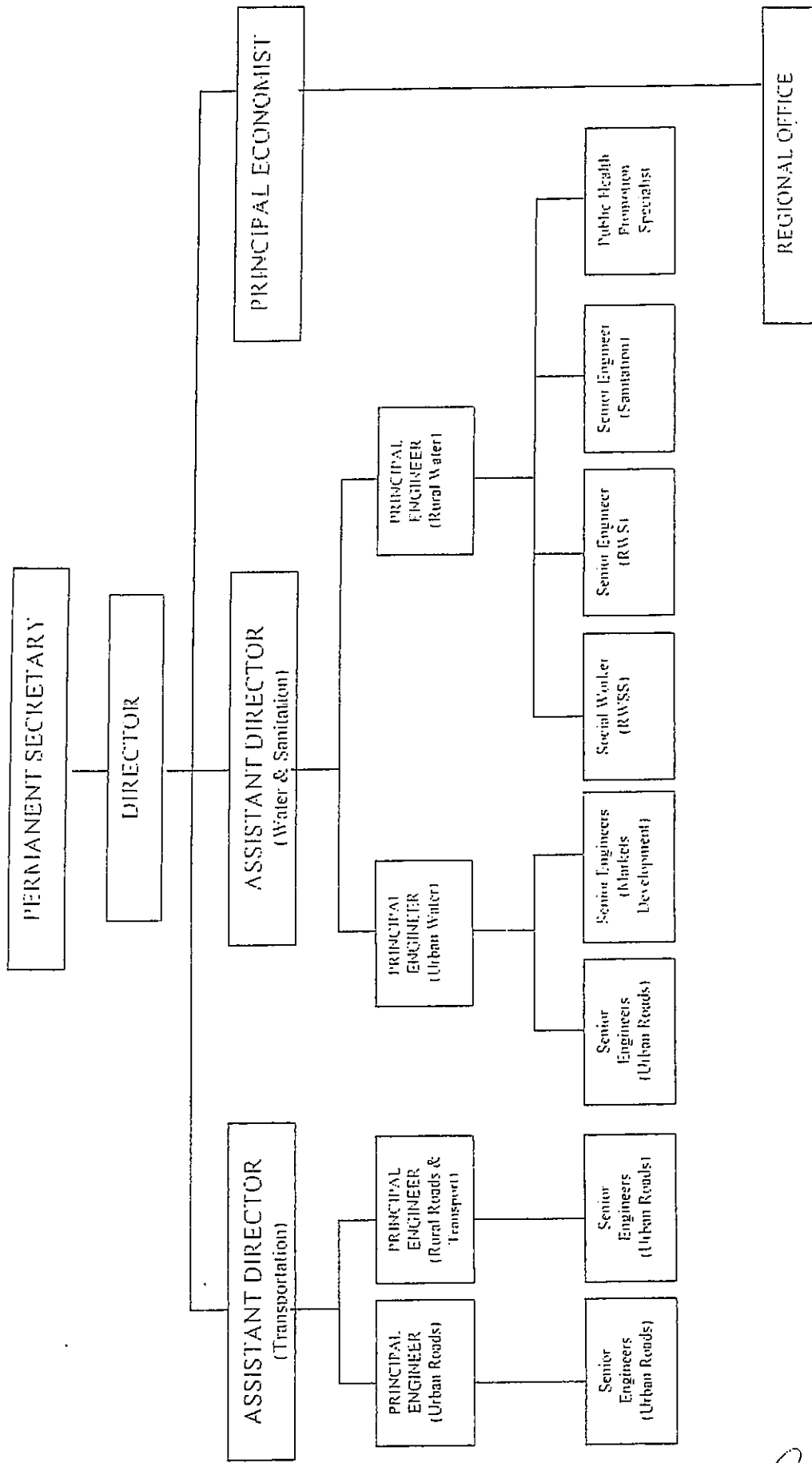
ANNEX-2 (1) : Organization Chart of DWA

MINISTRY OF ENERGY AND WATER DEVELOPMENT (MEWD)
DEPARTMENT OF WATER AFFAIRS (DWA)



ANNEX-2 (2) : Organization Chart of DISS

MINISTRY OF LOCAL GOVERNMENT AND HOUSING (MLGH)
DEPARTMENT OF INFRASTRUCTURE AND SUPPORT SERVICES (DISS)



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Annex-3: Items requested by the Government of Zambia

1. Construction

Construction of 355 boreholes fitted with hand pumps

2. Equipment

No	Item	Quantity
1.	CONSTRUCTION MATERIAL AND EQUIPMENT	
1)	Consumable drilling Tools	1 lot
2)	Consumable drilling Materials	1 lot
3)	Casing & Screen, 4"O.D. - 60m	355 boreholes
4)	Hand pump with spare parts kit	355 sets
5)	Cargo truck	2 Units
2.	GEOPHYSICAL SURVEY EQUIPMENT	1 Unit
3.	SUPPORTING EQUIPMENT FOR WASHE ACTIVITIES	
1)	Station Wagon, 4WD	2 units
2)	Pick up Truck, 4WD double cabin	8 units
3)	Motor Bike	24 units
4)	Data Processing Equipment	2 sets
5)	Water Quality Analyzing kit	8 sets

3. Soft Component Program

Community sensitization through WASHE-Activities

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Annex-4: Gist of the scheme of Japan's Grant Aid for Community Empowerment

Japan's Grant Aid Scheme for Community Empowerment (Tentative)

<Gist of the scheme>

As from FY2006, Japanese Government has introduced a new grant aid scheme called, "Grant Aid for Community Empowerment". It aims toward development of certain communities or regions in recipient country by empowering capability of the community as a whole to overcome various threats such as hunger, poverty, epidemics, etc. Multiple different components (construction of schools, roads, wells, or training etc) can be combined effectively to formulate one project. Single component project, for example, constructions of school classrooms in certain region by utilizing local resources are also possible. Contractors, suppliers or consultants are not confined to Japanese companies only, and construction can be done in line with local specification, which leads to cost reduction.

The new scheme has a number of important features which are different from those of Grant Aid for General Projects. Main features of the new scheme are as follows:

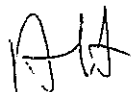
- Contractors, suppliers or consultants are not tied to Japanese companies only, and construction can be done in line with local specification.
- Multiple different components can be combined to formulate one projects.
- Procurement Management Agent (Japan International Cooperation System (JICS) is assigned to undertake overall management of the grant (including fund management) on behalf of the recipient countries.
- A project has simpler procedures and is commenced earlier than in the case of General Grant Aid type.
- Local resources, such as suppliers, contractors, consultants, materials, work force, etc., may be utilized where necessary.
- Local specifications may be applied to construction.
- Japan International Cooperation Agency (JICA) is assigned to undertake outline design studies and project implementation promotion.

One important feature and principle of the scheme is adoption cost effectiveness. If contractors with reasonable technical standard available in the recipient or nearby countries, they can participate bidding for construction. (Standard of quality will be supervised by technical advice of consultants selected by Japanese side).

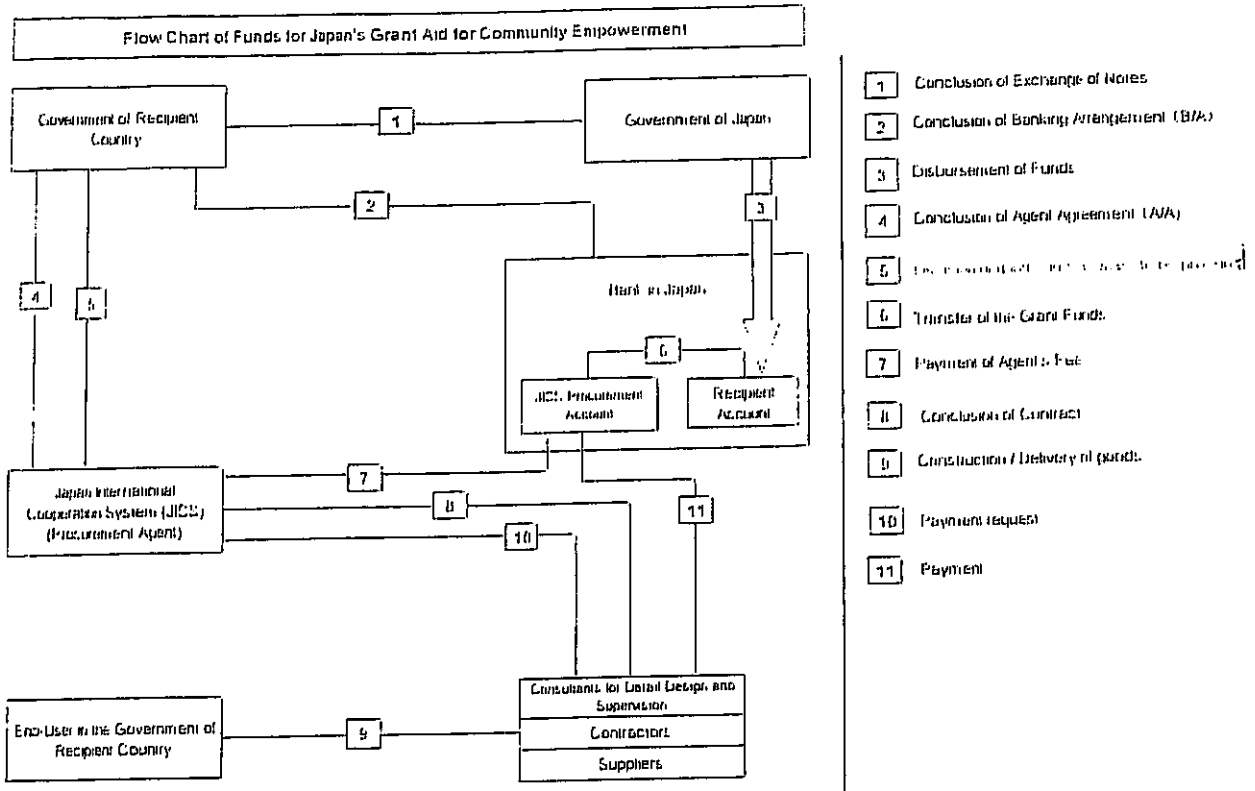
The new grant scheme, by empowering the community, thus seeks to enhance human security, an important vision for Japanese official development assistance.



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Annex-5: The Flow Chart of Funds for Japan's Grant Aid for Community Empowerment



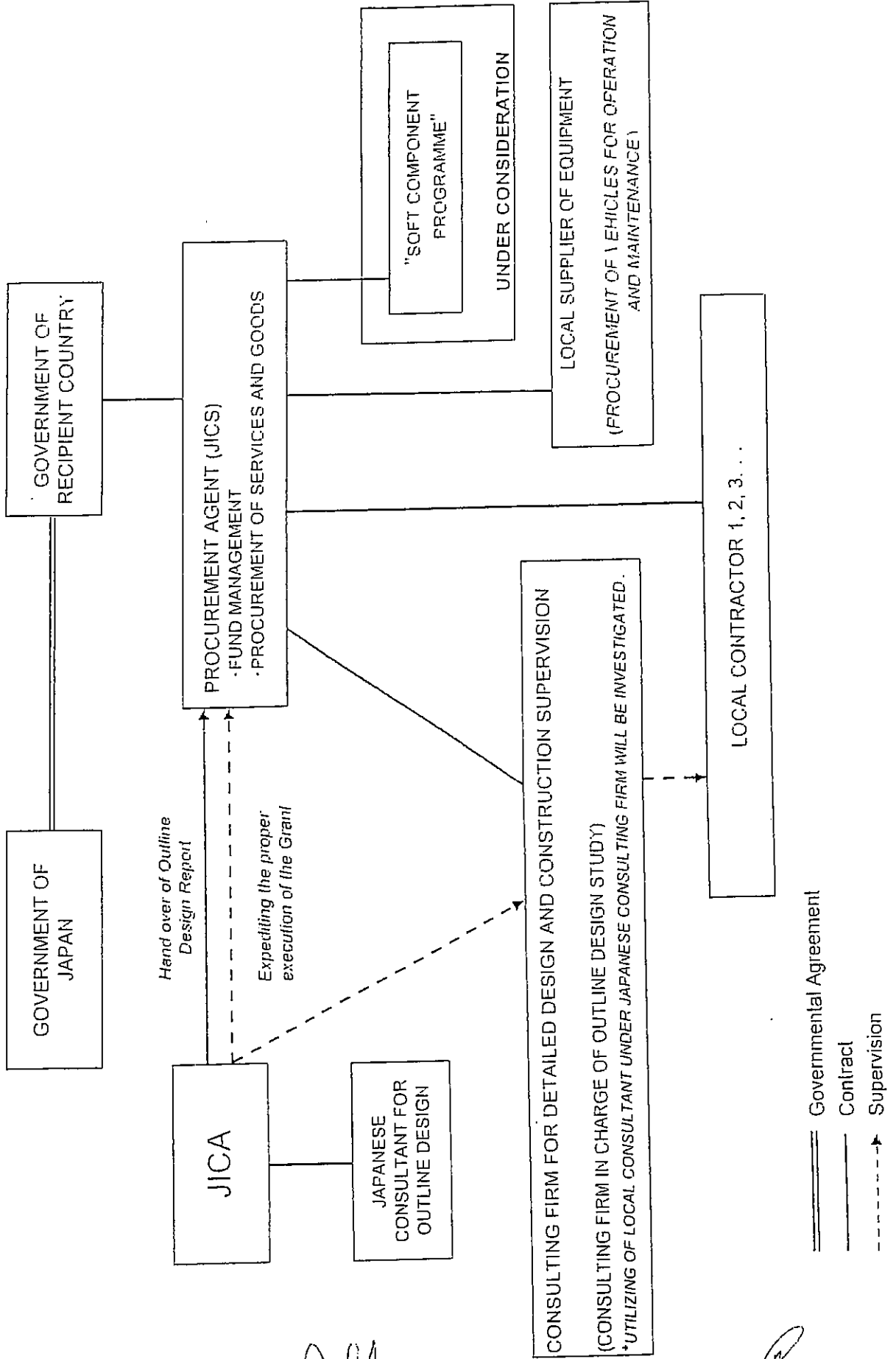
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Annex-6 Draft Implementing Structure of the Project



JICA

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Annex-7: Major Undertakings to be taken by Each Government

NO	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To secure land		•
2	To clear, level and reclaim the site when needed		•
3	To construct gates and fences in and around the site when needed		•
4	To bear the following commissions to a bank of Japan for the banking services based upon the Banking Arrangement		
	1) Payment commission		•
5	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	•	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		•
	3) Internal transportation from the port of disembarkation to the project site	(•)	(•)
6	To accord Japanese nationals and/or nationals of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
7	To exempt Japanese nationals, nationals of third countries and/or nationals of the recipient country from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services.		•
8	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		•
9	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		•
10	Any loss or damage that results from a failure of the recipient government to execute their undertakings stipulated in this list.		•

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**MINUTES OF DISCUSSIONS ON
THE BASIC DESIGN STUDY ON
THE PROJECT FOR GROUNDWATER DEVELOPMENT
IN LUAPULA PROVINCE
IN THE REPUBLIC OF ZAMBIA
(EXPLANATION OF DRAFT FINAL REPORT)**

In November and December 2006, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Outline Design Study Team on the Project for Groundwater Development in Luapula Province in the Republic of Zambia (hereinafter referred to as "the Project") to the Republic of Zambia (hereinafter referred to as "Zambia"), and through discussion, field survey, and technical examination of the results of the survey in Japan, JICA prepared a draft final report of the Basic Design study.

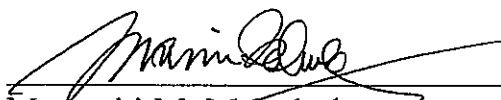
In order to explain and to consult with the Government of Zambia on the components of the draft final report, JICA sent to Zambia the Draft Final Report Explanation Team (hereinafter referred to as "the Team"); which is headed by Mr. Hiroyuki KINOMOTO, Team Director, Water Resources Development and Environmental Management Team, Project Management Group III, Grant Aid Management Dept., JICA, from October 8 to October 12, 2007.

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

Lusaka, October 12, 2007

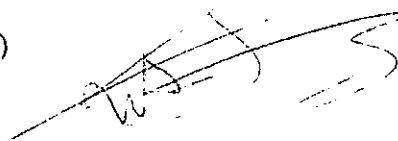


Hiroyuki Kinomoto
Leader
Basic Design Study Team
Japan International Cooperation Agency
(JICA), Japan



Maswabi M. Maimbolwa
Permanent Secretary
Ministry of Local Government and Housing
(MLGH), The Republic of Zambia

(Witness)



David Ndopu Ndopu
Director
Economic and Technical Cooperation
Department,
Ministry of Finance and National Planning
(MOFNP), The Republic of Zambia

ATTACHMENT

1. Components of the Draft Final Report

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

2. Responsible and Implementing Agency

2-1) The Responsible Agency is the Ministry of Local Government and Housing (MLGH).

2-2) The Implementing Agency is the Department of Infrastructure and Support Services (DISS), MLGH.

3. Japan's Grant Aid Scheme

3-1) The Zambian side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-4.

3-2) The Zambian side will take the necessary measures for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

The Japanese side explained that the Project will be implemented through "the Japanese Grant Aid for General" (not "the Grant Aid for Community Empowerment"), and the Zambian side understood it.

4. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Zambia by January 2008.

5. Other Relevant Issues

5-1) Project Cost Estimation

The Japanese side explained to the Zambian side the project cost estimation as attached in Annex -1. Both sides confirmed that this cost estimation is provisional and will be examined further by the Government of Japan for its approval as the Grant.

Furthermore, both sides agreed that this project cost estimation should never be duplicated nor released to any other parties until completion of signing of all the Contracts for the Project between the Government of Zambia and Japanese contractors.

5-2) Project Sites

Based on the result of field survey done in all the requested 355 sites and the criteria pre-determined in the Preliminary Study, the project sites were finally selected as follows:

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- 1) The number of the sites to be constructed under the Project
 - a. Requested number of sites (A) : 355 sites
 - b. Cancelled sites (B): : 33 sites
 - c. Successful borehole on the Basic Research Study (C) : 31 sites
 - d. Unsuccessful sites on the Basic Research Study (D) : 2 sites
 - e. Sites with possibility to develop groundwater (E)=A-B-C-D : 289 sites
 - f. Number of sites under the Project (F): : 200 sites
 - g. Alternative sites (E-F): : 89 sites

2) Criteria for prioritization

- a. Criteria for site selection was set by 7-2 of the Minutes of Discussions of the Preliminary Study signed on March 3, 2006
- b. The highest priority is given to schools, rural health centers and sites(villages) where safe water is not yet secured, and secondly to the most populated sites.
- c. Priority is also given to the sites which have an existing borehole with hand pump, but because of the large number of population, more than one borehole is required. Depending on the priority rank in accordance with the number of population, it will be considered as a project site or an alternative site.

3) Number of project sites in each District

The number of sites in each District were selected proportionally to the number mentioned in the original request as shown in the Annex-3.

4) Conclusion

289 sites from requested 355 sites were selected as feasible for the Project based on the results of the field survey analysis, and the number of boreholes to be constructed in the Project would be two hundreds (200) if the Government of Japan would finally decide to implement the Project.

There will not be third drilling after two trials are concluded as unsuccessful in terms of water quantity and quality at the same site.

The remaining 89 sites will be dealt with as alternative sites to be drilled in case the drilling work would result in failure in some of the said 200 sites.

The project sites selected based on the above criteria are shown in Annex-2.

5-3) Equipment to be procured under the Project

Both sides confirmed that procurement of eighty one (81) sets of maintenance tools for hand pump will be included in the Project.

Among the items requested by the Government of Zambia, the following items are

finally excluded from the Project.

a) Geological survey equipment including borehole logging equipment:

These items are related to borehole drilling and originally aimed at being used for groundwater development by Drilling Unit of DWA.

The objective to procure above-mentioned equipment is no longer valid due to change in the implementation modality to use private drilling companies, and those items are excluded from the Project.

b) Cargo truck with crane (5.5 t)

For the same reason as mentioned above a), this item is excluded from the Project.

c) Supporting equipment to the District Councils for WASHE activities

(Station Wagon, Pick up Truck, Motor bike, Data Processing Equipment, Water Quality Analysis Kit)

The Zambian side explained the necessity of supporting equipment to the District Councils for WASHE activities and strongly requested the Japanese side to include such equipment in the Project as part of decentralization programme.

The Japanese side understood the necessity of such equipment, but explained that it is difficult to include such equipment in the Project due to the general policy of the Government of Japan that maintenance equipment should be the obligation of the recipient country.

5-4) Water quality standard for iron and pH

According to the result of the field survey, it was found that the groundwater in the target area often contains iron with higher ratio than the Zambian guideline standard of less than 1mg/l, and pH of the groundwater often goes below the Zambian guideline standard of more than 6.5.

Therefore, with regard to assessing successful boreholes, both sides agreed to adopt water quality standard of "less than 2mg/l for iron" and "more than 5.0 for pH".

5-5) Iron Removal Facilities

In several existing boreholes in the target area, the concentration of Iron reaches more than 5mg/L and it cannot be used for drinking without iron removal plant.

Therefore, in the Project, if the concentrations of iron exceed the adopted standard of less than 2mg/l and the consultant judge that it is effective and appropriate to install iron removal plant on the site, then the consultant will consult with representatives of MLGH and Local Authorities. With the agreement of both representatives, iron removal plant will be installed and the borehole will be treated as successful if the treated water attains

the level of less than 2mg/l.

In such sites, operation and maintenance training of the iron removal plant will be conducted through Soft Component Program to Area Pump Mender (APM) and V-WASHE.

Both sides confirmed that MLGH and District Councils should keep continuous monitoring and follow-up activities for operation and maintenance of all hand pumps as well as iron removal facilities.

5-6) Soft Component Program

Both sides confirmed the contents of Soft Component Program as follows;

- Capacity Development and On-the-Job-Training (OJT) of WASHE facilitators including actual community sensitization activities (formulating V-WASHE) in 231 sites (including 31 sites of Basic Research Study)
- Training for Area Pump Mender (APM) including WASHE instructor to APM
- Technical transfer regarding operation and maintenance technique of iron removal facilities to APM and V-WASHE in the sites where iron removal facilities are installed

However, the Zambian side expressed desire to train District and Central Government personnel by relevant water and sanitation training courses.

5-7) Operation and Maintenance

MLGH should ensure that Local Authorities are responsible for operation and maintenance of the facilities to ensure sustainability of the water supply facilities to be constructed under the Project.

Local Authorities through WASHE committees of D-WASHE, Subdistrict-WASHE, V-WASHE will function for proper operation and maintenance of the completed water supply facilities.

The beneficiary residents in the Project sites will cover all costs for operation and maintenance of the completed water supply facilities.

5-8) Undertakings of the Zambian Side to implement the Project

- a) To allocate a Project Manager to assist the smooth implementation of the Project
- b) To secure land necessary to construct the water supply facilities, and to clear, to level and to reclaim the land prior to commencement of the construction
- c) To prepare access route necessary for the construction of water supply facilities
- d) To secure necessary land for a base camp and/or a stock yard for the construction teams according to the need, in the respective Districts.
- e) To ensure prompt customs clearance and internal transportation in Zambia of the

products purchased under the Grant

- f) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in Zambia with respect to the supply of the products, materials and services under the Project
- g) To operate and maintain the constructed facilities, the procured equipment and materials for the appropriate and effective implementation of the Project, and to appoint necessary staff for such objectives
- h) In relation to g) above, attention will be paid also for the sites with iron removal facilities which will be constructed under the Project, in terms of monitoring and follow-up after the completion of the Project
- i) To bear the bank commission as per the Banking Arrangement. .
- j) To bear all the expenses, including operation and maintenance cost, necessary to implement the Project except for those covered by the Grant Aid
- k) To arrange local police officers to accompany Japanese nationals and bear all the related expenses during the Detailed Design Study, the implementation of construction and soft-ware component activities for the Project which are carried out in the area within 20km from borderline between the Republic of Zambia and the Democratic Republic of Congo

5-9) Necessary budget to be covered by the Zambian side

The Japanese side explained necessary project cost to be covered by the Zambian side as attached in Annex-4.

The Zambian side promised to secure necessary budget as attached in Annex-4.

5-10) Collaboration and Coordination with other donors

The Zambian side explained that UNICEF and AfDB have intention to construct boreholes with hand pumps in Luapula Province in future, and the Zambian side promised to take necessary measures to avoid duplication of sites with such projects.

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Annex-2: Project Sites list 1/3

Site Code	Site Name	Pop.	Priority	Short list	Remarks	
CHIENGI DISTRICT: 28 Project Sites						
CH-25	Putu Basic School	2,000	1	Project		
CH-6	Nyamfwa Basic School	1,650	2	Project		
CH-13	Muya Basic School	350	3	Project		
CH-32	Kasase Basic School	250	4	Project		
CH-17	Kalobwa Basic School	785	5	Project		
CH-11	Mutampuka School	650	6	Project		
CH-24	Putu Market	2,880	7	Project		
CH-41	Lambwe Chomba MCT	2,814	8	Project		
CH-26	Mutoba Village	2,527	9	Project		
CH-40	Munkanshya Village	1,920	10	Project		
CH-20	Mukabe Village	1,900	11	Project		
CH-15	Kafwanka Village	1,750	12	Project		
CH-14	Sichilaba Village	1,650	13	Project		
CH-5	Mukobeka Village	1,600	14	Project		
CH-33	Kasembe Village	1,200	15	Project		
CH-39	Chakaba Village	1,200	16	Project		
CH-35	Kapandla Village	1,100	17	Project		
CH-30	Chembe Village	1,078	18	Project		
CH-31	Shilumbwe Village	1,060	19	Project		
CH-3	Musonko Village	1,025	20	Project		
CH-27	Chilendo Village	1,000	21	Project		
CH-29	Natende Village	900	22	Project		
CH-7	Mukonko Village	800	23	Project		
CH-43	Mikwela Village	718	24	Project		
CH-18	Sensele Village	700	25	Project		
CH-16	Kabungo Village	659	26	Project		
CH-8	Mukompa Village	600	27	Project		
CH-21	Kalima Village	600	28	Project		
CH-34	Kapujula Village	563	29	Alternative		
CH-42	Yakobo Village	500	30	Alternative		
CH-22	Kalembe Village	465	31	Alternative		
CH-9	Musolo Village	400	32	Alternative		
CH-28	Kawila Village	385	33	Alternative		
CH-10	Mwiliqa Village	350	34	Alternative		
CH-12	Chishipula Village	320	35	Alternative		
CH-23	Katentu Village	300	36	Alternative		
CH-1	Mupela Village	224	37	Alternative		
CH-2	Mutembo Village	194	38	Alternative		
CH-19	Munkunta Village	3,500	39	Alternative	1 existing BH	
CH-35	Chipungu Basic School	Existing water facility sufficient				
CH-4	Sula Village	Low motivation to form V-WASHE				
CH-36	Chibata Village	Low motivation to form V-WASHE				
CH-37	Eliya Shebele	Low motivation to form V-WASHE				
Sub-total		36,662				

BH: Borehole

BRS: Basic Research Study

Site Code	Site Name	Population	Priority	Short list	Remarks	
NCHELENGE DISTRICT: 24 Project Sites						
NC-36	Kalweo Comm. School	3,000	1	Project		
NC-28	Kawama Comm. School	1,650	2	Project		
NC-18	Kallimbwa Comm. School	300	3	Project		
NC-47	Mukeya Comm. School	250	4	Project		
NC-7	Kapambwe Clinic	3,171	5	Project		
NC-41	Chishima Village	4,786	6	Project		
NC-46	Chafuma	4,200	7	Project		
NC-13	Mulwe Village	3,500	8	Project		
NC-22	Chintakwa Village	2,280	9	Project		
NC-9	Chipayeni Village	2,172	10	Project		
NC-23	Kaseka Village	1,887	11	Project		
NC-16	Mumba Village	1,872	12	Project		
NC-27	Shikapande Village	1,869	13	Project		
NC-30	Kamwangila Village	1,500	14	Project		
NC-39	Seketi Village	1,500	15	Project		
NC-42	Kayope Village	1,500	16	Project		
NC-6	Kashita Village	1,400	17	Project		
NC-40	Chifwalo Village	1,317	18	Project		
NC-32	Yenga Village	1,290	19	Project		
NC-34	Mumpundu Village	1,200	20	Project		
NC-50	Kasasa Village	1,200	21	Project		
NC-19	Mutiwanama Village	1,080	22	Project		
NC-26	Mulumba Village	1,033	23	Project		
NC-14	Mukango Village	1,002	24	Project		
NC-43	Kupela Village	950	25	Alternative		
NC-44	Chula Village	886	26	Alternative		
NC-4	Nakohwaya Village	800	27	Alternative		
NC-31	Majuku Village	785	28	Alternative		
NC-17	Mukumbwa Village	736	29	Alternative		
NC-33	Mujimbi Village	621	30	Alternative		
NC-48	Kaputo Village	596	31	Alternative		
NC-38	Mujonda Village	550	32	Alternative		
NC-1	Kasumpa Village	500	33	Alternative		
NC-8	Bupina Village	480	34	Alternative		
NC-49	Kamfunika Village	252	35	Alternative		
NC-21	Shikapambwa	250	36	Alternative		
NC-35	Kasola Manda Village	4,020	37	Alternative	1 Existing BH	
NC-10	Kampampi Village	3,722	38	Alternative	1 Existing BH	
NC-37	Kahwala Village (*)	2,796	39	Alternative	Drilled in BRS	
NC-24	Kallimbwa Village	1,887	40	Alternative	1 Existing BH	
NC-20	Mutopuka Village	1,876	41	Alternative	1 Existing BH	
NC-12	Chipakila Village (*)	1,500	42	Alternative	Drilled in BRS	
NC-15	Kambwati Basic School (*)	1,386	43	Alternative	Drilled in BRS	
NC-29	Chandwa Basic School (*)	1,179	44	Alternative	Drilled in BRS	
NC-45	Lusha Comm. School (*)	886	45	Alternative	Drilled in BRS	
NC-25	Chilongoshi Village (*)	815	46	Alternative	Drilled in BRS	
NC-5	Mfundula Village (*)	620	47	Alternative	Drilled in BRS	
NC-11	Mantopala Basic School (*)	500	48	Alternative	Drilled in BRS	
NC-2	Kasumpa Basic School (*)	300	49	Alternative	Drilled in BRS	
NC-3	Mangamu Basic School	Existing water facility sufficient				1 Existing BH
Sub-total		65,471				

(*) The boreholes drilled under the Basic Research Study (BRS), will be considered as a alternative site and if a second borehole is not drilled at the same site, only software component will be conducted.

Annex-2: Project Sites list 2/3

Site Code	Site Name	Population	Priority	Short list	Remarks
KAWAMBWA DISTRICT: 36 Project Sites					
KA-53	Musungu School	385	1	Project	
KA-64	Chimfuntu School	382	2	Project	
KA-32	Kalyo School	208	3	Project	
KA-2	Chipunka	4,802	4	Project	
KA-55	Lumpa	3,000	5	Project	
KA-16	Stati	2,500	6	Project	
KA-54	Mutuna 1	2,000	7	Project	
KA-60	Mutuna 2	2,000	8	Project	
KA-1	Nshinka	800	9	Project	
KA-50	Musungu Yambala	773	10	Project	
KA-35	Mutuna	700	11	Project	
KA-15	Tomas	650	12	Project	
KA-42	Nachampana	608	13	Project	
KA-31	Chabanya	600	14	Project	
KA-57	Totolo	567	15	Project	
KA-44	Munasha/Malliti	540	16	Project	
KA-46	Chibatama	500	17	Project	
KA-62	Musuku	500	18	Project	
KA-68	Mapipo	488	19	Project	
KA-21	Chitembo	480	20	Project	
KA-37	Kusenguwile	453	21	Project	
KA-17	Damico	420	22	Project	
KA-69	Lueni	420	23	Project	
KA-63	Chimfuntu	405	24	Project	
KA-22	Katungulu	400	25	Project	
KA-47	Wapamesa	400	26	Project	
KA-51	Mulilo	400	27	Project	
KA-65	Chapena	400	28	Project	
KA-58	Chipwalaw	376	29	Project	
KA-67	Lengwe	350	30	Project	
KA-70	Mbalashi	335	31	Project	
KA-38	Mbilima	330	32	Project	
KA-29	Mukuma 1	300	33	Project	
KA-10	Kasawo	284	34	Project	
KA-52	Chibende	280	35	Project	
KA-56	Chisheta	275	36	Project	
KA-24	Mwendakana	270	37	Alternative	
KA-23	Mulyani	260	38	Alternative	
KA-9	Yamba	260	39	Alternative	
KA-25	Mwaba	250	40	Alternative	
KA-26	Sevent 1	250	41	Alternative	
KA-48	Fotoliya	250	42	Alternative	
KA-27	Kaboindé	249	43	Alternative	
KA-49	Kota	200	44	Alternative	
KA-36	Chinyama	180	45	Alternative	
KA-43	Shimwenya	155	46	Alternative	
KA-59	Chisembwe	3,500	47	Alternative	1 Existing BH
KA-14	Mukamba (*)	3,000	48	Alternative	Drilled in BRS
KA-41	Chilembwa	2,800	49	Alternative	1 Existing BH
KA-40	Kapambwe 2	2,000	50	Alternative	1 Existing BH
KA-12	Chipeta	1,500	51	Alternative	1 Existing BH
KA-13	Libansa	1,500	52	Alternative	1 Existing BH
KA-34	Yaya	1,500	53	Alternative	1 Existing BH
KA-3	Seca Turin Off	1,330	54	Alternative	1 Existing BH
KA-11	Nakabamba	1,280	55	Alternative	1 Existing BH
KA-4	Salanga (*)	850	56	Alternative	Drilled in BRS
KA-5	Mumbolo	691	57	Alternative	1 Existing BH
KA-19	Sikalaba	681	58	Alternative	1 Existing BH
KA-45	Kabanda (*)	565	59	Alternative	Drilled in BRS
KA-8	Mwilu	500	60	Alternative	1 Existing BH
KA-39	Kapambwe 1 (*)	500	61	Alternative	Drilled in BRS
KA-7	Nsensema (*)	480	62	Alternative	Drilled in BRS
KA-6	Chilangé Basic School (*)	422	63	Alternative	Drilled in BRS
KA-20	Nefas (*)	388	64	Alternative	Drilled in BRS
KA-61	Buyendele	300	65	Alternative	1 Existing BH
KA-30	Mukuma 2 (*)	300	66	Alternative	Drilled in BRS
KA-18	Pajiffin School (*)	193	67	Only Soft-Comp	Drilled in BRS
KA-28	Chimpembe				Low motivation to form V-WASHE
KA-33	Katontolo				Low motivation to form V-WASHE
KA-68	John Mapipo				Low motivation to form V-WASHE
	Sub-total	53,986			

Site Code	Site Name	Population	Priority	Short list	Remarks
MWENSE DISTRICT: 31 Project Sites					
MW-25	Mwense RHC	9,000	1	Project	
MW-17	Muchinga School	2,600	2	Project	
MW-22	Katuta RHC	2,000	3	Project	
MW-2	Kanyombo	4,000	4	Project	
MW-18	Musonda	3,595	5	Project	
MW-37	Musangu Filling Station	3,000	6	Project	
MW-45	Bunde Bunde	3,000	7	Project	
MW-27	Kapakala East	2,850	8	Project	
MW-58	Kaomamakasa-B	2,100	9	Project	
MW-26	Shingwe West	2,000	10	Project	
MW-56	Munganga	2,000	11	Project	
MW-30	Nakabeka	1,792	12	Project	
MW-34	Mulonga	1,668	13	Project	
MW-1	Shichama West	1,600	14	Project	
MW-12	Shibesa	1,500	15	Project	
MW-42	Kasonge	1,500	16	Project	
MW-57	Kaomamakasa-A	1,200	17	Project	
MW-8	Nkomba	1,117	18	Project	
MW-31	Kabosha	1,000	19	Project	
MW-38	Musangu Station	1,000	20	Project	
MW-49	Mutipula	1,000	21	Project	
MW-41	Chisopa	900	22	Project	
MW-51	Mwenda	803	23	Project	
MW-33	Loto	750	24	Project	
MW-36	Lifuka	750	25	Project	
MW-16	Chawe	720	26	Project	
MW-55	Lupososhi	670	27	Project	
MW-53	Mukanga	620	28	Project	
MW-50	Kamshimba	600	29	Project	
MW-5	Laula	580	30	Project	
MW-13	Mitamba B	510	31	Project	
MW-32	Chiposa	500	32	Alternative	
MW-45	Chifita	500	33	Alternative	
MW-14	Chuibumbi	488	34	Alternative	
MW-9	Soshiki	412	35	Alternative	
MW-54	Chipelemo	402	36	Alternative	
MW-11	Mukomansala	400	37	Alternative	
MW-6	Chinole	380	38	Alternative	
MW-19	Musalula	355	39	Alternative	
MW-3	Kabundafyela	330	40	Alternative	
MW-35	Saini	306	41	Alternative	
MW-47	Kankamba	300	42	Alternative	
MW-7	Mulangu	250	43	Alternative	
MW-28	Mwanda	240	44	Alternative	
MW-21	Kapesha	200	45	Alternative	
MW-23	Chipala	200	46	Alternative	
MW-10	Chafwa	157	47	Alternative	
MW-44	Kapala (*)	3,565	48	Alternative	Drilled in BRS
MW-39	Kapena	3,000	49	Alternative	1 Existing BH
MW-40	Mumporokoso	2,000	60	Alternative	1 Existing BH
MW-52	Mujunda (*)	1,200	51	Alternative	Drilled in BRS
MW-43	Chilolo	1,000	52	Alternative	1 Existing BH
MW-48	Chululungo (*)	1,000	53	Alternative	Drilled in BRS
MW-4	Chimbini (*)	720	54	Alternative	Drilled in BRS
MW-24	Sunshine School (*)	270	55	Alternative	Drilled in BRS
MW-29	Kambule (*)	250	56	Only Soft-Comp	Drilled in BRS
MW-20	Chibondo RHC				Existing water facility sufficient
MW-15	Chalata				Low groundwater potential, 2 attempt in BRS
	Sub-total	74,848			

(*) The boreholes drilled under the Basic Research Study (BRS), will be considered as a alternative site and if a second borehole is not drilled at the same site, only software component will be conducted.

Annex-2: Project Sites list 3/3

Site Code	Site Name	Population	Priority	Short list	Remarks
MANSARA DISTRICT: 26 Project Sites					
MA-48	Kafuula Comm. School	340	1	Project	
MA-39	Mibenge RHC	500	2	Project	
MA-19	Elasto/Miyemba RHC	280	3	Project	
MA-32	Mano/Kabengele	5,831	4	Project	
MA-42	Kalyongo Village (A)	3,000	5	Project	
MA-43	Kalyongo Village (B)	3,000	6	Project	
MA-25	Kaseke Village	1,580	7	Project	
MA-18	Kale Village (A)	1,350	8	Project	
MA-17	Kale Village (B)	1,350	9	Project	
MA-8	Kaisala Village	1,230	10	Project	
MA-28	Chisemba Village	1,200	11	Project	
MA-46	Mabumba West	1,200	12	Project	
MA-23	Chisongo (A)	1,000	13	Project	
MA-26	Chisongo (B)	1,000	14	Project	
MA-2	Dominic Village	700	15	Project	
MA-50	Sepe Community	696	16	Project	
MA-49	Chaiwa/Chiba	675	17	Project	
MA-6	Kasanga Village (B)	600	18	Project	
MA-45	Musaila Comm. Market	510	19	Project	
MA-22	Mutipula Village	432	20	Project	
MA-20	Twapya/Melet	360	21	Project	
MA-5	Kasanga Village (A)	300	22	Project	
MA-7	Luo Village (Chipense)	300	23	Project	
MA-30	Kaseya/Kampalala 2	203	24	Project	
MA-12	Chiswishi/Jereman	105	25	Project	
MA-47	Kundamfumu RHC	10,000	26	Project	1 Existing BH
MA-31	Mano RHC (*)	5,931	27	Alternative	Drilled in BRS
MA-14	Chabala Village	5,000	28	Alternative	1 Existing BH
MA-41	Mabumba East (*)	2,000	29	Alternative	Drilled in BRS
MA-44	Kapaya Village (*)	1,200	30	Alternative	Drilled in BRS
MA-3	Temiwa Village	836	31	Alternative	1 Existing BH
MA-24	Mufuma Village (A) (*)	875	32	Alternative	Drilled in BRS
MA-38	Mano/Chibamba	492	33	Alternative	1 Existing BH
MA-4	Mullo Village (*)	415	34	Alternative	Drilled in BRS
MA-33	Kaseya/Kampalala 1: (*)	203	35	Alternative	Drilled in BRS
MA-15	Yinda Village (*)	200	36	Alternative	Drilled in BRS
MA-10	Mibinde/Chipillipi	Existing water facility sufficient			1 Existing BH
MA-40	Chimbwa Village	Existing water facility sufficient			1 Existing BH
MA-9	Lusaya Village	Low groundwater potential. 2 attempts in BRS			
MA-1	Lumbu Village	Low motivation to form V-WASHE			
MA-11	Lwili/Mwansa	Low motivation to form V-WASHE			
MA-13	Milombwe/Mpita	Low motivation to form V-WASHE			
MA-18	Katulwende Village	Low motivation to form V-WASHE			
MA-21	Mpemba Village	Low motivation to form V-WASHE			
MA-27	Mufuma Village (B)	Low motivation to form V-WASHE			
MA-29	Kalimba Village	Low motivation to form V-WASHE			
MA-34	Mbaso/Musabila	Low motivation to form V-WASHE			
MA-35	Mano Mulala/Chanda	Low motivation to form V-WASHE			
MA-37	Mashimi	Low motivation to form V-WASHE			
MA-38	Moloshi	Low motivation to form V-WASHE			
Sub-total		53,674			

(*) The boreholes drilled under the Basic Research Study (BRS), will be considered as a alternative site and if a second borehole is not drilled at the same site, only software component will be conducted.

(1) Calculation of site number

- Requested site number (A): 355 sites
- Cancelled site (B): 33 sites
- Successful borehole on the BRS (C): 31 sites
- Unsuccessful borehole on the BRS (D): 2 sites
- Sites with possibility to develop groundwater (E)=A-B-C-D: 289 sites
- Number of sites under the Project (F): 200 sites
- Alternative sites (E - F): 89 sites

(2) Criteria for prioritization

- The Project sites was selected based on the agreed criteria in the Preliminary Study
- The highest priority is given to school, health center and village, respectively where safe water is not yet secured, and secondly to the most populated sites.
- Priority is also given to the sites which have an existing borehole with handpump, but because of large number of population, more than one borehole is required. Depending on the priority rank in accordance with the number of population, it will be considered as a project site or an alternative site.

Population in case the drilling is done in the Project and Alternative Sites: 330,314

Site Code	Site Name	Population	Priority	Short list	Remarks
SAMFYA DISTRICT: 26 Project Sites					
SA-38	Mpolo Comm. School	1,128	1	Project	
SA-15	Kalasa Middle Bas. School	980	2	Project	
SA-16	Kasaba Basic School	840	3	Project	
SA-17	Kanengo Comm. School	500	4	Project	
SA-6	Kaponda/Filipo Bas. Sch.1	420	5	Project	
SA-1	Chibuye Basic School	400	6	Project	
SA-26	Lwama Basic School	400	7	Project	
SA-7	Chikuwe Basic School	387	8	Project	
SA-2	Cholansega Basic School	380	9	Project	
SA-10	Sashi Basic School	300	10	Project	
SA-14	Kafwimbi Basic School	300	11	Project	
SA-29	Chisuku Basic School	300	12	Project	
SA-18	Chinweshiba Bas. School	274	13	Project	
SA-3	Chifuko Comm. School	257	14	Project	
SA-32	Nijpa Rural Health Centre	5,742	15	Project	
SA-23	Kalasa M. RHC	412	16	Project	
SA-35	Kafubashi Agric. Camp	8,535	17	Project	
SA-31	Kasuba Village B	4,000	18	Project	
SA-30	Nambale Village	3,000	19	Project	
SA-39	Tuta Village	1,800	20	Project	
SA-28	Kalimanshi Village	720	21	Project	
SA-22	Sakala Village	673	22	Project	
SA-21	Musokololo Village	570	23	Project	
SA-34	Mano/Malembe	450	24	Project	
SA-37	Malombola Village	355	25	Project	
SA-38	Musa Village	312	26	Project	
SA-33	Mungulube	250	27	Alternative	
SA-8	Masembé Village	232	28	Alternative	
SA-27	Mwila Village	212	29	Alternative	
SA-12	Kasaba/Chapa Village	165	30	Alternative	
SA-9	Kasamba/Kasarika	928	31	Alternative	1 Existing BH
SA-24	Kabongo RHC	760	32	Alternative	1 Existing BH
SA-25	Yamba Basic School	700	33	Alternative	1 Existing BH
SA-5	Kasuba Basic School (A)	Existing water facility sufficient			1 Existing BH
SA-11	Bombawamenshi Bas. Sch.	Existing water facility sufficient			1 Existing BH
SA-20	Lupili Market	Existing water facility sufficient			1 Existing BH
SA-4	Mwewa East	Low motivation to form V-WASHE			1 Existing BH
SA-13	Mwansakombe Village	Low motivation to form V-WASHE			
SA-19	Mwamful Market	Low motivation to form V-WASHE			1 Existing BH
SA-40	Maximo Village	Low motivation to form V-WASHE			
Sub-total		23,462			

Site Code	Site Name	Population	Priority	Short list	Remarks
MILENGI DISTRICT: 29 Project Sites					
ML-38	Lwela Basic School	812	1	Project	
ML-26	Kapalala Basic School	406	2	Project	
ML-10	Katena Comm. School	330	3	Project	
ML-41	Milambo Basic School	252	4	Project	
ML-21	Mashika Basic School	200	5	Project	
ML-34	Mulumbi RHC	6,037	6	Project	
ML-35	Misenga Health Post	308	7	Project	
ML-29	Chishimuteshi RHC	226	8	Project	
ML-9	Mununshi Turn Off	2,400	9	Project	
ML-1	Lunga Village (A)	736	10	Project	
ML-32	Kachenje Village	715	11	Project	
ML-37	Kuyafya 1&2 Village	700	12	Project	
ML-11	Kubi Village	605	13	Project	
ML-3	Chisensa Village	600	14	Project	
ML-6	chalyafya-Kapande	586	15	Project	
ML-15	Musoolo Village	526	16	Project	
ML-17	Kalebaila Village	492	17	Project	
ML-25	Talayi Village (B)	467	18	Project	
ML-18	Malenga Turn Off	459	19	Project	
ML-27	Mapula Village	390	20	Project	
ML-19	Kulewa Village	384	21	Project	
ML-8	Garden Village	380	22	Project	
ML-20	Issac Chifukula Village	372	23	Project	
ML-39	Springa Village	364	24	Project	
ML-40	Butute Village	360	25	Project	
ML-43	Kalaba Shitembeya	360	26	Project	
ML-14	Shitambuli Village	325	27	Project	
ML-38	Chintu Village	287	28	Project	
ML-13	Senama (Mwenda Chabe)	230	29	Project	
ML-4	Nyembe Village	220	30	Alternative	
ML-42	Buyantashi Village	218	31	Alternative	
ML-22	Changwe Netu Village	215	32	Alternative	
ML-12	Muntu (Kapala/Milengi TO)	207	33	Alternative	
ML-23	Lunga Village (B)	200	34	Alternative	
ML-24	Tofa Village	186	35	Alternative	
ML-30	Chilimbawe	155	36	Alternative	
ML-28	Chungwe Village	122	37	Alternative	
ML-33	Toblo Village	116	38	Alternative	
ML-16	Muwaya Village	103	39	Alternative	
ML-5	Milengi High School	1,060	40	Alternative	1 Existing BH
ML-2	Talayi Village (A)	600	41	Alternative	1 Existing BH
ML-7	Johi Nkumba Village	500	42	Alternative	1 Existing BH
ML-31	Mulungushi School	Inaccessible			
ML-44	Kalebwe Village	Inaccessible			
Sub-total		22,211			

Annex-3 Number of projects site in each District

The total project site is $200 + 31 = 231$ sites (31 sites are the successful borehole constructed under the Basic Research Study)

District	Requested site number	Proportion per District	Number of sites including Basic Research Study (*1)	Done in the Basic Research Study	Number of sites under the Project
	(A)	(B)=A/355	(C)=231*(B)	(D)	(E)=(C - D)
1) Chiengi	43	12.1%	28	-	28
2) Nchelenge	50	14.1%	33	9	24
3) Kawambwa	70	19.7%	45	9	36
4) Mwense	58	16.3%	37	6	31
5) Mansa	50	14.1%	33	7	26
6) Samfya	40	11.3%	26	-	26
7) Milengi	44	12.4%	29	-	29
Total	355	100.0%	231	31	200

(*1) For the purpose of distributing the number of sites proportionally in each District, the successful borehole constructed in the Basic Research Study will be considered in the above calculation, once the sites selected in the said Basic Research Study were selected from the same site list.

Annex-4: Necessary budget to be covered by the Zambian side

Cost Item	Total	Calculation	Remarks
Personnel Expense during siting work in the detailed design study	ZMK11,700,000	3 months × 26 days × 3 persons × ZMK50,000/day/person	3 D-WASHE member. One to accompany the hydro geological team, two for geophysical team.
	ZMK3,543,750	MLA : 63 sites × ZMK61,250/site(4 persons)	63 sites located within 20 km from the borderline with DR Congo, where it is required a police escort.(*)
Personnel expenses during Supervision work(**)	—	Supervision of construction and software component activity. Coordination with each District and V-WASHE of the target sites. (days× ZMK50,000/day/person)	Will be done by the staff of DISS, but the quantity will vary according to the necessity during the construction work.
	ZMK24,759,000	MLA : 63 sites× ZMK393,000/site (10 persons)	63 sites located within 20km from the borderline with DR Congo, where it is required a police escort.(*)
Personnel expenses during inspection for handover of facilities	ZMK41,600,000	16 months × 26 days × 2person× ZMK50,000/day/person	2 Members of D-WASHE will attend the inspection for handover
Personnel expenses for the software component under the responsibility of Zambian side	ZMK 283,600,000	—	—
Advising Commission for Authorization to Pay (A/P)	ZMK339,600	A/P opening ZMK135,840×2 times A/P amendment ZMK67,920×1 time	
Payment Commission to bank	ZMK 12,345,238		—
Total	ZMK378,202,588 (JPY11.1million)		

* During the work within the 20km from the borderline with DR Congo, the police officer will be deployed from each District headquarter.

**A Project Manager will be allocated to assist the smooth implementation of the Project.

Annex-5: JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure (Attachment 1)

1) 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 (The Notes exchanged between the Governments of Japan

Implementation and the recipient country)

- 2) Firstly, the application or 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 Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, 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 signed by the Governments of Japan and the recipient country.

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

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter 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:

- a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
- b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
- c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
- d) preparation of a basic design of the Project; and
- e) estimation of costs of the Project.

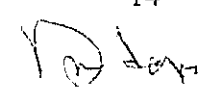
The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

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 through 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 the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.



3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program 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 the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) 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.

3) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, 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.

4) Under the Grant, 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 and contracting 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.)

5) Necessity of "Verification"

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

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- 6) Undertakings required to the Government of the recipient country (Attachment 2)
- a) to secure a lot of land necessary for the construction of the Project and to clear the site;
 - b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;
 - c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
 - d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
 - e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;
 - f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and
 - g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

7) "Proper Use"

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

8) "Re-export"

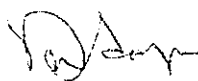
The products purchased under the Grant Aid shall not be re-exported from the recipient country.

9) 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 an authorized foreign exchange 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 (A/P) issued by the Government of recipient country or its designated authority.

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FLOW CHART OF JAPAN'S GRANT AID PROCEDURES

Stage	Flow & Works	Recipient Government	Japanese Government	JICA	Consultant	Contractor	Others
Application	<p>Request (T/R : Terms of Reference)</p> <p>Screening of Project → Evaluation of T/R → Project Identification Survey</p>	█					
Project Formulation & Preparation	<p>Preliminary Survey → Field Survey Home Office Work Reporting</p>	█					
	<p>Basic Design</p> <p>Basic Design Study → Selection & Contracting of Consultant by Proposal → Field Survey Home Office Work Reporting</p> <p>Explanation of Draft Final Report → Final Report</p>	█			█		
Appraisal & Approval	<p>Appraisal of Project</p> <p>Inter Ministerial Consultation</p> <p>Presentation of Draft Notes</p> <p>Approval by the Cabinet</p>		█				
Implementation	<p>E/N (E/N : Exchange of Notes)</p> <p>Banking Arrangement</p>	█					█
	<p>Consultant Contract → Verification → Issuance of A/P</p>	█					
	<p>Detailed Design & Tender Documents → Approval by Recipient Government → Preparation for Tendering</p>	█					
	<p>Tendering & Evaluation</p>	█					
	<p>Procurement / Construction Contract → Verification → A/P</p>	█					
	<p>Construction → Completion Certificate by Recipient Government → A/P</p>	█					
	<p>Operation → Post Evaluation Study (A/P : Authorization to Pay)</p>	█					
Evaluation & Follow up	<p>Ex-post Evaluation → Follow up</p>	█					

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Major Undertakings to be taken by Each Government

NO	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To secure land		•
2	To clear, level and reclaim the site when needed		•
3	To construct gates and fences in and around the site when needed		•
4	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		•
	2) Payment commission		•
5	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	•	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		•
	3) Internal transportation from the port of disembarkation to the project site	(•)	(•)
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
7	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		•
8	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		•
9	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		•

(B/A: Banking Arrangement, A/P: Authorization to Pay)

APPENDIX 5 Software-Component Programme Plan

1-1 Background

Based on National Water Policy 1994, the basic policy for water sector in Zambia, the government adopts the operation and maintenance system with voluntary participation of community members and support service from the administration to the rural water supply and sanitation programme, so this plan is to utilise this system.

The Strategy and Action Plan of WASHE, which the government introduced into the rural water supply and sanitation sector in 1997, shows the basic strategy and approach for implementation of rural water supply and sanitation programme. It focuses on organising institution as a main actor in the water supply and sanitation programme in the local government and community, and on system of approaches and methods of capacity building for problem resolution through participatory methods. This method is called “WASHE activities”, systematised to some degree, based on the support from donor agencies and on the feedback of lesson learnt from past experiences in the rural water supply and sanitation project with assistance from the donor agencies, and the government of Zambia has encouraged all the projects for improving rural water supply and sanitation to introduce this method, including each target district in the Luapula Province.

Moreover, “(Final Draft) National Guidelines for Sustainable Operation and Maintenance of Rural Water Supply Facilities (May 2007)”, which MLGH/DISS is now on the way of establishing through Japan’s cooperation “SOMAP”, points out the requirements below to assure sustainable operation and maintenance.

Cost sharing by beneficiaries: The community is responsible for all the costs of operation and maintenance, 5% of initial investment cost, and 5% of rehabilitation and update cost of the facilities.

Establishment sustainable supply chain: Service stock of spare parts, setting appropriate price for beneficiaries, and establishment of operation system to assure sustainability

Ownership for operation and maintenance system by beneficiaries: Management of water supply facilities at appropriate level close to end-user, participation of stake holders, and equal commitment by each gender

Selection of appropriate technology: Meeting hydro geologic condition, capability of cost sharing for initial cost and operation cost, decay durability of facilities, and standardisation of research and development

Capacity Building: Setting the legal policy framework for assisting the community-owned operation and maintenance system, enlightenment activities and community participation promotion, and skill development in the aspect of management, finance and technology necessary for maintenance of the water supply facilities

“(Draft) SOMAP guideline” suggests adopting the “Three-Tier System” at present stage, which is consisted of three layer; district, sub-district and village. However, in the long and medium terms, DISS aims to transfer to the self-help system which keeps the access to safe and sustainable water (“One-Tier System”) through enhancing the ownership and responsibility of the communities both on decision-making for operation and maintenance and arrangement of resources for rehabilitation and update of the facility. Although the primary responsibility for operation and maintenance also rests on the beneficiary under the present system, it is often the case that the community need government’s financial support and initiative for activity in cost sharing of rehabilitation of facility and implementation of rehabilitation and update work. It seems to be facilitated to transfer from such government-led system of maintenance to community-led system, based on the decentralisation policy and “NRWSSP”.

1-2.Issues of the system of operation and maintenance in the target area

Through the Basic Design Study, the project identified the issue of water use and operation and maintenance activity in target area, as indicated below. In drawing up the Software Component Programme, the project considered such issues and reviewed the appropriate approach and contents of necessary cooperation.

(1) The capacity of community to implement operation and maintenance activities

Although V-WASHE committees are formulated in most (70%) of the 292 sites which the project considered capable to develop water resource out of 350 study sites, the members do not have the systematic knowledge, skill and experience to operate the committees, to promote water supply and sanitation in the village, and to promote maintenance. When a community expects support from the local government for improvement in water supply and sanitation, the community formulates V-WASHE committee as a representative of them, for the district government encourage them to do so. However, the other community members do not understand the object of the committee appropriately, as the committee does not clarify either its constitution nor responsibility and role of the members.

In terms of sharing of maintenance cost, in the villages without protected water resources and reserved fund for maintenance cost, they have willingness to pay for the maintenance cost of the borehole with handpump when constructed. However, because of lack of information about expense necessary for maintenance, we found the case where willingness to pay does not meet the level to cover the necessary expense though they have capacity to pay. Even in the villages with the borehole with handpump and reserved fund for maintenance cost, they do not set the amount of the reserved fund by calculating the necessary expense.

In terms of maintenance of existed handpumps, as the community do not have knowledge and skill for routine maintenance check for prevention, and for handling in failure, the project

sometimes finds the case where they have left the failed facility for a long time without repair work.

As is clear from the preset status of the target area, so as to encourage the community members to be proactive in operation and maintenance of the constructed water supply facility, in the community with V-WASHE at present the project needs to facilitate them in operation and maintenance managed by the committee, to reconfirm the appropriateness and fairness of membership, and to stimulate the committee as well as to promote formulation of the committee on the site without V-WASHE. In terms of operation and maintenance, V-WASHE is essential to master the knowledge and skill for leadership, problem/needs assessment, action plan for problem resolution, consensus building within community, operation of organisation, setting/reserving/accounting control of maintenance cost, prevention of the water supply facility and handling in failure, and monitoring of activity.

(2)Consciousness and practice of beneficiaries about “water and sanitation”

Most people on target site obtain domestic water from unsanitary sources such as river/stream and unprotected shallow well. The health and sanitary condition on the target site is so poor that diarrhoea and malaria account for 70% (in the dry season) – 90% (in the rainy season) out of all diseases, and that many other water-borne diseases also occur. In spite of such condition, only 38% of villages have ever held health and sanitation activity, 1% has VIP latrine, and 76% use traditional pit latrine. Even in the village with experience of health and sanitation activity, the contents of real activity are just cleaning and weeding around the sources and maintenance of traditional pit latrine. For prevention of water-borne diseases, they need to improve in consciousness, action and practice of individuals, households and public health such as safety handling of drinking water, food sanitation, promotion of washing hands, appropriate use of latrine, and conservation of environmental sanitation.

From the condition mentioned above, the project needs to encourage the community to hold the existing voluntary activities for health and sanitation promotion, and moreover, to instruct for facilitating the promotion of expanding and practicing the appropriate knowledge about “water and sanitation”.

(3)Lack of human resource with skills and experiences for instructing operation and maintenance of water supply facility with handpump

In 22 target villages where existing handpumps are left to be failed, the reason for the situation is in halves both “Try to repair by community themselves but failed” and “Asked private plumber for repair works and still waiting”. The result shows that responsibility of daily operation and maintenance rests in V-WASHE committee, school, rural health centre and village head. Although the operation and maintenance responsibility is clarified, the appropriate handling of the facility does not realise as cultivation of APM with necessary skill for fixing

delays. And as the district run short of trainer of APM, it has difficulty in promoting the training for APM by itself.

Therefore, it is important to train the skills for instruction to the trainer in charge of cultivating APM selected from the members of D-WASHE committee, and to put in place an environment that will enable the trainer to implement the training to APM. After transferred to One-Tier-System, APM will be one of options of service provider for maintenance as mechanisms to support community-led maintenance system in remote places where handpump distributors and construction companies are reluctant enter the market.

While APM is in charge of supporting operation and maintenance of water supply facilities in technical aspect, Area Development Committee (ADC) plays a part in software aspect as for raising awareness of the community, training V-WASHE and caretakers, and promoting integration of development plan for the area. ADC, functioned as a medium between district government and community members, is organised based on the Decentralised Implementation Plan (2006-2010) as part of strengthening the promotion function of district government to plan and implement the development plan. Now the district is organising ADC in target areas with its initiative. ADC is consisted of community leader who comes from the arbitrarily-divided community from Ward, RHC staff (especially, Environmental Healthy Technician (EHT)) who provides daily public service for community members, school teacher, and extension staff from Ministry of Agriculture. Operation and Maintenance Guideline mentioned above also refers to policy for utilising ADC members as facilitators to promote participation of community members in water supply and sanitation programme.

When ADC was organised in the target area, members of ADC have already taken an orientation of its general functions such as role of ADC and cooperation between the district and community for promotion of development plan. Also, in the UNICEF's target district, although some members have gone through training for the method of participatory hygiene promotion, most members do not have knowledge and skill of instruction of operation and maintenance to community and V-WASHE. Therefore, as the personnel in charge of direct approach to community at village level at present does not have enough skills and experiences necessary for the activity, the project needs to cooperate on capacity development of ADC members as well as APM. (In this Software-Component Programme, hereinafter referred to as "WASHE facilitators", who are in charge of promotion activities of community members at village level, assistance for organising and training of V-WASHE and promotion of hygiene education.)

2 Objectives

The Luapula Province delays efforts for organising the system of operation and maintenance along with construction of water supply facilities until now, and it does not implement enough promotion and settlement of V-WASHE-centred operation and maintenance at village level, and

enough improvement in supporting system of local government. As each district acknowledges necessity to strengthen the aspect mentioned above, those are reflected in the WASHE annual action plan made by district government. However, because of financial limits, the province has high needs for Japanese cooperation in the initial training to necessary persons involved in operation and maintenance activity, and expects implementation of the training in appropriate coordination with the construction process within Japanese cooperation.

Considering this situation, the project implements Software-Component Programme with aims of capacity development of district officers who support community-led maintenance activity and personnel in charge of supporting activity for community in the field at village level, so as to realise sustainable provision of safe water through construction of water supply facility with borehole with handpump as mentioned in the project purpose, and to improve initial condition to facilitate early realisation of the effects.

The direct targets of skill and capacity development by Japanese cooperation are the district government which takes administrative responsibility in planning and implementation of rural water supply and sanitation project within the district, its technical advisory committee “D-WASHE”, and WASHE facilitators in charge of implementing instruction of operation and maintenance directly to community members in coordination with the district government. Activities at the village level such as community mobilisation / organisation and training in maintenance will be conducted as a series of the programme for capacity building of government officer centred on the district government. It is expected that strengthening support service by administration will enable each district to continue the follow-up activities after completion of the project and to utilise approaches, activities and human resources for similar project each district will implement afterward.

3 Outputs of Software-Component Programme

The direct effects or outputs anticipated through the realisation of the Software-Component Programme are explained below.

Output 1

The skills and knowledge of the human resources at the district and sub-district are improved for capacity building and facilitation of hygiene education required to improve water supply and create an appropriate operation and maintenance system with communities’ initiative.

Output 2

The system of monitoring and evaluation for water supply and sanitation improvement programme at district and sub-district level is improved.

4 The way to verify achieved output

Indicator to verify outputs above and the way of evaluation are explained below

(1) The skills and knowledge of the human resources at the district and sub-district are improved for capacity building and facilitation of hygiene education required to improve water supply and create an appropriate operation and maintenance system with communities' initiative.

【Indicator 1-1】

D-WASHE trainers, WASHE facilitators and Area Pump Menders who have acquired the skills necessary for proper operation and maintenance of water supply facilities will be allocated in the district.

D-WASHE trainers

Three trainers appointed from each D-WASHE take training in installation and repair of handpump water facility, concept of the community-based management of the water and sanitation, roles and responsibilities of each actor, skills to provide trainings to the Area Mechanics. The examination to verify the achievement is held and evaluated in completion of the training. Also through On-the-Job Training such as actual training of the Area Mechanics, the achievement of skills is verified.

APM

APM is appointed from each ADC, which comprehends the geographical and social situation of the target area. Through skill examination and On-the-Job Training of handpump construction and monitoring in the training of handpump manager, APM is also evaluated.

WASHE facilitators

As skill level of personnel varies from whether or not he/she has the experiences of training course or field activity, the project implements the training for all the facilitators to achieve output to some extent under common understanding of the goals targeted in each activity and the approaches of implementation. The achievement of necessary skills of WASHE facilitator, who are in charge of assistance for organising, operation, maintenance, and improving sanitation activities of V-WASHE at village level, is verified through the process of instructing residents in target sites about planning, operation, maintenance, monitoring and hygiene education with participation of community members.

【Indicator 1-2】

V-WASHE is formed in every target community through the promotion activity by D-WASHE and WASHE facilitators.

Prior to the commencement of the construction works, V-WASHEs are required to be organised at the 200 target communities with facilitation by the Sub-WASHEs. In the villages where V-WASHEs are organised, the project reorganises V-WASHEs in case of necessity determined by consultation with community members, with attention to balance of members and performance of activity. In the organisation and training of V-WASHEs, attention is to be paid at the verification of achievement of this indicator whether the methodologies to promote the discussions and time for the community meetings are decided to facilitate women's participation and contribution of their opinions in actual decision making.

【Indicator 1-3】

Through instruction from WASHE facilitators and APM, V-WASHE at every target community achieves skills for maintenance of water supply facility and for hygiene promotion.

Operation and maintenance skill

Skills to be equipped to the V-WASHEs for operation and maintenance are categorized into the technical issues such as preventive maintenance, replacement of the consumables, and measures to protect environmental sanitation around the water point and the management issues related to action planning for maintenance activities, provision of advices to the users on proper use of water facility, collection and management of the maintenance fund, and access to the support services of the D- WASHE and Sub-WASHE. Also skills for operation and maintenance of the iron removal device are necessary where it is settled.

These issues are to be dealt in training of WASHE facilitators and APM, and to be reflected in the V-WASHE action plans. Moreover, it is verified the understanding of maintenance cost and cooperation with APM, status of record of maintenance cost and management of water supply facilities.

Hygiene promotion method

To enhance health and sanitation aspect by use of safe and sustainable water from borehole water supply facilities, it is indispensable for users to acquire appropriate knowledge about sanitation, to translate it to action and to make it a habit. Thus training for V-WASHE about the methods of participatory activities for sanitation improvement is to be organised to keep promoting activities for sanitation improvement at village level. It is to be verified through monitoring that after completion of training, V-WASHE conduct the activities for sanitation improvement in cooperation with Environmental Health Technicians, Community Health Committees and birth attendants by utilising the achieved knowledge and methods. In those

activities PHAST (Participatory Health and Sanitation Transformation), which is the method in the field of rural water supply and sanitation in Zambia, is utilised to promote improvement of sanitation at the level of individuals, households and publics. In the village with large-size domestic livestock, it is verified to build the fences with the expense of community to reserve sanitation environment around the water source.

(2) The system of monitoring and evaluation for water supply and sanitation improvement programme at district and sub-district level is improved.

【Indicator2-1】

The results of monitoring on water and sanitation improvement activities at the village level will be recorded and accumulated by sub-district and district.

At the commencement of the project goals to be achieved in each activity under the Software-Component Programme as well as the objective and outputs of the project will be shared by the D-WASHE and ADC (WASHE facilitators and APM). Further, the plans for monitoring and evaluation will be formulated by these parties to measure the implementation process, achievements and impacts of the interventions. Each actor will conduct the monitoring activities based on this monitoring and evaluation plan by utilising the monitoring forms to be elaborated by theme in the project. Therefore, results of these monitoring activities filled in the forms are to be periodically collected and filed at the sub-district and district.

【Indicator2-2】

WASHE annual action plans in each target district are updated by reflecting upon the monitoring results.

Each district reviews implementation status of annual water and sanitation activities at the end of fiscal year, and formulates implementation plan of the activities for the next year as WASHE annual action plans. As the monitoring results of implementation status of the activities are considered as the water and sanitation activities of each district, the district government and D-WASHE are to review the monitoring results of implementation status of the activities through mentioned above, and WASHE annual action plans are to introduce the necessary follow-up activities.

5 Intervention (Inputs) Plan

Comparison list between the outputs of Software-Component and the group of activities is shown below. The contents of the activities are shown in the Appendix 1.

Comparison List Between the Outputs and Activities

Outputs	Activities	Stages
Output 1	1. Preparation of implementation guideline and manuals of the software component activities	Shortly after the start of the project
	2. Project orientation at the district level	After the end of activity 1
	3. Capacity building of WASHE facilitators at sub-district level in facilitation of community mobilisation, capacity building of V-WASHEs and hygiene promotion	
	3-1. Course training for WASHE facilitators and preparation of detail implementation plan of activities	1 - 3 months before the start of activities at target site after the end of activity 2
	3-2. On the Job Training of the WASHE facilitators through facilitation of exercises at the village level	
	1) Introductory visits: briefing of the project to the community leaders	3 - 4 months before the start of construction at target district
	2) Project orientation at the village level	Ditto
	3) Formation/ re-activate of V-WASHE and signing a memorandum of understanding	Ditto
	4) Participatory situation analysis and pre-siting	Ditto
	5) Training of V-WASHEs on their roles and responsibilities and facilitation skills for hygiene promotion	Ditto
	6) Training of caretakers in management of hygiene conditions of the water point (To be conducted together with Module 4-3. 2))	After completion of installation of handpump
	7) Follow-up of progress of the activities and utilisation status of the constructed facilities, implementation of additional training 【Cost Borne by Zambian Side】	After handover of the facility at target district
	4. Capacity building in operation and maintenance of handpump	
	4-1. Training of District Trainers responsible for capacity building of APMs	After the end of Activity 5-1
	4-2. Training of APMs in installation, repair and maintenance of handpumps	1 - 2 months before the start of construction at target district
	4-3. On the Job Training of APMs	

	1) Technical training through involvement in installation of handpump during the construction works	During installation of handpump
	2) Training of caretakers in daily operation and maintenance of handpump	After completion of installation of handpump
	5. Introduction of technology of iron removal device and training in operation and maintenance	
	5-1. Training of national and provincial staff	Before the start of Activity 4-1
	5-2. Training of APMs and V-WASHEs (including caretakers)	After installation of the device before completion of construction works
Output 2	6-1. Monitoring of Software-Component Programme activities 【Cost Borne by Zambian Side】	With Activity 3-2, 4-3
	6-2. Review on progress of activities, evaluation of results of outputs and establishing the action plan on maintenance 【Cost Borne by Zambian Side】	At the end of every year

The project considered on the point shown below in establishing implementation plan.

(1) Ensuring consistency with upper level plan

The contents of assistance is considered, particularly, with attention to the consistency with the approaches noted in “(Draft) National Guidelines for Sustainable Operation and Maintenance of Rural Water Supply Facilities (February 2007)” supported by SOMAP, and based on the framework for the system of operation and maintenance of rural water supply facilities. In the training plan of capacity development of each actor in charge of operation and maintenance activities, the project established the action plan based on SOMAP guideline, the other guidelines which are normally referred, WASHE activity manual, and the experience of the similar activities implemented.

(2) Establishment of effective On-the-Job Training plan

The actors in charge of implementing Software-Component Programme at villages of the target community level are trained WASHE facilitators and APMs. Under the technical assistance by local consultant / NGO, the personnel from the district and sub-district take the training for facilitation. The project offers the basic training of workshop style combined with On-the-Job training to promote settlement the achieved skills, and implements, promotion activities, organising V-WASHE, hygiene promotion, and training community members on operation and maintenance. The project adopts as the implementation method of On-the-Job Training that trainers from local consultant / NGO will accompany with trainees to 70% of the

target community, implementing facilitation and training of activities, and through the activities status of achieving skills of WASHE facilitators and APM will be verified and they will be offered the advice and training for improvement. Thus at not less than 2 sites per a personnel the project is able to verify the status of achieving the skills for facilitation and training, it is useful to verify the effects of training and status of achieving the output.

At remained sites WASHE facilitators and APMs are to implement the activities by themselves. The district and D-WASHE are to coordinate with other projects to distribute available vehicles along with the implementation plan, for assisting for implementation of activities and monitoring at these sites.

6. The way to procure the resource for implementation

Information of distribution of expected personnel for implementation is shown below.

List of distribution of personnel for Software-Component Programme

Personnel		No.	Activities in charge
Japanese consultant	O&M / public health	1	Planning of Software-Component Programme General supervision of implementation plan and the programme Skill training for implementing agency and local consultant / NGO Contact and report to client and Japanese organisation Consultation and coordination with each actor in the programme Coordination with construction plan Supervision of activities in cooperation with personnel in charge of training for maintenance of iron removal device He/She is to have work experience in the field of social development.
Local consultants / NGO	Programme director	1	General management of the activities in commission of Software-Component Programme Management of input, method, output and progress of each activities Report of activities to implementing agency and Japanese consultant He/She is to have work experience as programme director in similar project.
	Social development expert	1	Assistant to programme director Establishment of implementation plan of capacity development of community organisation based on WASHE concept and hygiene promotion

			<p>Development of manuals</p> <p>Training of WASHE facilitators</p> <p>He/She is to have work experience in similar project and also knowledge of method of participatory planning, monitoring and evaluation, participatory hygiene promotion, and operation and financial management of community organisation.</p>
	Facilitator (participatory water supply and sanitation)	4	<p>Training skills necessary in installation and rehabilitation, operation and maintenance of water supply facilities with borehole with handpump to D-WASHE trainers and APM</p> <p>On-the-Job Training of WASHE facilitators and APM in the activities of mobilising of community and strengthening of V-WASHE</p> <p>He/She is to have work experience especially in the training of operation and maintenance of water supply facilities with borehole with handpump</p>
Implementing agency	Project manager	1	<p>Distributed from implementing agency as a counterpart of the project</p> <p>Supervision of activities in cooperation with Japanese consultant and local consultant / NGO</p> <p>Coordination and request of cooperation with local government of target district, and other relating ministries and donors on rural water and sanitation project</p>
District government	Water supply and sanitation	1 for each district	<p>Distributed as a contact person for the project at district level by each district government</p> <p>The present district government has no staff belong exclusively for water supply and sanitation division, so planning division or public works division is now in charge of coordination with WASHE activities.</p> <p>Each district selects him/her with consultation with D-WASHE</p>
WASHE facilitator, APM			<p>Activities at village level in cooperation with local consultant / NGO</p>

7 Implementation plan of the Software-Component Programme

The Implementation plan of the Software-Component Programme is listed as Appendix 2.

8 Output goods

Main output goods from the activities are shown below.

Completion report of Software-Component Programme

Maintenance manual of water supply facilities with handpump (for APM and V-WASHE)

Maintenance manual of iron removal device

Training manual of capacity development of operation and maintenance by V-WASHE

Report of activities by WASHE facilitators

V-WASHE action plan

9 Responsibility of implementing agency of Zambia

In this Software-Component Programme the cost borne either Zambia or Japan is arranged as below. As the district has large limitation in its financial resources, implementing agency is required to utilise basket fund effectively which is introduced in rural water supply and sanitation sector, and to support expense cost borne by Zambian side necessary for project implementation at target district.

List of division of burden of expense between Zambia and Japan
in Software-Component Programme

Activity	Japanese burden	Zambian burden
1. Preparation of implementation guideline and manuals of the software component activities	<ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Manual development cost 	<ul style="list-style-type: none"> • Remuneration of counterpart
2. Project orientation at the district level	<ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Transportation fee for D-WASHE • Holding cost of workshop • Photocopying and stationery cost 	<ul style="list-style-type: none"> • Remuneration of staff from provincial office of implementing agency • Remuneration of D-WASHE
3. Capacity building of WASHE facilitators at sub-district level in facilitation of community mobilisation, capacity building of V-WASHEs and hygiene promotion		

3-1. Course training for WASHE facilitators and preparation of detail implementation plan of activities	<ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Transportation fee for participants • Holding cost of workshop • Photocopying and stationery cost 	<ul style="list-style-type: none"> • Remuneration of D-WASHE trainer • Remuneration of Participants (WASHE facilitators)
3-2. On the Job Training of the WASHE facilitators through facilitation of exercises at the village level		
1) Introductory visits: briefing of the project to the community leaders	<p>【 161 target sites of OJT accompanied with local consultant / NGO out of 231 sites 】</p> <ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Photocopying and stationery cost <p>【 Remaining 70 sites 】</p> <ul style="list-style-type: none"> • Fuel fee for the vehicle of D-WASHE 	<p>【 161 target sites of OJT accompanied with local consultant / NGO out of 231 sites 】</p> <ul style="list-style-type: none"> • Remuneration of D-WASHE trainer <p>【 Remaining 70 sites 】</p> <ul style="list-style-type: none"> • Remuneration of WASHE facilitator and D-WASHE trainer • Distribution of existing vehicle within district (support for facilitator by D-WASHE)
2) Project orientation at the village level		
3) Formation/ re-activate of V-WASHE and signing a memorandum of understanding		
4) Participatory situation analysis and pre-siting		
5) Training of V-WASHEs on their roles and responsibilities and facilitation skills for hygiene promotion		
6) Training of caretakers in management of hygiene conditions of the water point (To be conducted together with Module 4-3. 2))		
7) Follow-up of progress of the activities and utilisation status of the constructed facilities, implementation of additional training 【 Cost Borne by Zambian Side 】	None	<p>【 231 target sites and alternative sites 】</p> <ul style="list-style-type: none"> • Remuneration of WASHE facilitators and D-WASHE trainer • Distribution of existing vehicle within district (support for facilitator by D-WASHE)

		• Fuel fee for vehicle
4. Capacity building in operation and maintenance of handpump		
4-1. Training of District Trainers responsible for capacity building of APMs	<ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Transportation fee for participants • Holding cost of workshop • Photocopying and stationery cost • Tool for maintenance 	• Remuneration of D-WASHE trainer
4-2. Training of APMs in installation, repair and maintenance of handpumps	<ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Transportation fee for participants • Holding cost of workshop • Photocopying and stationery cost 	• Remuneration of D-WASHE trainer
4-3. On the Job Training of APMs		
1) Technical training through involvement in installation of handpump during the construction works	<p>【 231 sites with successful borehole 】</p> <ul style="list-style-type: none"> • Remuneration of APM • Photocopying cost 	-
2) Training of caretakers in daily operation and maintenance of handpump	<p>【 231 sites with successful borehole 】</p> <ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Remuneration of APM • Photocopying and stationery cost 	<p>【 Same as on the left 】</p> <ul style="list-style-type: none"> • Remuneration of WASHE facilitator
5. Introduction of technology of iron removal device and training in operation and maintenance		
5-1. Training of national and provincial staff	<ul style="list-style-type: none"> • Remuneration of local consultant / NGO, vehicle cost • Holding cost of workshop • Documenting and stationery cost 	<ul style="list-style-type: none"> • Remuneration of counterpart and staff from provincial office • Distribution of vehicle of implementing agency • Fuel fee for the vehicle above

5-2. Training of APMs and V-WASHEs (including caretakers)	【 60 sites with iron removal device 】 • Remuneration of local consultant / NGO, vehicle cost • Remuneration of APM • Photocopying cost	【 Same as on the left 】 • Remuneration of WASHE facilitator
6-1. Monitoring of Software-Component Programme activities 【 Cost Borne by Zambian Side 】	None	• Remuneration of D-WASHE • Distribution of existing vehicle within district • Fuel fee for vehicle
6-2. Review on progress of activities, evaluation of results of outputs and establishing the action plan on maintenance 【 Cost Borne by Zambian Side 】	None	• Remuneration of D-WASHE • Holding cost of workshop • Stationery and report cost

- Implementation of Activity 3-2.1) - 5) at alternative sites

When borehole drilling becomes unsuccessful at target site and the project decides to transfer the borehole drilling to one of the alternative sites, district authority takes responsibilities in project orientation to community members at the alternative site, organising V-WASHE, and cost sharing necessary for implementation of training.
- Implementation of additional training **【 Activity 3-2.(7) 】** for V-WASHE at target and alternative sites

When it is acknowledged that additional capacity development for operation and maintenance by V-WASHE and community according to monitoring and review of activities mentioned below, the district and D-WASHE establish plan for additional training and implement the activity at the expense of Zambian side.
- Monitoring of activities by district / D-WASHE (2 days per month per district)

The district and D-WASHE manage the activities at village level implemented by ADC (WASHE facilitators) and APM through the report of activities submitted from these personnel. In addition, as a part of the regular monitoring by D-WASHE, the district and D-WASHE add the target sites to regular site visited, and verify the progress of activities and skill settlement of WASHE facilitators and APM. As it is impossible to visit all the V-WASHE in the district with protected water source every month, they visit sample village randomised every month.

In the monitoring they are to use checklist based on monitoring and evaluation plan

established at the beginning of Software-Component Programme, and to verify whether each activity implements appropriately and comes to realise outputs. D-WASHE writes up the results from these monitoring into reports, and submits to project manager from implementing agency. Also D-WASHE utilises the results as primary source for consultation in the workshop (Activity 6-2) for review of activities and evaluation.

On the site where the water supply facility is in service, the district and D-WASHE monitor status of use of the facility by community members and that of maintenance by V-WASHE. As follow-up of the water supply facilities after in service is beyond the Japanese cooperation, it is expected to implement the activities shown below at the expense of Zambian side.

Continuing promotion activities for use of water supply facilities, hygiene promotion, and improvement of sanitation facilities

Verifying and direction of implementation of daily maintenance check work by caretakers

Verifying and direction of implementation of meeting of V-WASHE, status of reserve and management of the cost for operation and maintenance

Verifying the progress of coordination between V-WASHE and other actors (village head, health committee, birth attendants, ADC, and district / D-WASHE)

Verifying status of appropriate use and maintenance of the device, and status and purpose of use of alternative water source in the target sites with iron removal device

Establishing action plan and promoting follow-up activities, and feedback to the project through report to the implementing agency (will be used for improvement of activities in other district), about problems and countermeasure identified from the point mentioned above

- Establishment of action plan for review of progress of activities, evaluation of achieved outputs, and maintenance

Under NRWSSP the implementing agency certifies the WASHE annual action plan established by each district, and then ministry of finance distribute budget for implementation of the rural water and sanitation project to district government. In the establishment of the action plan, each district analyse the present status of water supply and sanitation, reviews all the ongoing projects for water supply and sanitation, and verifies project plan to be implemented by district next year based on action plans at each level established by V-WASHE and ADC. Therefore, the project by Japanese cooperation needs to review under the process mentioned above in each district, to evaluate achieved outputs, and to reflect necessary follow-up activities by district to the action plan.

- Establishment of the system of spare parts distribution, and training of the method of distribution network management for district

Based on SOMAP guideline, DISS is to establish the distribution system of spare parts in the Luapula Province with assistance from other donors. From the aspect of assisting to assure the seed stock of spare parts, the project plans to stock spare parts kits attached to constructed handpump at district level in coordination with implementing agency based on its policy. It is dispensable that implementing agency offers the training of establishment and operation of supply chain before those spare parts are handed over to district government, and that it establishes the system so that the distributed spare parts are managed appropriately and are sold to community members.

Detail Plan for Activities (Input) for Software-Component Programme

Activity 1 : Preparation of implementation guideline and manuals of the software component activities

Output

- Implementation plan of the WASHE activities is agreed with the implementing agency.
- An implementation guideline and manuals of the software component programme is drafted, which D-WASHE and WASHE facilitators will utilise in the programme.
- Draft monitoring and evaluation plan of activities is formulated.

Target group

Implementing agency, MLGH Provincial office

Responsible person / organisation

Japanese consultant, local consultant / NGO

Method of activity

Review of RWSS O&M guideline and existing WASHE manuals, consultation with DISS, and formulation of the documents

Venue

Lusaka, Mansa

Required Period (Approx.)

14 days

Total period (time and total number of days)

1 time / total 14 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Implementation guideline
- Draft manual of training for V-WASHE and visual aids, which are to cover the following

issues;

- * Formation/ reactivation of V-WASHE
 - * Participatory problem analysis and action planning
 - * PHAST method and tools
 - * Operation and maintenance of borehole with handpump
 - * Financial management for O&M
 - * Leadership skills and conflict resolution
- Draft M&E plan

Activity 2 : Project orientation and preparation of detail implementation plan of activities at the district level

Output

- Implementation plan of the project is agreed among the target group.
- Implementation guideline and monitoring and evaluation plan prepared in Module 1 above is reviewed by the participants and finalised.

Target group

D-WASHEs in 7 districts (2 persons / D-WASHE: 14 persons in total)

Responsible person / organisation

MLGH Provincial office, Japanese consultant, local consultant / NGO

Method of activity

Workshop with participation of D-WASHEs from 7 target districts

Venue

Mansa

Required Period (Approx.)

2 days / workshop

Total period (time and total number of days)

1 time / total 2 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Implementation plan of the project is agreed among the target group.
- Implementation guideline and monitoring and evaluation plan prepared in Module 1 above is reviewed by the participants and finalised.
- Report of the workshop

Activity 3 : Capacity building of WASHE facilitators at sub-district level in facilitation of community mobilisation, capacity building of V-WASHEs and hygiene promotion
--

Activity 3-1 : Course training

Output

- Roles and responsibilities of sub-district level in RWSS is understood by the participants in the context of decentralisation policy
- Skills and knowledge of the participants on participatory approach for community mobilisation, capacity building of V-WASHES and hygiene promotion (PHAST) are improved.
- Implementation plan for activities (Module 3-2. 1)-7)) at the village level is agreed by the participants.

Target group

Environmental Health Technician, School Teachers, Area Development Committee members in each Ward where the project sites are located in 7 districts (Approx. 13 participants/ district)

Responsible person / organisation

Local consultant / NGO, D-WASHE

Method of activity

Workshop (lecture, role play and field practice)

Venue

Each district

Required Period (Approx.)

3 days / district

Total period (time and total number of days)

7 times / total 21 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Report of workshop
- Implementation plan of activities established by participants

Activity 3-2 : On the Job Training of the WASHE facilitators through facilitation of exercises at the village level

1) Introductory visits: briefing of the project to the community leaders

Output

- Project outline is understood and appointment for the community meeting was made with the community leaders.
- Understanding of the community leaders is facilitated for improvement of women's participation in the activities at village level.
- Rapport with the community leaders is initiated.

Target group

Community leaders (village heads, members of village development committee) in the project sites, traditional leaders, lawmakers, and ADC members

Responsible person / organisation

Local consultant / NGO, facilitators trained in Module 3-1

Method of activity

Meeting

Venue

Each project site

Required Period (Approx.)

0.5 days / site

Total period (time and total number of days)

231 times / total 115.5 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators

2) Project orientation at the village level

Output

-Project outline and responsibility of the communities in the project are agreed by the participants.

Target group

Community members in the project sites

Responsible person / organisation

Local consultant / NGO, facilitators trained in Module 3-1

Method of activity

Meeting for whole community members. Utilisation of visual aids and facilitation of understanding of community members. If the target site is school or RHC, participation of community members around the facility will be facilitated.

Venue

Each project site

Required Period (Approx.)

0.5 days / site

Total period (time and total number of days)

231 times / total 115.5 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators

3) Formation/ re-activate of V-WASHE and signing a memorandum of understanding

Output

-V-WASHE is formed/ reactivated in each water point based on the agreement above by the community members.

Target group

Community members in the project sites

Responsible person / organisation

Local consultant / NGO, facilitators trained in Module 3-1

Method of activity

Meeting for whole community members

Venue

Each project site

Required Period (Approx.)

0.5 day / site

Total period (time and total number of days)

231 times / total 115.5 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators
- Memorandum of understanding on maintenance signed by the target communities
- Member list of V-WASHE in each target community
- Contract of Operation of V-WASHE

4) Participatory situation analysis and pre-siting

Output

- Formation of agreement on desirable sites for constructing water supply facilities based on social condition
- Capacity development of V-WASHE on problem analysis of existing water supply and sanitation environment in the community and method of facilitation for formation of agreement on improvement plan

Target group

Community members in the target sites, V-WASHE

Responsible person / organisation

Local consultant / NGO, facilitators trained in Module 3-1

Method of activity

Field study in the village, workshop utilising group work and discussion

Venue

Each project site

Required Period (Approx.)

1 day / site

Total period (time and total number of days)

200 times / total 200 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators
- Map of community which describes existing water supply and sanitation environment and

nominated sites for the facilities

5) Training of V-WASHEs on their roles and responsibilities and facilitation skills for hygiene promotion

Output

- Understanding on function of V-WASHE, roles and responsibility of each member, and point of consideration in operation and maintenance is facilitated.
- Method of promotion of hygiene awareness, action and practice is trained in the target villages.
- Cooperation is formulated with NHC and TBA, who act in the same area for hygiene promotion.
- V-WASHE action plan is formulated for OM activities.

Target group

V-WASHE including caretakers (approx. 10 members/ committee)

Responsible person / organisation

Local consultant / NGO, facilitators trained in Module 3-1

Method of activity

Workshop utilising group work and discussion and workshop for V-WASHE (1.5 days)

Meeting for whole community members (0.5 days) for presentation and agreement on the V-WASHE action plan

Venue

Each project site

Required Period (Approx.)

2 days / site

Total period (time and total number of days)

231 times / total 462 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators
- V-WASHE action plan for O&M

6) Training of V-WASHEs in problem identification and action planning for O&M of the water facilities

Output

- Understanding of caretakers is facilitated on methods of management improvement of environment sanitation around water supply facilities.
- Caretakers achieve skills for promotion and training for the community members on appropriate use of the facilities

Target group

Caretakers in the target sites

Responsible person / organisation

Local consultant / NGO, facilitators trained in Module 3-1

Method of activity

Orientation, discussion and field work utilising the maintenance manual

Venue

Centre point of Ward

Required Period (Approx.)

1 days / area

Total period (time and total number of days)

91 times / total 91 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators

7) Follow-up of progress of the activities and utilisation status of the constructed facilities, implementation of additional training (To be conducted together with Module 4-3. 2))

Output

-Settlement and development of capacity of V-WASHE on operation and maintenance

Target group

V-WASHE

Responsible person / organisation

D-WASHE, WASHE facilitators

Method of activity

Lecture and field practice on site

Venue

Each project site, centre point of district

Required Period (Approx.)

Total period (time and total number of days)

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by the WASHE facilitators

Activity 4 : Capacity building in operation and maintenance of handpump
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Activity 4-1 : Training of District Trainers responsible for capacity building of APMs (including training in operation and maintenance of iron removable device)

Output

-Skills and knowledge on installation, O&M and repair of handpump as well as training skills

are equipped with the D-WASHE Trainers.

- Training and OM manuals for APM and caretakers which are drafted by the Consultant/ NGO will be finalised through review by the participants.

Target group

3 participants each from D-WASHE trainers in 7 districts

Responsible person / organisation

Local consultant / NGO, Provincial Trainer such as staff from DWA

Method of activity

Workshop (lecture and field practice). To be conducted in two times; one for group of Chiengi, Nchelenge, Mwense and Kawambwa and the other for group of Mansa, Samfya and Milenge

Venue

Mansa District

Required Period (Approx.)

7 days / workshop

Total period (time and total number of days)

2 times / total 14 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Workshop report
- Training and OM manuals for APM & caretakers
- Plan of training of APMs to be prepared by the participants
- Results of test which is to be done for the participants to check understanding of what they learn in the training

Activity 4-2 : Training of APMs in installation, repair and maintenance of handpumps

Output

- Skills and knowledge on installation, O&M and repair of handpump as well as training skills are equipped with APMs.
- Level of understanding of the participants on contents of the training programme is checked through test.

Target group

APMs from each Ward (Approx. 13 participants each in 7 districts: total 91 participants)

Responsible person / organisation

Local consultant / NGO, D-WASHE trainer trained in Module 4-1

Method of activity

Workshop (lecture, field practice and test to verify the level of understanding)

Venue

Each district

Required Period (Approx.)

7 days / district

Total period (time and total number of days)

7 times / total 49 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Workshop report
- Plan of training of caretakers to be prepared by the participants
- Results of test which is to be done for the participants to check understanding of what they learn in the training

Activity 4-3 : On the Job Training of APMs

1) Technical training through involvement in installation of handpump during the construction works

Output

- APMs are capable to practice what they learnt in Module 4-2 in the actual installation of handpump.

Target group

APMs from each Ward trained in the Activity 4-2, caretakers from each water point

Responsible person / organisation

Contractor for construction works

Method of activity

Direct involvement in the installation of handpump under instruction by the contractor

Venue

Each project site

Required Period (Approx.)

2 days / site

Total period (time and total number of days)

200 times / total 400 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by APMs

2) Training of caretakers in daily operation and maintenance of handpump

Output

- Skills and knowledge on daily maintenance activities are equipped with caretakers. (In case that the Afridev handpump is installed, they also need to learn skills for installation and repair of handpump in addition to the daily maintenance.)

Target group

Caretakers in the target sites (2 participants / site)

Responsible person / organisation

Local consultant / NGO, APMs trained in Activity 4-2

Method of activity

Instruction, discussion and field practice based on the maintenance manual

Venue

Centre point of Ward

Required Period (Approx.)

1 day / area

Total period (time and total number of days)

91 times / total 91 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by APMs

<p>Activity 5 : Introduction of technology of iron removal device and training in operation and maintenance</p>
--

Activity 5-1 : Training of national and provincial staff

Output

- National and provincial staffs are capable to explain technology of iron removal device.
- Training plan of the iron removal device for operation and maintenance, promotion and training for each district and village, is formulated by the participants based on the lesson learnt from the pilot projects in other province.

Target group

RWSS Unit / DISS, Provincial staff such as MLGH, DWA and MoH, (Approx. 2 participants / DISS, 3 participants / provincial staff, 5 participants in total)

Responsible person / organisation

Japanese consultant, Local consultant / NGO

Method of activity

Workshop (lecture and field practice; 2days) and 3 days field visit to North-Western Province where the pilot intervention for introduction of the iron removal device is being implemented

Venue

Mansa (lecture & field practice), North-Western Province (field visit)

Required Period (Approx.)

5 days / site

Total period (time and total number of days)

1 time / total 5 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Workshop report
- Operation and maintenance manual of the iron removal device
- Training guide for D-WASHE trainers to train APMs and V-WASHEs in O&M of the iron

removal device

Activity 5-2 : Training of APMs and V-WASHEs (including caretakers)

Output

- Relation between use of safe water and protection of water borne diseases is understood by the community members.
- Effect of use of iron removal device is understood by the community members.
- Skills and knowledge on technology and maintenance of iron removal device are equipped with V-WASHEs including caretakers.

Target group

V-WASHE and caretakers in the target sites, the community members, APM

Responsible person / organisation

Local consultant / NGO, WASHE facilitators

Method of activity

Field practice on site

Venue

Approx. 60 sites where the device will have been constructed

Required Period (Approx.)

1 day / site

Total period (time and total number of days)

60 times / total 60 days

Guidelines, Manuals, Reports to be Prepared in the Activity

- Field report to be prepared by APMs

Activity 6 : Review of progress of the activities and evaluation of achievement of the programme and action planning for O&M of the constructed facilities

Activity 6-1 : Monitoring of Software-Component Programme activities

Output

- D-WASHE trainers verify the progress of activities for Software-Component Programme, and settlement of skills of WASHE facilitators and APMs.
- Monitoring of construction of water supply facilities
- Monitoring of status of use of water supply facilities in service and maintenance by V-WASHE

Target group

WASHE facilitators in the 7 target districts, APM

Responsible person / organisation

WASHE trainers in the 7 target districts

Method of activity

Interview (with WASHE facilitators, APM, V-WASHE, caretakers and the community members), direct observation of activities for Software-Component Programme and sites of water supply

Venue

Target sites (random sampling every time)

Required Period (Approx.)

2 days / month / district

Total period (time and total number of days)

Guidelines, Manuals, Reports to be Prepared in the Activity

-Monitoring report by D-WASHE

Activity 6-2 : Review on progress of activities, evaluation of results of outputs and establishing the action plan on maintenance

Output

-The districts acknowledge the status of implementation process and achieved outputs based on the result of monitoring above and make policy proposal on review and improvement of the way of implementation of activities.

-Necessary points of follow-up are reflected to WASHE annual action plan.

Target group

Responsible person / organisation

District government, D-WASHE

Method of activity

Annual review meeting by each district

Venue

Centre of each ditrict

Required Period (Approx.)

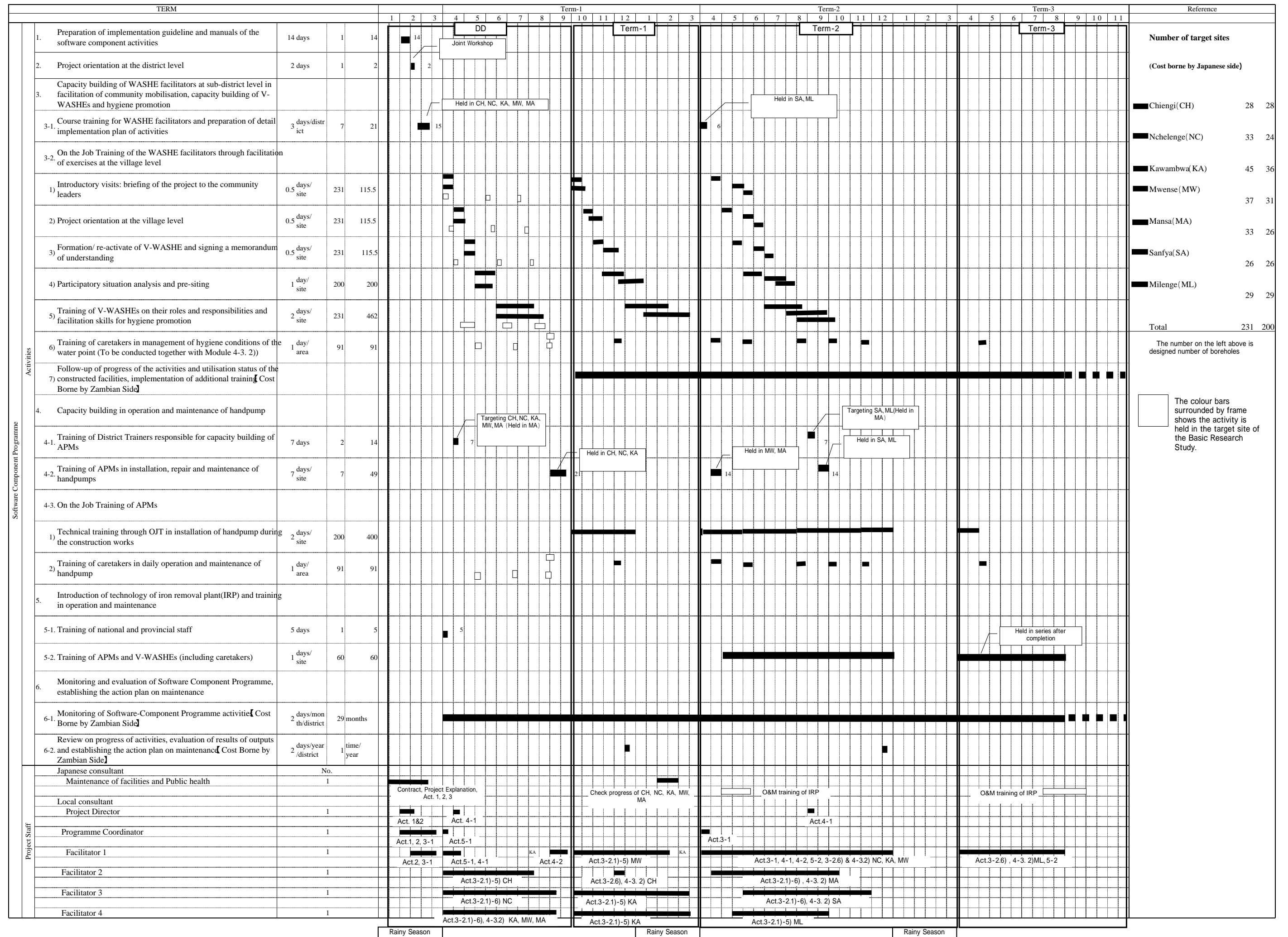
2 days / year / district

Total period (time and total number of days)

Guidelines, Manuals, Reports to be Prepared in the Activity

-WASHE annual action plan

Annex 5-1 Implementation Schedule of the Software Component Programme



APPENDIX 6 OTHER RELEVANT DATA/INFORMATION

6-1 Results of Natural Condition Survey

6-1-1 Topography

Mansa, Milenge, and Samfya Districts are located on the flat top of Central Africa Plateau. Topography is shown as the stage of old age or peneplain so that flat plain is expanding widely (photo-1). Undulation is gentle and the boundary lines of bottom and slope are vague. Not only Banguwelu Swamp which occupies large area of Samfya District but also small swamps are scattered on the flat land (photo-2). And little platforms of dune can be seen along the shores of Lake Banguwelu and villages are composed on them (photo-3). In these Districts, the small difference of altitude makes the flow of Luapula River gentle in the boundary with DR Congo (photo-4).









In Mwense, Kawambwa and southern part of Nchelenge Districts, some hills are composed on the flat top of Central Africa Plateau. Lineaments are distinctly. The hill slopes are dissected by the branches of Luapula River and the landform shows undulation (photo-5). In Nchelenge District, the dissected fan is composed at the mouth of Luapula River and back marshes and lagoons are scattering (photo-6).

In the northern part of Nchelenge and Chiengi Districts, the landform is studded with many small hills which are composed by echelon faults and intrusive rocks (photo-7).









6-1-2 Geology

Granite can be observed at the outcrop along the main road between Mansa and Mwense (photo-8,-9). The particle of crystal is fine and amphibole can be confirmed so that it is possible to classify into Gneiss or Amphibolite. In this survey, it has been classified into Granite following the description of the existing geological report. Many developed fractures can be observed on the outcrops.

In the northern side of Mwense District, along the main road sedimentary rocks of Katanga Group can be observed on the outcrops (photo-10). The main constituent are sandstone, mudstone and slate, and conglomerate with thickness around 10cm containing rounded pebble can be observed (photo-11). Each rock is hard and many fractures are developed along the bedding.

	
<p>Photo-1 Top flat of Africa Central Plateau Mansa District</p>	<p>Photo-2 Banguweulu Swamp Samfya District</p>
	
<p>Photo-3 Dune Samfya District</p>	<p>Photo-4 River Luapula Milenge District</p>
	
<p>Photo-5 Undulating Hills Mwense District</p>	<p>Photo-6 Swamp and Lagoon Nchelenge District</p>
	
<p>Photo-7 Small Hills Chiengi District</p>	<p>Photo-8 Outcrop of Granite Mansa District</p>

Topography and Geology of Target Area (1)

	
<p>Photo-9 Granite Mansa District</p>	<p>Photo-10 Outcrop of Sandstone (Katanga Group) Kawambwa District</p>
	
<p>Photo-11 Outcrop of Conglomerate (Katanga Group) Kawambwa District</p>	<p>Photo-12 Outcrop of Slate (Muva Group) Kawambwa District</p>
	
<p>Photo-13 Outcrop of Quartz-Schist (Muva Group) Chiengi District</p>	<p>Photo-14 Outcrop of Quartzite (Muva Group) Chiengi District</p>
	
<p>Photo-15 Outcrop of Quartz-Porphry Intrusive Rock) Chiengi District</p>	<p>Photo-16 Basalt (Intrusive Rock) Mwense District</p>

Topography and Geology of Target Area (2)

At the outcrops along the main road to Kawambwa township and also at the hilly area of Mwense District, sedimentary rocks of Muva Group of Precambrian can be observed. The main constituent are sandstone and slate(photo-12), and remarkable fold can be confirmed. The mentioned rock is hard and many fractures are developed along and cross the bedding.

At north shore of Lake Mweru in Chiengi District, quartzite and quartz-schist can be observed on the outcrops (photo-13,-14). They are thought to be classified into quartzite of Muva Group. Moreover, at the small hills of east shore of Lake Mweru quartz gabbro can be observed at the outcrops (photo-15).

In addition, at some outcrops of Mwense and Kawambwa Districts, intrusive rock of Basalt can be observed but the distribution is narrow and localized (photo-16).

6-1-3 Hydrogeology

The number of existing water point in the target area is, about 700 dug wells and 200 boreholes.

The depth of most dug wells is approximately 10 to 15 metres and without lining protection. Groundwater is drawn from shallow aquifers found in weathered zones near the surface or sand layer of sedimentary formation. Generally, water level of shallow aquifers in this area is around 10 meter under surface so that almost all of dug wells becomes dry in the dry season.

Almost all the boreholes funded by international donors and DWA drilling team, the depth is about 60 metres and targeted mainly fissure water in the fractured zones of the rock formation. The average production rate of the boreholes are about 6 m³/day.








The description of hydrogeological characteristics of some geological formation encountered during the “Basic Research Study” (hereinafter called as “BRS”), in the target area are as follow. Also, the “Stratigraphy and Hydrogeological Characteristic of the Surveyed Area” is shown in the next page.

(1) Granite of Basement rock

10 boreholes were drilled at 8 sites and 7 boreholes were succeeded in the BRS. The success rate is 70 percent.

Metamorphism is found in the quartzite and many fractures are observed at the outcrops. But according to the results of geophysical survey and drilling in the BRS, most of the fractures are filled with clay or other material and/or the fissured water is not enough to be used as a productive borehole.

STRATIGRAPHY AND HYDROGEOLOGICAL CHARACTERISTIC OF THE SURVEY AREA

AGE	STRATUM		LITHOLOGY	PHOTO	DISTRIBUTION	AQUIFER	Groundwater Condition		Note
	GROUP	SYSTEM					Quantity	Quality	
Cenozoic	Alluvium		Sand, Gravel, Clay	 Bangweulu Swamp	Around Lake Bangweulu and Some Parts along Luapula River	Gravel Layer, Sand Layer			Yield is not stable, often become small in dry season. Water often be polluted by domestic animals and human.
Palaeozoic ~ Late Precambrian	Katanga Group	Kundelan System	Sandstone, Mudstone, Conglomerate, Shale	 Sandstone And Mud stone	Along Luapula River and Southern Part of the Province	Weathered Zone, Fractured Zone			Well developed fracture so that enough fissure water is expected. Sometimes clay and silt filled up the fracture. In this case, Water quality and quantity is not expected.
Precambrian	Muva Group and Basement Rock	Muva System	Sandstone, Mudstone	 Sandstone Developing Bedding	Central Part of the Province	Weathered Zone, Fractured Zone			Poor developed fracture but according to the result of basic research study, when drilling hit cracks, enough groundwater can be expected. Sometime high iron contain.
			Quartzite, Quartz Schist	 Outcrop of Quartzite Schist	North-Eastern Part of Province	Fractured Zone			Massive, Cracks are not developed so that it is often difficult to strike groundwater.
		Basement Rock	Granite	 Outcrop of Granite		Weathered Zone, Fractured Zone			Hard Rock, Layer has developed cracks so that enough fissure water is expected. But often groundwater include high iron.
			Gneiss Metamorphic Igneous Rock	 Gneiss Developing Cracks	Central Part of the Province	Weathered Zone, Fractured Zone			Hard Rock, Layer has developed cracks so that enough fissure water is expected. But often groundwater contains high iron.
Intrusive Rocks			Basalt, Gabbro	 Basalt Developing Joints	Each place in the Province	Fractured Zone			Hard Rock, Layer has developed cracks so that enough fissured water is expected.

Note: Water Quantity : Good ; Fair but high potential point is limited.
: Comparatively good
: Fair but high potential point is limited

Water Quality : good ; sometimes high iron.content



Spring from Fracture of Gneiss
(Mwense District)



Spring from Fracture of Sandstone
of Muva Group(Mwense District)



Spring from Weathered Granite
(Mansa District)

The points where boreholes will be succeeded is limited in the target sites, therefore, in the siting it is required an accurate geophysical prospecting and carefully surveyed. At about half of existing borehole sites, groundwater from granite and/or mudstone formation contains high concentration of iron (more than 5mg/l in some sites), therefore, during the siting, water quality also is an important factor to be considered during the survey.

(2) Sedimentary Rocks of Muva Group

Determination of hydrogeological characteristics will be carried out sorting out sandstone and quartzite group.

According to the results of drilling at sandstone, mudstone and conglomerate distributed areas in the BRS, 10 boreholes were drilled at 7 sites where 7 boreholes was succeeded. The expected success ratio is 70 percent.

In this area, lineaments of east-west direction are distinct, therefore, it is expected that fractured zones and cracks are developed. Developed fractures along and across the bedding can be observed at outcrop of these rocks. Moreover, the results of geophysical prospecting during the BRS shows high potential of groundwater.

The yield of some boreholes was not enough to judge if it can be fitted with handpump, even they produced about 10 l/m. It can be said that potential of groundwater development is high in this formation. Depending of the siting to be carried out, high potential point can be found with more than 70 percent of successful ratio.

In the quartzite distributed area in Nchelenge and Chiengi Districts, many faults can be observed but fractures zones and cracks of rock formation are not well developed. Trial drilling was not carried out in this area in the BRS, but geological and hydrogeological condition of this area resembles one of Mpulungu District of the Northern Province so that success ratio of this area can be used from “the Project for Groundwater Development in Northern Province” funded by JICA. According to the mentioned Northern Province Project, the productive area or point are very localized, therefore, attention is required during the hydrogeological and geophysical survey. Also, maybe in some cases, it will be required to explain to the villagers the risks and the

possibility of shifting the drilling point from the point which will be selected by them. Maybe the successful rate in Nchelenge and Chiengi Districts can be expected around 70 percent.

The quality of groundwater from Muva Group is in general acceptable.

(3) Sedimentary rocks of Katanga Group

11 boreholes were drilled at 8 sites and 7 boreholes were succeeded in the BRS. The expected successful rate is 64 percent.

Sandstone, Conglomerate and Slate can be found and developed cracks along the bedding can be observed at the outcrops, and the results of Geophysical survey shows low resistivity value. But successful ratio is quite low in this area. The reason of low successful ratio is assumed that clay is filling up the fractures.

When siting will be carried out, drilling points has to be chosen based on the results of geophysical survey but resistivity does not always reflect groundwater potential so that success rate will be around 65 percent as same as the result in the BRS.

The quality of groundwater from Katanga Group is generally acceptable but rarely water contains more than 1 mg/ litre of iron.

(4) Alluvial sand layer

10 boreholes were drilled at 10 sites and all boreholes were succeeded in the BRS. The successful ratio was 100 percent for this formation.

According to the results of geophysical survey and trial drilling in the BRS, thickness of sand sedimentation in the thickest point is expected to be more than 100 metres. In some area, those sands contain considerable amount of clay, therefore, the permeability will be low resulting in less productive borehole than other layer with predominantly sand formation only. If the permeable layer can be struck, it will be less difficult to hit the groundwater. Success rate in the alluvial areas is estimated more than 90 percent.

Water quality of existing boreholes shows that generally quality of groundwater from alluvial formation is acceptable, but sometimes groundwater contains more

than 1 mg/litre of iron.

Hydrogeological characters of each District are as follows.

(1) Chiengi District

Back slough is not developed around Lake Mweru and only narrow flat plain is confirmed at the north shore of the lake.

Quartzite and quartz-schist outcrops are observed at the north shore of the lake and granite is distributed at the east shore. Basalt, amphibolite and quartz gabbro penetrated the granite as intrusive rocks.

At the north shore area, developed faults made scattered small hills and at the east shore, intrusive rocks are observed. Therefore, it is expected that fractured zones and cracks in the hard rock is expected including fissured water potential.

At present, existing boreholes are identified mainly in the northern part of the District. The groundwater quality data which can be obtained is only from northern parts and the result shows that the water quality of groundwater is generally acceptable in the District.

Drilling in BRS was not carried out in the District.

(2) Nchelenge District

In Nchelenge District, 9 boreholes were drilled at 9 sites and all boreholes were succeeded in the Basic Study Survey.

Geological condition can be divided into four areas from east to west. Quartzite is distributed in eastern part, granite, sedimentary rocks of Katanga Group in the other part, and Alluvium fan and back marsh are composed in west side along Luapula River and Lake Mweru. Most of the target sites are concentrated on the alluvium fan where to develop groundwater is in general not difficult. In the hilly area, groundwater development will require some attention, but fractured zones and cracks are expected to be developed by many faults.

According to the results of existing borehole survey, in the granitic basement distributed area, the groundwater sometimes shown high concentration of iron

contents. From the point of view of water quality, the sites in the District will require attention. But quality of groundwater from alluvium formation is acceptable in general.

(3) Kawambwa District

11 boreholes were drilled at 9 sites and 9 boreholes were succeeded in the BRS. The success rate is 82 percent.

The sedimentary rocks of Muva Group are distributed almost in whole Kawambwa District. Granite and sedimentary rocks of Katanga Group which is quite difficult to develop groundwater is distributed in the western parts along the Luapula River. From the requested sites, 57 sites are located in Muva Group area and 13 sites are located in granite and Katanga Group area.

Good success ratio is expected, but in granitic and Katanga Group area, the drilling points has to be chosen carefully, including the geophysical prospecting.

According to the results of existing borehole survey, quality of groundwater is generally acceptable, but groundwater from granitic formation requires some attention because of iron concentration.

(4) Mwense District

Sedimentary rocks of Muva Group which is expected to have a good potential for groundwater development, is distributed almost in whole Mwense District. But, the requested sites are basically located in areas of Katanga Group which presents quite a low potential to develop the groundwater.

When siting will be carried out, drilling points has to be chosen based on the detailed geophysical prospecting.

According to the results of existing borehole survey, groundwater often contains high concentration of iron, so that it is also necessary to control the water quality during the survey and drilling work.

11 boreholes were drilled at 7 sites and 6 boreholes were succeeded in the BRS. The successful ratio is 55 percent.

(5) Mansa District

Granite are distributed in whole district. The groundwater is found in fractured zones and cracks of basement rock of Granite. Many fractures are observed in the outcrops, but most of the fractures are filled or fissure water is not enough to be used as water source even if groundwater can be found in the cracks because of the low yield.

It is required attention during the siting with accurate geophysical survey. About the water quality of groundwater, there is a possibility to hit groundwater with high concentration of iron of more than 5mg/l.

10 boreholes were drilled at 8 sites and 7 boreholes were succeeded in the BRS. The successful ratio is 70 percent.

(6) Samfya District

Alluvium formation is covering the whole District and outcrops of rock can not be confirmed. The requested sites are concentrated on west shore of the Lake Bangweule, in where thickness of sand formation is sometimes more than 100m.

The expected formation during the drilling will be predominantly sand with clay. In some area maybe found consolidated formation.

If this high permeable layer can be struck, it can be expected a good production of groundwater.

According to the results of existing borehole survey, quality of groundwater is generally acceptable but groundwater in some boreholes where the depth reached in the basement rock, has shown high concentration of iron.

Drilling in Basic Study Survey was not carried out in Samfya District but in the boundary zone to Mansa, it was drilled 3 borehole under the said Study, and in one of them the iron contents was around 1mg/l.

(7) Milenge District

In the northern part of the District, granite is distributed and sedimentary rocks of Katanga Group is encountered in the southern part. Also, in the southern part along the Luapula River, outcrops of granite can be observed, therefore it is estimated that granite is distributed mainly along the Luapula River.

Both granite and sedimentary rocks of Katanga Group are difficult to develop

groundwater, so that siting requires detailed hydrogeological survey and accurate geophysical prospecting.

Water quality of deep boreholes for this area can not be estimated because of low number of existing boreholes and availability of data.

Drilling in Basic Research Study was not carried out in Milenge District.

6-2 The result of Existing Water Source Survey

6-2-1 Water Quality of Existing Boreholes

60 existing borehole sites in Luapula Province were visited and its water quality was checked with a simple field test kit.

At 12 sites (20 percent of all), boreholes were no working because of handpump breakdown. And some boreholes produced groundwater from shallow aquifers. The results of existing borehole survey is shown in the next table “Results of Existing Borehole Survey(1/2) and (2/2)”. The data from borehole using shallow aquifer was excluded from this list. .

The pH and iron concentration are shown in the following table.

pH (38 samples)			
	< 6.5	6.5 ~ 7.5	> 7.5
Number of sample	27	11	0
Proportion(%)	71.1	28.9	0

Fe (38 samples)						
Fe(mg/ℓ)	0	0 < Fe 1	1 < Fe 2	2 < Fe 5	5 < Fe 10	10 <
Number sample	8	6	3	4	4	13
Proportion(%)	20.5	17.9	7.7	10.3	10.3	33.3

Results of Existing Borehole Survey (1/2)

(Fe, Mn, F Unit: mg/l)

District	Site Name	Coordination	Completion Date	Fund	Drilling Depth (m)	Odour	Taste	EC	pH	Fe	Mn	F	Note
Chiengi	Chengi township	8°39'16.3"S 29°09'37.0"E	2005.10.	Zamsif	NA	nil	good	11.10	7.50	<0.2	0.00	0.00	
	Chilini Village	8°41'54.25 S 29°08'48.8E	2006.10.	Zamsif	30	nil	good	37.30	6.50	0.00	0.00	0.00	
	Neongela Village	9°42'21.7S 28°46'28.7E	2005.12.	LG fanf	56	rusty	rusty	15.15	6.50	>10	0.00	0.00	Rusty odour and taste (in use by villagers)
	Tokatoka Basic Sch.	9°41'27.6S 28°45'12.6E	2003.10.	Microproject	33	rusty	rusty	10.29	6.00	>10	0.00	0.00	Rusty odour and taste (in use by villagers)
Nchelenge	Mulomba Village	9°37'49.7S 28°44'36.7E	NA	Unknown	NA	rusty	rusty	3.56	5.40	7.00	0.00	0.00	Villagers do not use for drinking.
	Chibariki Basic Sch.	9°32'35.8S 28°44'06.1E	2000.9.	UNICEF	52	rusty	rusty	5.92	6.20	>10	0.00	0.00	Villagers do not use for drinking.
	Nshinda Basic Sch.	9°29'11.9S 28°44'19.5E	NA	Unknown	NA	rusty	rusty	27.10	5.20	5.00	0.00	0.00	Villagers do not use for drinking.
	Mbamba Basic Sch.	9°22'10.0S 28°44'28.7E	1984	Zamsif	36	rusty	rusty	5.03	5.60	7.00	0.00	0.00	Villagers do not use for drinking.
Kawambwa	Pooosa Basic Sch.	9°37'25.5S 29°27'24.6E	2004.8.	UNICEF	35	rusty	rusty	88.40	6.00	>10	0.00	0.00	Villagers do not use for drinking.
	Kanengo RHC	9°57'13.4S 29°20'48.1E	1998	UNICEF	20	nil	good	98.10	6.20	>10	0.00	0.00	Rusty odour and taste (in use by villagers)
	Mushota Village	9°48'52.1S 29°23'37.4E	2005.12.	UNICEF	56	nil	good	4.66	5.40	2.00	0.00	0.00	
	Kapembwe Village	9°48'50.0S 29°22'42.9E	2003.3.	Zamsif	NA	rusty	rusty	12.42	6.20	10.00	0.00	0.00	Villagers do not use for drinking.
Mwense	Lusambo Village	9°48'50.7S 29°07'22.3E	1998	Zamsif	NA	nil	good	1.53	5.00	0.00	0.00	0.00	
	Salanga Basic Sch.	9°57'34.4S 28°43'40.8E	2004.10.	UNICEF	55	rusty	rusty	4.73	5.40	>10	0.00	0.00	Rusty odour and taste (in use by villagers)
	Mumbolo Village	9°56'21.8S 28°44'52.8E	2003.12.	Zamsif	61	rusty	rusty	7.76	5.40	>10	0.00	0.00	Villagers do not use for drinking.
	Mukamba Basic Sch.	9°44'44.5S 28°45'23.6E	1985	Zamsif	NA	nil	good	27.30	6.50	0.00	0.00	0.00	
Mansa	Kamama RHC	10°05'41.2S 28°38'15.0E	1998.12.	Zamsif	50	nil	good	24.80	6.20	0.00	0.00	0.00	
	Lukwesa RHC	10°10'07.1S 28°38'09.8E	1998.11.	Zamsif	NA	nil	good	12.00	6.00	0.00	0.00	0.00	
	Wachani Village	10°19'16.8S 28°40'49.7E	2006.10.	Zamsif	45	nil	good	58.10	7.00	0.20	0.00	0.00	Low Yield
	Chakwa Village	10°25'21.7S 28°44'16.9E	2004.10.	UNICEF	58	rusty	rusty	6.04	5.40	5.00	0.00	0.00	Villagers do not use for drinking.
Mansa	Shichama Village	10°23'51.1S 28°42'33.4E	2006.10.	Zamsif	55	nil	good	16.00	6.50	0.00	0.00	0.00	
	Mukomansala Basic Sch.	10°23'15.5S 28°41'38.1E	2006.10.	Zamsif	55	nil	good	34.40	6.50	0.00	0.00	0.00	
	Mano Basic Sch.	10°53'31.7S 28°59'53.9E	2005.7.	UNICEF	50	rusty	rusty	18.02	6.00	5.00	0.00	0.00	
	Mbaso Basic Sch.	10°59'18.2S 28°56'28.7E	NA	UNICEF	NA	rusty	rusty	12.43	6.00	>10	<0.5	0.00	Villagers do not use for drinking.
Samfya	Kunda Fumu Basic Sch.	11°33'04.2S 28°45'07.6E	2003	Zamsif	46	rusty	rusty	2.70	5.20	6.00	0.00	0.00	
	Mamba High Sch.	11°15'41.0S 29°03'01.4E	2003.12.	UNICEF	20	rusty	rusty	14.04	6.00	>10	0.00	0.00	Villagers do not use for drinking.
	DWA Luapura	11°12'07.5S 28°53'15.7E	NA	Unknown	30	rusty	rusty	11.16	6.50	>10	0.00	0.00	Villagers do not use for drinking.
	Mwasakobe Basic Sch.	10°53'04.7S 29°39'45.0E	2004.10.	UNICEF	50	nil	good	4.83	6.00	1.00	0.00	0.00	Villagers do not use for drinking.
Milenge	Miwewa Village	10°56'19.2S 29°38'36.7E	2006.5.	UNICEF	50	rusty	rusty	3.44	5.80	>10	0.00	0.00	Villagers do not use for drinking.
	Mbilimwenge Basic Sch.	11°01'11.3S 29°38'37.5E	NA	UNICEF	NA	rusty	rusty	2.57	5.20	2.00	0.00	0.00	
	Malombola Village	11°22'22.3S 29°32'35.8E	2006.5.	UNICEF	48	rusty	rusty	3.31	5.40	7.00	0.00	0.00	
	Chiboliya Basic Sch.	11°22'20.0S 29°33'00.8E	NA	Zamsif	20	rusty	rusty	15.16	6.00	>10	0.00	0.00	Villagers do not use for drinking.
Chiengi	Mano Basic Sch.	11°28'48.6S 29°34'56.6E	2006.5.	UNICEF	50	rusty	rusty	6.63	6.50	2.00	0.00	0.00	
	Boma Compound	12°24'11.2S 29°30'09.0E	1999.10.	Zamsif	30	rusty	rusty	19.56	6.50	>10	0.00	0.00	Villagers do not use for drinking.
	Milenge Basic Sch.	12°24'11.2S 29°30'35.5E	1980	Zamsif	30	nil	good	10.57	6.50	0.50	0.00	0.00	
	Ist Seven Clinic	12°24'59.2S 29°29'06.5E	1958	Colonial Govern.	36	nil	good	8.01	5.00	0.20	0.00	0.00	DWA replaced with new handpump in 2004.
Nchelenge	Kabange Basic Sch.	11°26'24.2S 28°59'52.4E	2006.7.	Zamsif	18	nil	good	8.20	6.00	1.00	0.00	0.00	
	Kanyagara Basic Sch.	9°50'19.4S 29°08'05.9E	NA	Zamsif	18	nil	good	102.00	7.00	0.00	0.00	0.00	Poor installation of handpump
	Kapanpale Village	9°02'18.9S 29°03'09.2E	NA	Zamsif	17	nil	good	6.50	6.00	1.00	0.00	0.00	
	St. Paul Hospital	9°18'18.3S 28°44'22.9E	NA	St. Paul Hospital	20	nil	good	7.78	5.80	0.00	0.00	0.00	People of compound also use
Mansa	Shupali Village	9°36'25.6S 28°44'13.7E	2002.3.	Zamsif	18	rusty	rusty	9.81	6.20	>10	0.00	0.00	Villagers do not use for drinking.
	Mansa Basic Sch.	11°11'18.8S 28°52'55.4E	1999.10.	Canadia Gov.	20	nil	good	4.69	7.50	0.00	0.00	0.00	Villagers do not use for drinking.
	Mamba Basic Sch.	11°13'01.9S 28°56'52.0E	2003	UNICEF	30	nil	good	11.50	6.20	0.50	0.00	0.00	Poor installation of handpump
	Chisongo Basic Sch.	11°16'20.7S 29°06'38.8E	1998.11.	Zamsif	20	nil	good	13.92	5.20	0.50	0.00	0.00	
Samfya	Chifuro Village	11°28'51.9S 29°44'13.2E	2004.12.	Zamsif	8	rusty	rusty	2.34	5.60	2.00	0.00	0.00	
	Teburo Maooma Village	11°28'37.8S 29°44'10.9E	2004.12.	Zamsif	12	rusty	rusty	3.76	5.80	0.20	0.00	0.00	
	Teburo Village	11°27'08.0S 29°42'37.6E	2004.12.	Zamsif	21	nil	good	3.76	5.80	0.20	0.00	0.00	

Results of Existing Borehole Survey (2/2)

Borehole (Not Working)		Basic Research Study Sites										
Nchelenge	Kanyambo Basic Sch.	9-38703.6S 28-44.40.6E	2003	Zamsif	NA							Rod is fallen out
Kawambwa	Kambwali RHC	9-24.49.1S 28-44.06.5E	2002.2	Zamsif	NA							Dry, but water supply facility was constructed
Mwense	Musambeshi Village	9-40'54.1S 29-28'55.0E	2003	MOE	30							Seasonal (February to April)
	Chilange Basic Sch.	9-51'37.8S 28-46'01.4E	1992	Unknown	NA							handpump turned over
	Mukabi Basic Sch.	10-25'03.7S 28-54'43.7E	2004.10	UNICEF	NA							Rod is fallen out
	Kapvata Basic Sch.	10-56'19.7S 28-48'10.7E	2004	UNICEF	72							Seasonal (February to April)
Mansa	Lukola Basic Sch.	11-43'59.1S 28-44'19.9E	2004.7	UNICEF	NA							Rod is fallen out
	Butungawa RHC	11-12'20.4S 28-52'58.1E	NA	Water Well Trust	12							security key was lost
Samfya	Nseungalla Basic Sch.	10-49'07.7S 29-42'20.0E	2005.10	AfDB	NA							Dry, but water supply facility was constructed
	Mwasakobe RHC	10-53'19.1S 29-39'40.8E	2005.8	Zamsif	NA							Dry, but water supply facility was constructed
	Kapalala RHC	12-24'24.8S 29-23'34.2E	2005.8	Zamsif	NA							Fan is broken
Milenge	Sokontwe RHC	12-18'22.4S 29-27'03.5E	1990	Zamsif	NA							Rod is fallen out
	Kasumpa Basic Sch.	9-43'46.9S 28-47'46.9E	2007.8	JICA	65	good	1.7	4.91	<0.2	0.00	0.00	
	Mfundaula Village	9-40'58.0S 28-45'02.7E	2007.8	JICA	51	good	2	5.37	<0.2	0.00	0.00	
	Manipapala Basic Sch.	9-27'18.0S 28-49'30.2E	2007.8	JICA	39	good	1.4	5.33	<0.2	0.00	0.00	
	Chipakila Village	9-28'35.4S 28-44'26.3E	2007.8	JICA	50	good	3.1	5.58	<0.2	0.00	0.00	
Nchelenge	Kambwali Basic Sch.	9-25'01.2S 28-44'16.6E	2007.8	JICA	75	good	2.2	5.34	0.2	0.00	0.00	
	Chilongoshi Village	9-20'17.6S 28-44'44.9E	2007.8	JICA	42	good	4.5	5.56	<0.2	0.00	0.00	
	Chandwe Basic Sch.	9-18'31.4S 28-44'29.9E	2007.8	JICA	51	good	11.9	5.44	<0.2	0.00	0.00	
	Kafwala Village	9-14'00.4S 28-48'16.4E	2007.8	JICA	38	good	4.6	5.04	<0.2	0.00	0.00	
	Lusha Community Sch.	9-09'26.5S 28-51'59.4E	2007.8	JICA	72	good	9.2	6.14	0.5	0.00	0.00	
	Salanga Village	9-57'44.5S 28-43'35.9E	2007.8	JICA	55	good	5.2	5.25	0	0.00	0.00	
	Chilange Basic Sch.	9-51'37.8S 28-46'01.1E	2007.8	JICA	80	good	NA	NA	<0.2	0.00	0.00	
	Nsensema	9-51'07.2S 28-45'44.9E	2007.8	JICA	55	good	1.5	5.37	<0.2	0.00	0.00	
Kawambwa	Mukumba Village	9-44'34.1S 28-25'34.1E	2007.8	JICA	54	good	66.7	7.19	<0.2	0.00	0.00	
	Parriffin Comm. School	9-48'53.6S 29-10'19.5E	2007.8	JICA	85	good	2.54	5.02	0	0.00	0.00	
	Mukuma 2	9-46'01.3S 29-15'03.7E	2007.8	JICA	55	good	4.78	5.38	0	0.00	0.00	
	Kapambwe Village	9-33'19.3S 29-26'51.4E	2007.8	JICA	79	good	8.97	5.84	0	0.00	0.00	
	Kabanda Village	9-53'05.1S 29-22'01.6E	2007.8	JICA	61	good	37	6.94	0.2	0.00	0.00	
	Chinbini Village	10-26'03.3S 28-39'29.3E	2007.8	JICA	55	good	29.2	6.75	0.2	0.00	0.00	
	Sunshine Comm. School	10-23'44.5S 28-42'19.2E	2007.8	JICA	80	good	5.05	6.21	0.07	0.00	0.00	
Mwense	Kamble Village	10-20'46.6S 28-41'05.9E	2007.8	JICA	70	good	35.7	6.67	0	0.00	0.00	
	Kapala Market	10-01'15.0S 28-38'24.3E	2007.8	JICA	70	good	24.5	6.73	0	0.00	0.00	
	Chululungo Comm. Sch.	10-28'02.5S 29-00'02.0E	2007.8	JICA	55	good	55.3	7.21	0.2	0.00	0.00	
	Mulunda Village	10-21'18.8S 29-11'02.9E	2007.9	JICA	82	rusty	0.31	6.65	0.2	0.00	0.00	IRP installed
	Mulilo Village	11-47'05.7S 28-44'49.9E	2007.8	JICA	55	good	5.24	5.61	3	0.00	0.00	IRP installed
	Yonda Village	11-21'00.4S 29-29'21.0E	2007.9	JICA	61	good	16.36	7.84	0.1	0.00	0.00	
Mansa	Mano RHC	11-16'16.3S 29-09'15.5E	2007.9	JICA	85	good	18.3	7.49	0.13	0.00	0.00	
	Kaseya/Kompalala	10-53'46.3S 29-00'04.7E	2007.9	JICA	79	good	11.95	7.31	0.07	0.00	0.00	
	Mabumba East	11-07'00.4S 28-53'00.2E	2007.8	JICA	66	good	6.13	6.31	0.09	0.00	0.00	
	Kapvata Village	10-56'01.2S 28-48'10.9E	2007.8	JICA	79	good	15.13	7.31	1.03	0.00	0.00	IRP installed

Note: NA: Data Not Available; SWL: Static Water Level; IRP: Iron Removal Plant

At 6 sites of 21 sites where water the iron concentration is more than 2 mg/l, the villagers they do not use the water from the borehole for drinking purpose (Photo-19 and 20). At others, only in case that the villagers are not able to use other water sources such as spring, because they are dry or contaminated, the villagers are forced to use the borehole even if the iron contents is high.

The boreholes which the water have high iron concentration is located in granite and mudstone distributed zone and its surrounding area, but does not means that all the granitic and mudstone area will have high concentration of iron, making difficult the drilling point selection work.

Also, in 2 sites from 10 where the water is tapped from shallow aquifers, it was confirmed that the iron concentration was more than 2 mg/litre.









6-2-2 Condition of Water Supply Facilities

In 12 sites where the handpumps was working, at 4 sites the borehole became seasonal or completely dry. At 2 sites, handpump was installed despise it was dry when drilling was completed. At 4 sites, the borehole was abandoned because of breakdown in the handpump. At 1 site, the handpump was not in use because of trouble in the management of the water point. At 1 site, the apron and borehole was collapsed because of poor construction (Photo-23).

At one of dry borehole sites, installation of wind mill pump and construction of reservoir tank was carried out despise borehole was dry when it was completed.

At Chilange Basic School(Kawambwa), borehole, apron and handpump has collapsed within two weeks after completion because of poor construction (Photo-23).

In the construction stage, it will require a strong supervision to avoid such kind of problem, including a low durability of the apron and soakaway as shown in the photo 22 and 24.

	
<p>Photo-17 Poor installation of handle Nsengaila Basic School, Samfya District</p>	<p>Photo-18 Water Supply System(low yield borehole) Mwasakobe RHC, Samfya District</p>
	
<p>Photo-19 Borehole with High Iron Concentration Chiboliya Basic School, Samfya District</p>	<p>Photo-20 Ditto, Water Sample Chiboliya Basic School Samfya District</p>
	
<p>Photo-21 Windmill(Not working) Kapalala Clinic, Milenge District</p>	<p>Photo-22 Apron with cracks Mumbolo Village, Kawambwa District</p>
	
<p>Photo-23 Collapsed handpump and Apron Chilange Basic School, Kawambwa District</p>	<p>Photo-24 Drainage System Chisango Basic School, Mansa District</p>

Actual Situation of Some Existing Water Supply Facilities

6-2-3 Condition of Hand Dug Wells

The season when the field survey in the basic design stage started, was in the beginning of the rainy season, so that almost of hand dug wells was found dry or with the water level very low. In total, 63 existing hand dug wells were visited and surveyed. At 13 dug wells, the well became dry and at 50 dug wells the water level and bacteriological analysis of the water were checked.

In five districts except Kawambwa and Chiengi Districts, almost in all the villages there is one or more hand dug wells. Most of them are seasonal and become dry in the dry season generally. The water level of unconfined groundwater is around 10 m, and in dry season it fall down up to 18 m from the surface. But the depth of hand dug wells in these areas is around 10-15 metres so that almost hand dug wells becomes dry in dry season.

In Kawambwa District, the depth of hand dug wells is also around 10 m, but the water level of unconfined groundwater is 4 to 8 m, and in dry season it does not fall below 10 m, therefore, almost all hand dug wells can be used all seasons.

In Chiengi District, the villagers usually use the water from the lake, therefore, it is found only a few hand dug wells in the District. The water level of hand dug well in the District was around 10m during the field survey.

The taste of all the water sampled from the hand dug wells has no taste of rusty. Fecal Coliform were checked at 51 sites and at 13 sites the result was positive.

The location and other details of the surveyed hand dug well are shown in the next table, "Results of Existing Shallow Well Survey".

Results of Existing Hand Dug Well Survey

District	No.	Village Name	Coordination	S.W.L.(m)	Coliform	Note
Chiengi	Nil	Sakala Village	8-41'19.4S 29-08'52.7E	12.6	+	
	Nil	Kakunamasu Village	8-50'13.9S 29-06'10.2E	6.5	+	
	Nil	Mukabe Village	8-51'57.3S 29-05'32.3E	6.8	-	
	Nil	Chipipya Village	9-00'04.1S 29-02'36.3E	5.2	-	
		Mweru湖	8-39'18.3S 29-09'38.2E		-	Intake point for water service for township
Nchelenge	Nil	Manamweshi Village	9-17'25.3S 28-45'04.8E	8.5	+	
	Nil	Emiabu Village	9-19'29.3S 28-44'05.6E	11.5		
	Nil	Bunga Village	9-35'46.3S 28-44'06.4E	12.7		
	Nil	Shaniemba Village	9-35'30.5S 28-44'01.3E	15.6		
	Nil	Mukanso Village	9-35'18.1S 28-44'00.1E	18.2		
	Nil	Chibariki Agric R. Centre	9-33'15.0S 28-44'16.1E	12.8		
	Nil	Kipulumushi Village	9-31'58.9S 28-43'59.9E	9.3		
	Nil	Mshoko Village	9-28'33.8S 28-48'57.0E	8.7		
	Nil	Mbamba Village	9-21'25.4S 28-44'21.8E	14.5		
	NC-11	Mantapala Basic SCH	9-28'35.4S 28-49'30.3E	5.2	+	
Kawambwa	Nil	Kafwinta Village	9-39'03.7S 29-23'04.7E	8.7		
	Nil	Musambeshi Village	9-40'53.0S 29-29'11.8E	4.7	+	
	Nil	Katontoro Village	9-55'31.9S 29-21'25.7E	7.5		
	Nil	Chinama Village	9-49'02.5S 29-23'36.9E	6.3		
	Nil	Lusambo Village	9-48'42.2S 29-07'03.7E	5.7	+	
	Nil	Chilimbi Village	9-44'05.2S 29-47'18.2E	4.2	+	
	Nil	Kalamba Village	9-48'27.1S 29-00'25.8E	7	-	
	Nil	Lusambo Village	9-48'46.0S 29-07'33.6E	dry		Seasonal
	Nil	Matembe Village	9-49'50.8S 28-58'08.8E	dry		Seasonal
	Nil	Kafwinta Village	9-38'59.5S 29-22'59.7E	dry		Seasonal
	KA-04	Salanga Village	9-57'44.5S 28-43'35.9E	12.8		
	KA-07	Nsensema Village	9-51'07.2S 28-45'44.9E	3.8	+	
	KA-14	Mukamba Village	9-44'54.4S 28-45'34.1E	7		
	KA-20	Nefas	9-46'01.3S 29-15'03.7E	5.6		
	KA-30	Mukuma 2	9-33'19.3S 29-26'51.4E	6.7		
KA-39	Kapambwe Village 1	9-48'53.8S 29-23'08.8E	8.3	+		
KA-45	Kabanda Village	9-53'05.1S 29-22'01.6E	3.5			
Mwense	Nil	Mweshi Village	10-41'42.7S 28-42'34.5E	9.5		
	Nil	Kabundafyela Basic SCH	10-25'22.9S 28-39'16.1E	13		IM II installed
	Nil	Lukwesa RHC	10-10'07.1S 28-38'09.8E	13.8		
	Nil	Chirumbi Village	10-13'47.0S 28-38'41.8E	15		IM II installed
	Nil	Shingwe Village	10-22'58.8S 28-42'00.5E	10.4		
	Nil	Mkomba Village	10-27'42.4S 28-39'17.2E	13.5		
	Nil	Kanyamba Village	10-23'35.6S 28-39'36.6E	7.5	+	
	MW-15	Chatala Village	10-34'21.4S 28-40'39.3E	dry		All season dry
	MW-20	Chibondo RHC	10-43'05.8S 28-40'16.5E	7.5	+	
	MW-44	Kapala Market	10-04'45.0S 28-38'24.3E	dry		All season dry
	MW-48	Chululungo Comm. SCH.	10-28'02.5S 29-00'02.0E	dry		All season dry
MW-52	Mulunda Village	10-21'18.8S 29-11'02.9E	11	-		
Mansa	MA-07	Lusaya Village	11-42'55.1S 28-44'17.8E	6.8	-	
	MA-12	Chabala Village	11-56'53.6S 28-44'37.3E	dry		Seasonal
	MA-13	Yonda Village	11-21'04.1S 29-29'21.6E	dry		Seasonal
	MA-22	Mufuma Comm. SCH.	11-16'45.6S 29-09'24.5E	6.5	-	Sterilized
	MA-27	Mano RHC	11-00'47.1S 29-00'04.2E	8.2	-	Sterilized
	MA-34	Musalia Comm. Market	11-21'05.6S 29-29'32.8E	dry		Seasonal
	MA-37	Mambumba East	11-16'07.7S 29-03'19.5E	dry		Seasonal
	MA-39	Kapyata Village	10-55'45.8S 28-47'58.4E	dry		Seasonal
Samfya	Nil	Mano Re-settlement	11-30'17.1S 29-33'31.9E	13.2		
	Nil	Mano Re-settlement	11-30'24.4S 29-33'26.4E	9.5		
	Nil	Kakasa Village	10-58'24.2S 29-38'30.0E	16	-	
	SA-03	Chifuko Comm. SCH	10-55'00.0S 29-36'34.0E	dry		Seasonal
	SA-16	Kasaba Basic SCH	10-45'11.9S 29-43'59.1E	dry		Seasonal
	SA-29	Chisuku Basic SCH	11-29'39.7S 29-44'28.7E	8.6		Sterilized
	SA-40	Maximo Village	11-22'07.9S 29-32'34.2E	13.6		
Milenge	Nil	Kapalala RHC	12-24'24.8S 29-23'34.2E	4.6	+	
	Nil	Mareaga Village	12-21'22.6S 29-23'56.0E	6.8		
	Nil	Nyambe Village	12-24'35.9S 29-29'26.4E	17.5		
	Nil	Sistrai Village	12-24'33.2S 29-29'32.5E	10.3		
	Nil	Boma Compound	12-24'33.6S 29-29'53.2E	5.4	+	

Note: SWL: Static Water Level; IM II: India Mark II

ANNEX 6-3 SOCIO-ECONOMIC SURVEY DATA

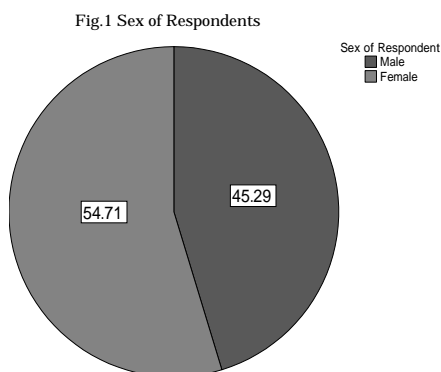
6-3-1 Objectives of Survey

1. To grasp general socio-economic conditions in the Project sites in order to determine adequate capacity and scale, design, implementation plan and cost estimation of the Project which are required for the construction of borehole with handpump
2. To collect baseline data about each index shown in PDM for evaluation of the Project

6-3-2 Contents and Method of Survey

Target of Survey and Sampling Method

The targets of survey are 355 sites in 345 villages of 7 districts in the Luapula Province. Sampling number is 7 samples/sites (1 key informant and 6 village households). Said sample village households were selected at random in each site of the Project. Respondents in the household survey are categorized below.



Survey Method

Local consultant in Zambia, which was selected in tendering and contracted with Japanese Consultant, carried out the survey by interview method using questionnaire prepared by Japanese Consultant. The collected data were processed as socio-economic information of the Project sites and were prepared to be use as baseline data for the Project monitoring and evaluation. The said questionnaires consisted of 2 different types of format. One was prepared for interview with key informants (for example, responsible for water supply facilities, village leader, etc.), another for that with general households (See ANNEX).

The questionnaire sheets for Key Informants includes the questions to collect information necessary to screen out the surveyed sites and prioritize the screened ones based on criteria set in the Project as well as questions about items which are difficult to be covered in random sampling method.

On the other hand, focusing on “villagers’ willingness and capacity to pay water fee, the questionnaire sheets for villagers were prepared to conjecture their willingness to bear burden for operation and maintenance/amount of water fee, and capacity to pay it, based on the information such as 1) expenditure for water supply, 2) consciousness about improvement of water supply”, and 3) households’ economy.

Number of Respondents

Total number of respondents is 343 villages (343 key informants and 2,058 households). The villages such as No.31 Mulungushi School and No.44 Kalebwe Village of Milenge District were excluded from the Project because of its difficulty of access throughout the year.

Structure of Samples (Respondents)

Total 343 key informants who replied to the survey are classified into 1)Village head (57.7%), 2)Responsible person of school (9.3%), 3)Responsible person of RHC (2.4%), 4) Community Development Agent(21.6%), 5) Face based leader (0.2%), 6)Others (8.8%).

Total 2058 respondents for household survey are classified into 1)Male (45.29%, 40.25 years old in average) and 2)Female (54.71%, 39.46 years old in average).

6-3-3 Survey Data

Population

Table 1. All target sites in 7 districts	Population
average	1,115
median	600
most frequent case	300
minimum	103
maximum	10,000
total	389,021

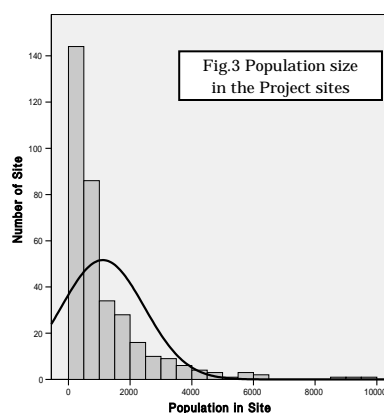


Table 2. District	Chlengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya
average	1,120	799	1,351	556	1,338	1,535	1,170
median	866	424	510	362	852	1,245	475
Most frequent number	350	250	300	200	1,000	1,500	300
minimum	194	155	105	103	157	252	165
maximum	3,500	4,802	10,000	6,037	9,000	4,786	8,535
total	47,058	55,922	63,498	24,466	77,608	73,662	46,807

Unit : person

Access

Table 3. Means of transport which the community members usually rely on to access to the centre of district (a)	Response	
	N	%
1) on foot	181	48.5
2) by bicycle	141	37.8
3) by public transport (by buses)	40	10.7
4) by asking someone for a lift	11	2.9
Total (a) multiple answers acceptable	373	100.0

Table 4. Necessary time from the village to centre of district by means of transport which community members usually use	case	minimum	maximum	average
1) Dry season (/hrs.)	348	0.00	72.00	5.2782
2) Rainy season (/hrs.)	344	0.00	96.00	6.5308

Table 5. Access to construction site for heavy vehicles and/or machines			Good condition throughout year	Good condition in dry season only	Some works necessary to be good condition	Total
District	1) Chiengi	case	26	4	13	43
		% in district	60.5	9.3	30.2	100.0
	2) Kawambwa	case	65	2	2	69
		% in district	94.2	2.9	2.9	100.0
	3) Mansa	case	40	4	1	45
		% in district	88.9	8.9	2.2	100.0
	4) Milenge	case	29	9	3	41
		% in district	70.7	22.0	7.3	100.0
	5) Mwense	case	55	3	n/a	58
		% in district	94.8	5.2	n/a	100.0
	6) Nchelenge	case	35	7	8	50
		% in district	70.0	14.0	16.0	100.0
	7) Samfya	case	16	24	n/a	40
		% in district	40.0	60.0	n/a	100.0
Total	case	266	53	27	346	
	% in district	76.9	15.3	7.8	100.0	

Economic Activities in Luapula Province

Table 6. Key industries in villages		Small scale agriculture	Peasant farming	Fishing	Manufacturing	Public service	Others	Total	
District	1) Chiengi	case	4	33	6	n/a	n/a	43	
		% in district	9.3	76.7	14.0	n/a	n/a	100.0	
	2) Kawambwa	case	8	53	8	n/a	1	n/a	70
		% in district	11.4	75.7	11.4	n/a	1.4	n/a	100.0
	3) Mansa	case	15	32	n/a	n/a	n/a	n/a	47
		% in district	31.9	68.1	n/a	n/a	n/a	n/a	100.0
	4) Milenge	case	1	39	2	n/a	n/a	n/a	42
		% in district	2.4	92.9	4.8	n/a	n/a	n/a	100.0
	5) Mwense	case	8	46	1	1	n/a	2	58
		% in district	13.8	79.3	1.7	1.7	n/a	3.4	100.0
	6) Nchelenge	case	4	41	5	n/a	n/a	n/a	50
		% in district	8.0	82.0	10.0	n/a	n/a	n/a	100.0
	7) Samfya	case	6	26	7	n/a	1	n/a	40
		% in district	15.0	65.0	17.5	n/a	n/a	n/a	100.0
Total	case	46	270	29	1	2	2	350	
	% in district	13.1	77.1	8.3	0.3	0.6	0.6	100.0	

Table 7. Main food crops in villages (%)	District							Total
	1) Chiengi	2) Kawambwa	3) Mansa	4) Milenge	5) Mwense	6) Nchelenge	7) Samfya	
Maize	37.2	57.1	14.9	4.8	1.7	2.0	27.5	22.3
Rice	n/a	2.9	2.1	n/a	n/a	n/a	2.5	1.1
Cassava	62.8	27.1	80.9	45.2	98.3	98.0	57.5	66.3
Sorghum	n/a	1.4	n/a	50.0	n/a	n/a	2.5	6.6
Beans	n/a	1.4	2.1	n/a	n/a	n/a	5.0	1.1
Others	n/a	10.0	n/a	n/a	n/a	n/a	5.0	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 8. Cash crops in villages (%)	District							Total
	1) Chiengi	2) Kawambwa	3) Mansa	4) Milenge	5) Mwense	6) Nchelenge	7) Samfya	
Maize	55.8	14.3	19.1	52.4	19.0	40.0	20.0	29.7
Rice	4.7	n/a	2.1	n/a	n/a	n/a	n/a	0.9
Cassava	27.9	11.4	53.2	7.1	55.2	58.0	27.5	34.3
Sorghum	n/a	n/a	2.1	19.0	n/a	n/a	7.5	3.4
Beans	n/a	31.4	6.4	n/a	8.6	n/a	10.0	9.7
Wheat	n/a	1.4	n/a	n/a	n/a	n/a	2.5	0.6
Others	11.6	28.6	12.8	16.7	17.2	2.0	27.5	17.1
Not applicable	n/a	1.4	2.1	2.4	n/a	n/a	5.0	1.4
No answer	n/a	11.4	2.1	2.4	n/a	n/a	n/a	2.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Village Organizations

Fig.4 Existence of V-WASHE

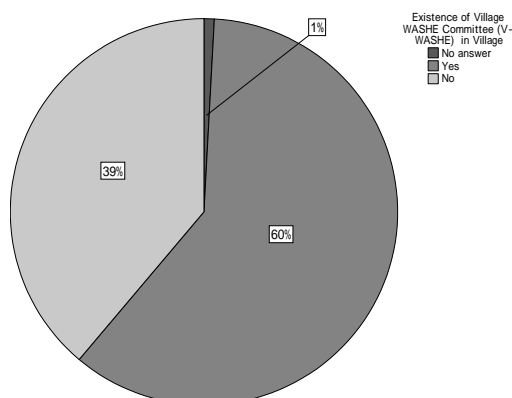


Fig.5 Plan to organize V-WASHE

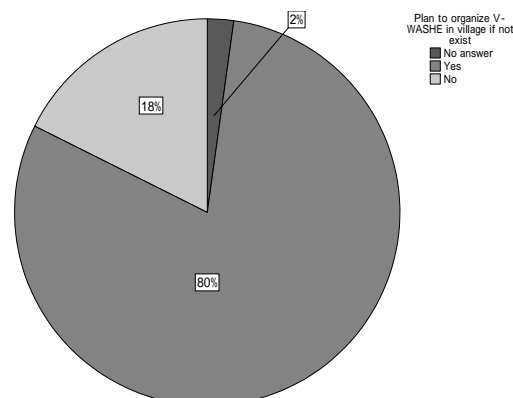


Fig.6 Support from Government/NGOs

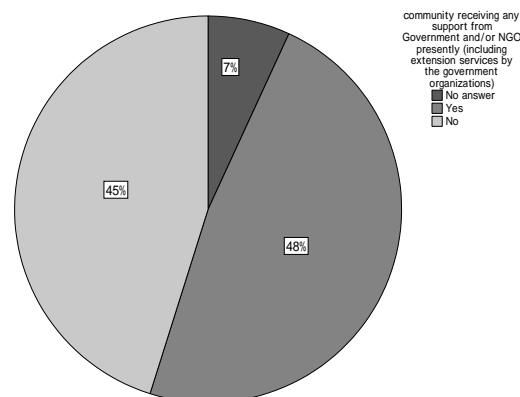


Table 9. Existing community based organization (a)	Respondent		% of cases
	N	%	
1) Farmers' association	135	18.9	39.4
2) Health association	163	22.9	47.5
3) Women's association	109	15.3	31.8
4) Faith based organization	28	3.9	8.2
5) PTA	62	8.7	18.1
6) Youth Group	25	3.5	7.3
7) Others	149	20.9	43.4
8) No organization	42	5.9	12.2
Total (a) multiple answers allowed	713	100.0	207.9

	Respondent		% of cases
	N	%	
1) Health and hygiene	193	38.4	66.8
2) Support for construction of improved latrine	23	4.6	8.0
3) Support for construction of water supply facilities	18	3.6	6.2
4) Distribution of food /seeds	54	10.7	18.7
5) Technical guidance on farming	86	17.1	29.8
6) Adult literacy class	19	3.8	6.6
7) Micro credit scheme	12	2.4	4.2
8) Others	98	19.5	33.9
Total (a) multiple answers allowed	503	100.0	174.0

	Respondent		% of Cases
	N	%	
1) Water supply facility	61	10.9	17.9
2) Irrigation scheme	4	0.7	1.2
3) School	187	33.3	54.8
4) Community hall	14	2.5	4.1
5) Road / bridge	132	23.5	38.7
6) Others	128	22.8	37.5
7) No experiences	36	6.4	10.6
Total (a) multiple answers allowed	562	100.0	164.8

			1)Cash for Investment	2)Cash for O&M	3)In kind for investment	4)In kind for O&M	5)Provision of labour force	6)Others	Total
Water Supply Facility	Respondent	N	4	5	4	2	53	1	69
		%	5.8	7.2	5.8	2.9	76.8	1.4	100.0%
		% of cases	6.7	8.3	6.7	3.3	88.3	1.7	115.0%
School	Respondent	N	3	n/a	8	n/a	172	2	185
		%	1.6	n/a	4.3	n/a	93.0	1.1	100.0%
		% of cases	1.7	n/a	4.4	n/a	95.0	1.1	102.2%
Community hall	Respondent	N	n/a	n/a	n/a	n/a	11	1	12
		%	n/a	n/a	n/a	n/a	91.7	8.3	100.0%
		% of cases	n/a	n/a	n/a	n/a	100.0	9.1	109.1%
Road/Bridge	Respondent	N	n/a	n/a	2	n/a	132	n/a	134
		%	n/a	n/a	1.5	n/a	98.5	n/a	100.0%
		% of cases	n/a	n/a	1.5	n/a	98.5	n/a	100.0%

Fig.7 the 1st major diseases affecting villages in rainy season

Fig.8 the 1st major diseases affecting villages in dry season

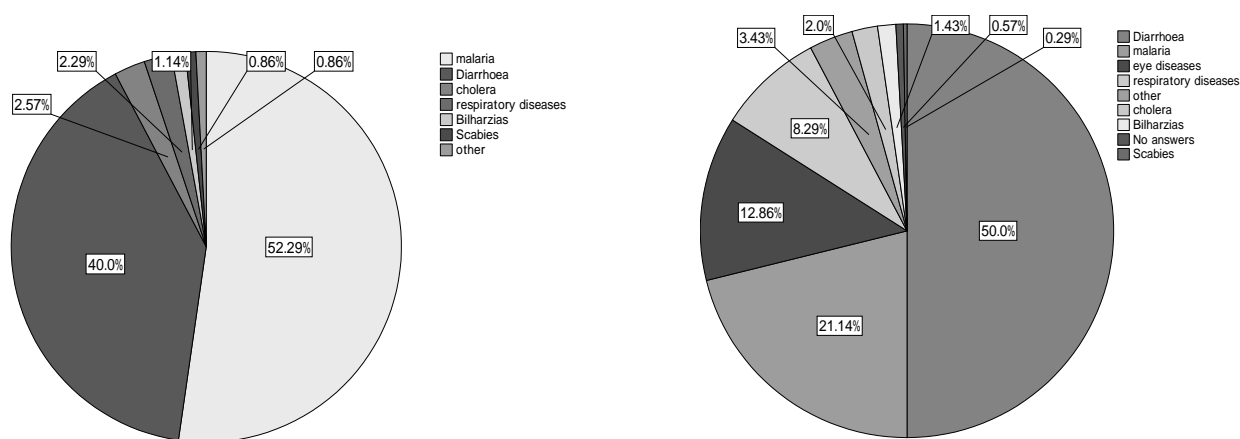
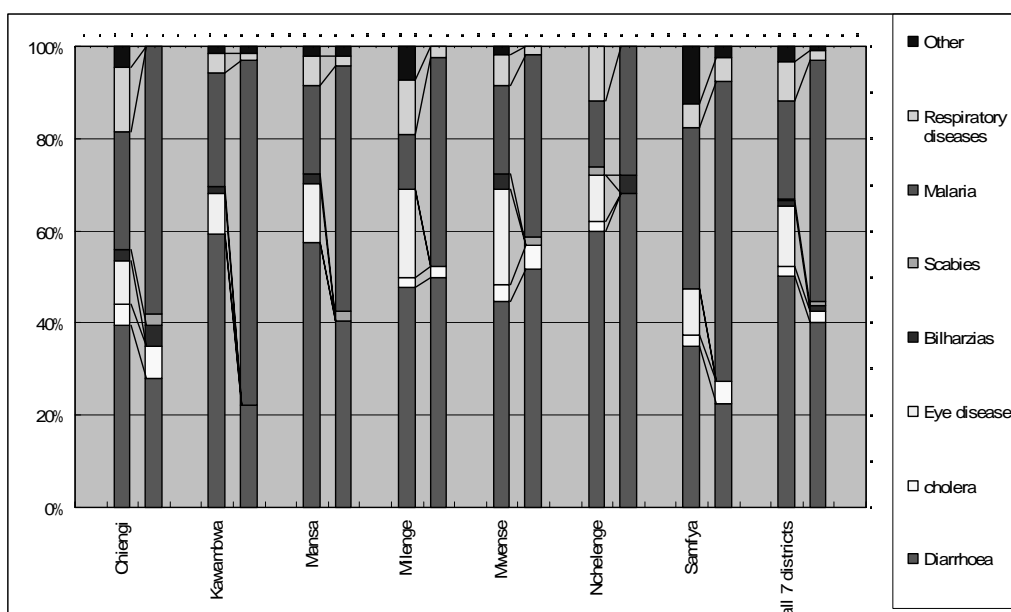


Fig.9 Comparison of diseases between rainy and dry season



	Cases	Average (%)
1) Traditional pit latrine	350	75.9126
2) VIP latrine	350	1.4586
3) Pour flush latrine	350	0.0000
4) Flush to sewage system or septic tank	348	0.4425
5) communal toilet	350	0.5600
6) No latrine / go to bush	350	7.1343
7) Others	350	12.5460

	Respondent		% of cases
	N	%	
1) Staff of dispensary/rural health center	291	39.1	84.6
2) Village health worker	166	22.3	48.3
3) Traditional birth attendants	62	8.3	18.0
4) School	29	3.9	8.4
5) Radio	59	7.9	17.2
6) TV	6	0.8	1.7
7) Faith based organization	25	3.4	7.3
8) Others	76	10.2	22.1
9) No health and hygiene programme are provided.	30	4.0	8.7
Total (a) multiple answers allowed	744	100.0%	216.3%

	Respondent		% of cases
	N	%	
1) Protection from water borne diseases	285	28.3	83.1
2) Malaria prevention	209	20.8	60.9
3) HIV/AIDS	222	22.1	64.7
4) Reproductive health	104	10.3	30.3
5) Nutrition	132	13.1	38.5
6) Other	45	4.5	13.1
7) No health and hygiene programme are provided.	9	0.9	2.6
Total (a) multiple answers allowed	1006	100.0%	293.3%

	cases	%
1) Inside of village	77	25.4
2) In the other villages	226	74.6
Total	303	100.0

Current Water Supply

Fig.10 Consumption of water/day/household

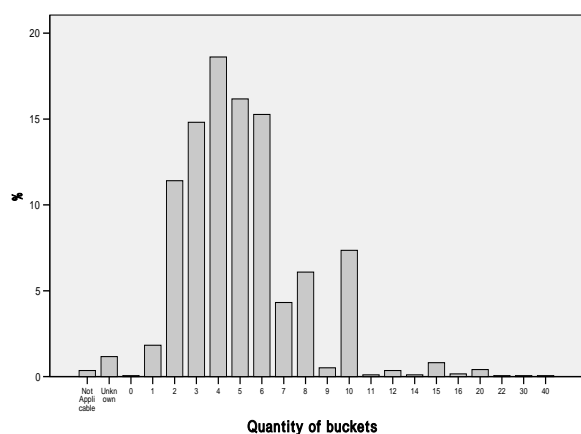
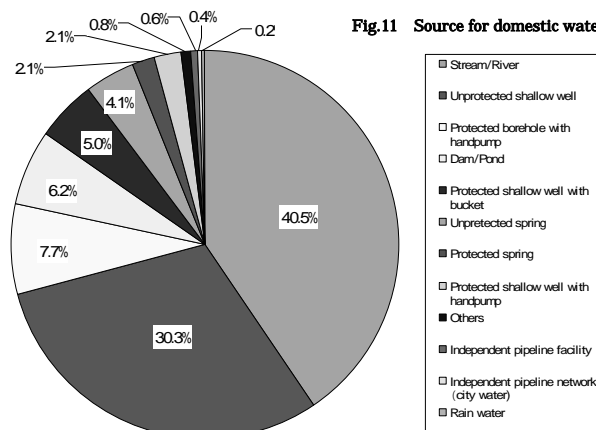


Fig.11 Source for domestic water



		1) Source was dried up.	2) Problem of water quality	3) Breakdown of pumping devices	4) Lack of funds for running cost	5)Others	Total
1) Stream/river	%	83.3	16.7				100.0%
2) Unprotected spring (point source)	%	33.3			33.3	33.3	100.0%
3) Unprotected shallow well	%	44.1	18.6	14.9	16.8	5.6	100.0%
4) Protected spring	%	100.0					100.0%
5) Protected shallow well with bucket	%	81.8		18.2			100.0%
6) Protected shallow well with handpump	%	100.0					100.0%
7) Independent piped scheme	%		100.0				100.0%

Sites where Borehole with Handpump already Exists

	Cases	%
1) There is no borehole with handpump in village.	290	82.9
2) Currently operating	38	10.9
3) Currently out of order	22	6.3
Total	350	100.0%

	Respondent		% of cases
	N	%	
1) Water source has dried up.	11	31.4	44.0
2)Cylinder broke down	10	28.6	40.0
3)Leakage of riser pipe	2	5.7	8.0
4) Worn out of bolt/nut	3	8.6	12.0
5)Other	6	17.1	24.0
6)Not known	3	8.6	12.0
Total (a) multiple answers allowed	35	100.0%	140.0%

	Cases	%
1) Village Head	7	11.7
2) Village Water Committee/V-WASHE	20	33.3
3) School	19	31.7
4) Rural Health Centre	7	11.7
5) Water users group	1	1.7
6) Local Authority (District Council)	1	1.7
7) DWA	1	1.7
8) Others	4	6.7
Total	60	100.0

	Cases	%
1) Yes	36	58.1
2) No	22	35.5
3) No answer	4	6.5
Total	62	100.0

Fig.12 Responsible for daily operation & maintenance of shallow well/borehole with handpump

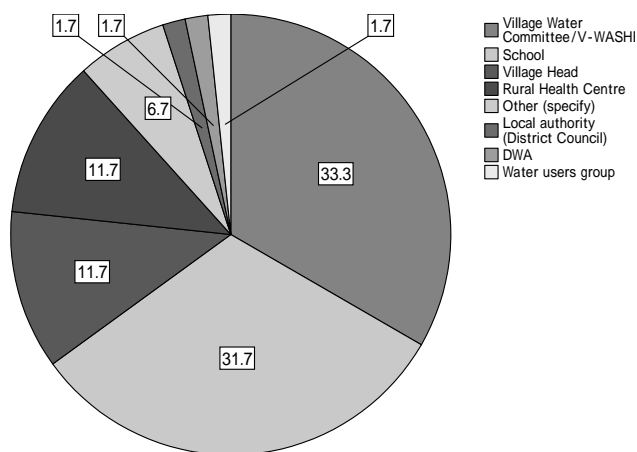
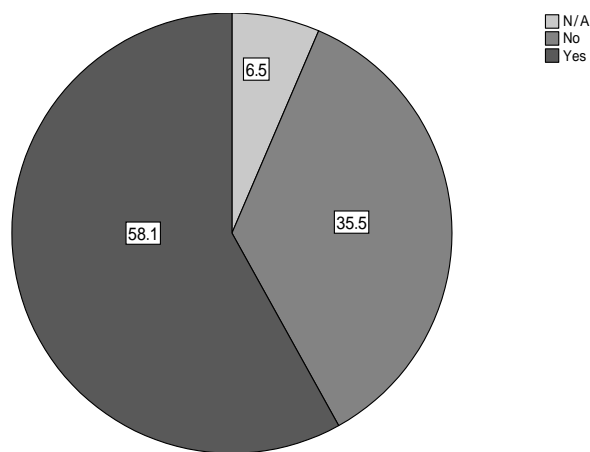


Fig.13 Break down of the facilities after completion of construction



		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
Operating	N	1	14	5	3	3	5	7	38
	% in district	33.3	70.0	55.6	100.0	33.3	71.4	77.8	63.3
Out of order	N	2	6	4	n/a	6	2	2	22
	% in district	66.7	30.0	44.4	n/a	66.7	28.6	22.2	36.7
Total	N	3	20	9	3	9	7	9	60
	% in district	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
Tried to repair by the community themselves but failed.	N	n/a	4	4	n/a	3	2	2	15
	%	n/a	18.2	30.8	n/a	25.0	22.2	18.2	n/a
Asked the private plumber for repair works and still waiting.	N	2	4	5	n/a	6	2	2	21
	%	50.0	18.2	38.5	n/a	50.0	22.2	18.2	n/a
Asked District Office/Government /NGO for support but failed.	N	n/a	n/a	1	n/a	n/a	n/a	n/a	1
	%	n/a	n/a	7.7	n/a	n/a	n/a	n/a	n/a
No action has been taken.	N	1	n/a	n/a	n/a	n/a	n/a	n/a	1
	%	25.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Not applicable (Currently operating well).	N	1	14	3	3	3	5	7	36
	%	25.0	63.6	23.1	100.0	25.0	55.6	63.6	n/a
Total (a)multiple answers allowed	N	4	22	13	3	12	9	11	74
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 24. Responsible for O/M of existing borehole with handpump in districts		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
Village Head	N	n/a	4	1	n/a	n/a	1	1	7
	% in district	n/a	20.0	10.0	n/a	n/a	14.3	11.1	11.7
Village Water/V-WASHE	N	n/a	5	3	2	6	3	1	20
	% in district	n/a	25.0	30.0	66.7	75.0	42.9	11.1	33.3
School	N	n/a	10	3	1	n/a	2	3	19
	% in district	n/a	50.0	30.0	33.3	n/a	28.6	33.3	31.7
Rural Health Centre(RHC)	N	2	n/a	1	n/a	2	1	1	7
	% in district	66.7	n/a	10.0	n/a	25.0	14.3	11.1	11.7
Water users group	N	n/a	1	n/a	n/a	n/a	n/a	n/a	1
	% in district	n/a	5.0	n/a	n/a	n/a	n/a	n/a	1.7
Local Authority (District Office)	N	n/a	n/a	n/a	n/a	n/a	n/a	1	1
	% in district	n/a	n/a	n/a	n/a	n/a	n/a	11.1	1.7
DWA	N	n/a	n/a	1	n/a	n/a	n/a	n/a	1
	% in district	n/a	n/a	10.0	n/a	n/a	n/a	n/a	1.7
Others	N	1	n/a	1	n/a	n/a	n/a	2	4
	% in district	33.3	n/a	10.0	n/a	n/a	n/a	22.2	6.7
Total	N	3	20	10	3	8	7	9	60
	% in district	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 25. Repair works carried out in districts for existing boreholes with handpump (a)		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
re-deepen the same well/borehole	N	n/a	1	1	n/a	2	1	n/a	5
	% in district	n/a	8.3	25.0	n/a	28.6	14.3	n/a	n/a
replacing broken parts of the cylinder with new one	N	n/a	2	1	n/a	2	2	n/a	7
	% in district	n/a	16.7	25.0	n/a	28.6	28.6	n/a	n/a
replacing entire cylinder with new one	N	n/a	2	n/a	n/a	3	1	n/a	6
	% in district	n/a	16.7	n/a	n/a	42.9	14.3	n/a	n/a
replacing broken riser pipes with new one	N	1	4	1	n/a	n/a	2	n/a	8
	% in district	100.0	33.3	25.0	n/a	n/a	28.6	n/a	n/a
replacing the worn-out bole/nut with new one	N	n/a	2	n/a	1	n/a	1	n/a	4
	% in district	n/a	16.7	n/a	100.0	n/a	14.3	n/a	n/a
Not applicable (currently operating well)	N	n/a	1	1	n/a	n/a	n/a	1	3
	% in district	n/a	8.3	25.0	n/a	n/a	n/a	100.0	n/a
Total (a) multiple answers allowed	N	1	12	4	1	7	7	1	33
	% in district	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Current Condition in Sites where Villagers are Using Unprotected Water Sources

Table 26. Responsible for daily operation and maintenance of the communal water sources located in village	N	%
1) Village Government	32	11.2
2) Village Water Committee	22	7.7
3) Water Users Association	7	2.4
4) Water Users Group	44	15.4
5) Local authority (District Office)/Government	1	0.3
6) Other	180	62.9
Total	286	100.0

Table 27. How to manage water fund in village water committee	N	%
1) Kept in a bank account of the water committee	1	0.4
2) Kept at the treasurer of the water committee in the village	11	4.8
3) Others	1	0.4
4) Not applicable (no water fund is raised in the community)	218	94.4
Total	231	100.0

	N	%
1)Constructing shallow well(s)/borehole(s) with handpump	275	95.8
2)Constructing piped water scheme independently	4	1.4
3)Connection of pipeline from the existing piped network	1	0.3
4)Others	7	2.4
Total	287	100.0

	N	%
1) Village Government	37	12.8
2) Village water committee	184	63.9
3) water users association	7	2.4
4) water users group	10	3.5
5) Local authority (district Office)/Government/NGO	4	1.4
6) Other	46	16.0
Total	288	100.0

	N	%
1) Community/Users of the facility	224	78.3
2) Local authority(District Office)/Government/NGO	8	2.8
3) Both community and local authority/Government	28	9.8
4) Other	26	9.1
Total	286	100.0

	Respondent	
	N	%
1)Increased accessibility to perennial water supply	66	23.2
2)Increased accessibility to safe water supply	162	56.8
3)Increased volume of available water	2	0.7
4)Reduced time/work load for drawing water	21	7.4
5)Increased time for children to attend school	3	1.1
6)Increased time for women to engage in economic activities	1	0.4
7)Reduced number of case in diarrhea	27	9.5
9)Others	3	1.1
Total (a) multiple answers allowed	285	100.0

	Respondent		% of cases
	N	%	
1)Increased costs for users to pay for water	27	8.3	9.5
2)Increased influx of population seeking for water supply	27	8.3	9.5
3)Others	65	20.1	23.0
4)No negative impact	205	63.3	72.4
Total (a) multiple answers allowed	324	100.0	114.5

		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
Village Government	N	2	5	12	5	7	4	2	37
	% in district	5.0	9.8	34.3	12.8	14.3	9.3	6.5	12.8%
Village Water Committee	N	34	31	13	29	33	37	7	184
	% in district	85.0	60.8	37.1	74.4	67.3	86.0	22.6	63.9%
Water Users Association	N	n/a	3	1	n/a	n/a	n/a	3	7
	% in district	n/a	5.9	2.9	n/a	n/a	n/a	9.7	2.4%
Water Users Group	N	n/a	7	1	n/a	n/a	n/a	2	10
	% in district	n/a	13.7	2.9	n/a	n/a	n/a	6.5	3.5%
Local authority (District Office)/Government	N	n/a	3	n/a	1	n/a	n/a	n/a	4
	% in district	n/a	5.9	n/a	2.6	n/a	n/a	n/a	1.4%
Others	N	4	2	8	4	9	2	17	46
	% in district	10.0	3.9	22.9	10.3	18.4	4.7	54.8	16.0%
Total	N	40	51	35	39	49	43	31	288
	% in district	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Expenditure for Water

Table 34. Monthly average expenditure per household for water in rainy season (Kws)		N	%	Available %
Amount	100	3	0.1	2.4
	200	1	0.0	0.8
	300	4	0.2	3.1
	500	22	1.0	17.3
	600	4	0.2	3.1
	800	4	0.2	3.1
	1,000	38	1.8	29.9
	1,400	1	0.0	0.8
	1,500	11	0.5	8.7
	2,000	24	1.1	18.9
	2,500	1	0.0	0.8
	3,000	6	0.3	4.7
	5,000	3	0.1	2.4
	6,000	2	0.1	1.6
	10,000	1	0.0	0.8
	15,000	1	0.0	0.8
20,000	1	0.0	0.8	
	Sub-total	127	6.1	100.0
Missing value	don't know	6	0.3	
	No expenditure	1,963	93.7	
	Sub-total	1,969	93.9	
Total		2,096	100.0	

Table 35. Monthly average expenditure per household for water in dry season (Kws)		N	%	Available %
Amount	100	3	.1	2.3
	200	1	.0	.8
	300	4	0.2	3.1
	500	22	1.0	17.1
	600	3	0.1	2.3
	900	1	0.0	0.8
	1,000	46	2.2	35.7
	1,500	11	0.5	8.5
	2,000	23	1.1	17.8
	2,500	2	0.1	1.6
	3,000	5	0.2	3.9
	5,000	3	0.1	2.3
	6,000	2	0.1	1.6
	10,000	1	0.0	0.8
	15,000	1	0.0	0.8
	20,000	1	0.0	0.8
	Sub-total	129	6.2	100.0
Missing value	Don't know	24	1.1	
	No expenditure	1,943	92.7	
	Sub-total	1,967	93.8	
Total		2,096	100.0	

Table 36. Perception about current amount of water fee payment in rainy season		N	%	Available %
Perception	1) very expensive	19	0.9	14.3
	2) expensive	49	2.3	36.8
	3) fair	57	2.7	42.9
	4) cheap	3	0.1	2.3
	5) very cheap	5	0.2	3.8
	Sub-total	133	6.3	100.0
Missing value	No answer	6	0.3	
	Not applicable (no expenditure for water)	1,957	93.4	
	Sub-total	1,963	93.7	
Total		2,096	100.0	

Table 37. Perception about current amount of water fee payment in dry season		N	%	Available %
Perception	Very expensive	15	0.7	11.5
	Expensive	51	2.4	38.9
	Fair	58	2.8	44.3
	Cheap	2	0.1	1.5
	Very cheap	5	0.2	3.8
	Sub-total	131	6.3	100.0
Missing value	no response	11	0.5	
	Not applicable (no money is spent to get water)	1954	93.2	
	Sub-Total	1965	93.8	
Total		2096	100.0	

Table 38. Household paying money to obtain water for livestock in rainy season except for user fee of domestic water	N	%
1) Yes	2	0.1
2) No	1,032	49.5
3) Don't know	3	0.1
4) Not applicable (No livestock)	1,049	50.3
Total	2,086	100.0

Table 39. Household paying money to obtain water for livestock in dry season except for user fee of domestic water	N	%
1) Yes	1	0.0
2) No	1,013	48.6
3) Don't know	3	0.1
4) Not applicable (No livestock)	1,066	51.2
Total	2,083	100.0

Value of Improved Water Supply for villages

Table 40. Level of satisfaction that household have at present about water supply service from existing source	N	%
1) Yes, very satisfied	45	2.2
2) Yes, satisfied	204	9.8
3) Not sure	19	0.9
4) Not satisfied	1,538	74.1
5) Not satisfied at all	270	13.0
Total	2,076	100.0

Table 41. Primary reason about level of dissatisfaction shown in answers before (a)	Respondent		% of cases
	N	%	
1) Water Quality	163	42.9	66.5
2) Water Quantity	34	8.9	13.9
3) Availability	34	8.9	13.9
4) Distance for water drawing	59	15.5	24.1
5) Waiting time for water drawing	7	1.8	2.9
6) Amount of water fee	7	1.8	2.9
7) Technology /Capacity of Device	6	1.6	2.4
8) Others	70	18.4	28.6
Total (a) multiple answers allowed	380	100.0	155.1

Table 42. Secondary reason about level of dissatisfaction shown in answers before (a)	Respondent		% of cases
	N	%	
1) Water Quality	1,573	48.2	84.7
2) Water Quantity	206	6.3	11.1
3) Availability	219	6.7	11.8
4) Distance for water drawing	738	22.6	39.7
5) Waiting time for water drawing	105	3.2	5.7
6) Amount of water fee	24	0.7	1.3
7) Technology / Capacity of Device	36	1.1	1.9
8) Others	363	11.1	19.5
Total (a) multiple answers allowed	3,264	100.0	175.8

Table 43. Level of needs in household for borehole with handpump as an improved water supply service to obtain the domestic water with payment of water fee in the Project Sites	N	%
1) Yes, even the fee is more expensive than present one	1,935	93.7
2) Yes, if the fee remains in the level as same as present one	75	3.6
3) Yes, if the fee is cheaper than present one	29	1.4
4) No, even if the fee remains in the level as same as present one	13	0.6
5) No, even if the fee is cheaper than present one	7	0.3
6) Satisfied with the current water supply service	7	0.3
Total	2,066	100.0

Table 44. Level of needs in household for borehole with handpump as an improved water supply service to obtain the domestic water with payment of water fee in districts		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
1) Yes, even the fee is more expensive than present one	N	252	392	242	205	328	289	227	1,935
	% in district	99.2	95.8	91.0	81.7	94.3	96.3	95.4	93.7
2) Yes, if the fee remains in the level as same as present one	N	1	3	6	43	17	4	1	75
	% in district	0.4	0.7	2.3	17.1	4.9	1.3	0.4	3.6
3) Yes, if the fee is cheaper than present one	N	0	2	15	3	0	7	2	29
	% in district	0.0	0.5	5.6	1.2	0.0	2.3	0.8	1.4
4) No, even if the fee remains in the level as same as present one	N	1	9	0	0	0	0	3	13
	% in district	0.4	2.2	0.0	0.0	0.0	0.0	1.3	0.6
5) No, even if the fee is cheaper than present one	N	0	3	2	0	1	0	1	7
	% in district	0.0	0.7	0.8	0.0	0.3	0.0	0.4	0.3
6) Satisfied with the current water supply service	N	0	0	1	0	2	0	4	7
	% in district	0.0	0.0	0.4	0.0	0.6	0.0	1.7	0.3
Total	N	254	409	266	251	348	300	238	2,066
	% in district	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 45. Primarily responsible for daily operation and maintenance of borehole with handpump to be constructed in the future project	N	%
1) Local authority (District) / Government	14	0.7
2) Private water supply company	6	0.3
3) Users of the facility	416	20.1
4) Village water committee / Water user association	916	44.3
5) Village Government	330	16.0
6) External donor / NGO	2	0.1
7) Others	358	17.3
8) Don't know	24	1.2
Total	2,066	100.0

Table 46. Amount of water fee that villagers in the Project sites agree to pay for the improved water supply service from a borehole with handpump	N	%
1) 0-499 ZK	247	12.0
2) 500-999 ZK	723	35.0
3) 1,000-1,499 ZK	735	35.6
4) 1,500-2,000 ZK	210	10.2
5) more than 2,000 ZK	151	7.3
Total	2,066	100.0

Table 47. Preferable method of billing for water user	N	%
1) Cash	1,537	74.5
2) Agricultural Products	485	23.5
3) Others	22	1.1
4) Don't know	18	0.9
Total	2,062	100.0

Table 48. Amount of water fee that villagers in districts agree to pay for the improved water supply service from a borehole with handpump		district							Total
		Chiengi	Kawambwa	Mansa	Milenge	Mwense	Nchelenge	Samfya	
0 - 499ZK	N	6	46	39	29	115	9	7	251
	% in district	2.4	11.1	14.3	11.6	33.1	3.0	2.9	12.1
500 - 999 ZK	N	101	166	123	108	118	44	70	730
	% in district	39.6	40.0	45.2	43.2	34.0	14.7	29.2	35.1
1,000 - 1,499 ZK	N	124	161	40	64	54	213	79	735
	% in district	48.6	38.8	14.7	25.6	15.6	71.0	32.9	35.4
1,500 - 2,000 ZK	N	19	31	33	29	34	29	37	212
	% in district	7.5	7.5	12.1	11.6	9.8	9.7	15.4	10.2
More than 2,000 ZK	N	5	11	37	20	26	5	47	151
	% in district	2.0	2.7	13.6	8.0	7.5	1.7	19.6	7.3
Total	N	255	415	272	250	347	300	240	2,079
	% in district	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 49. Type of Contribution by villagers for Construction of Borehole with handpump	Respondent		% of cases
	N	%	
1) Cash	311	13.1	15.6
2) Labour Force	753	31.6	37.8
3) Provision of locally available construction materials	612	25.7	30.7
4) Nothing	45	1.9	2.3
5) Others	662	27.8	33.2
Total (a) multiple answers allowed	2,383	100.0	119.6

Households' Economy

Table 50. Primary income source of household in districts		Agriculture	Fishing	Stock farming	Retail	Salary in employment (permanent employment)	Casual work	Pension	Remittance from family working elsewhere	Others	Total
Chiengi	N	217	13	0	9	12	2	0	1	2	256
	% in district	84.8	5.1	0.0	3.5	4.7	0.8	0.0	0.4	0.8	100.0
Kawambwa	N	329	26	2	14	14	6	1	4	8	404
	% in district	81.4	6.4	0.5	3.5	3.5	1.5	0.2	1.0	2.0	100.0
Mansa	N	251	0	2	9	4	4	0	0	5	275
	% in district	91.3%	0.0%	0.7	3.3	1.5	1.5	0.0	0.0	1.8	100.0
Milenge	N	221	14	0	3	9	2	0	1	0	250
	% in district	88.4	5.6	0.0	1.2	3.6	0.8	0.0	0.4	0.0	100.0
Mwense	N	248	6	0	50	32	8	0	1	3	348
	% in district	71.3	1.7	0.0	14.4	9.2	2.3	0.0	0.3	0.9	100.0
Nchelenge	N	273	7	0	2	8	1	0	1	6	298
	% in district	91.6	2.3	0.0	0.7	2.7	0.3	0.0	0.3	2.0	100.0
Samfya	N	190	13	1	10	15	2	0	1	7	239
	% in district	79.5	5.4	0.4	4.2	6.3	0.8	0.0	0.4	2.9	100.0
Total	N	1,729	79	5	97	94	25	1	9	31	2,070
	% in district	83.5	3.8	0.2	4.7	4.5	1.2	0.0	0.4	1.5	100.0

Table 51. Secondary income source of household in districts		Agriculture	Fishing	Stock farming	Retail	Salary in employment (permanent employment)	Casual work	Pension	Remittance from family working elsewhere	Others	Not applicable (only one income source)	Total
Chiengi	N	6	3	0	6	0	2	0	2	12	207	238
	% in district	2.5	1.3	0.0	2.5	0.0	0.8	0.0	0.8	5.0	87.0	100.0
Kawambwa	N	29	13	11	29	2	13	0	5	28	249	379
	% in district	7.7	3.4	2.9	7.7	0.5	3.4	0.0	1.3	7.4	65.7	100.0
Mansa	N	16	4	14	6	0	2	0	2	28	173	245
	% in district	6.5	1.6	5.7	2.4	0.0	0.8	0.0	0.8	11.4	70.6	100.0
Milenge	N	16	14	4	4	3	22	2	0	12	165	242
	% in district	6.6	5.8	1.7	1.7	1.2	9.1	0.8	0.0	5.0	68.2	100.0
Mwense	N	52	42	10	50	1	8	1	0	104	78	346
	% in district	15.0	12.1	2.9	14.5	0.3	2.3	0.3	0.0	30.1	22.5	100.0
Nchelenge	N	10	27	4	113	2	1	1	0	27	106	291
	% in district	3.4	9.3	1.4	38.8	0.7	0.3	0.3	0.0	9.3	36.4	100.0
Samfya	N	20	30	3	20	19	2	1	1	19	124	239
	% in district	8.4	12.6	1.3	8.4	7.9	0.8	0.4	0.4	7.9	51.9	100.0
Total	N	149	133	46	228	27	50	5	10	230	1,102	1,980
	% in district	7.5	6.7	2.3	11.5	1.4	2.5	0.3	0.5	11.6	55.7	100.0

Table 52. Period of cash income (a)	Respondent		% of cases
	N	%	
January	496	3.8	24.0
February	470	3.6	22.7
March	691	5.3	33.4
April	1,193	9.2	57.7
May	1,486	11.4	71.9
June	1,628	12.5	78.8
July	1,555	12.0	75.2
August	1,491	11.5	72.1
September	1,360	10.5	65.8
October	1,190	9.2	57.6
November	783	6.0	37.9
December	636	4.9	30.8
Total (a) Multiple answers allowed	12,979	100.0	627.9

6-3-4 Inventory Data of Villages

The data collected in Village Inventory Survey are shown in the next page.

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP		Other project	V-WASHE		Other community-based organizations							Water fee		Households' Economy		Type of Latrine(%)							
						Possible to use	Out of order		Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other	
Chiengi	CH- 1	Mupela Village	Mununga	224	A			no	yes								yes	1,000 ~ 1,499	42,333	138,333	100								
Chiengi	CH- 2	Mutembo Village	Mununga	194	A			no	yes							Village Productive Committee	yes	1,000 ~ 1,499	79,000	238,000	100								
Chiengi	CH- 3	Musonko Village	Mununga	1,025	A			no	yes		yes					Livestock Association	yes	1,000 ~ 1,499	60,000	352,000	100								
Chiengi	CH- 4	Sula Village	Mununga	831	A			no	no							Community Group	yes	1,500 ~ 2,000	70,000	190,000	90								
Chiengi	CH- 5	Mukobeka Village	Munwa	1,600	A			no	yes			yes	yes				yes	1,000 ~ 1,499	60,000	239,000	100								
Chiengi	CH- 6	Nyamfwa Basic School	Munwa	1,650	A			no	yes				yes				yes	1,000 ~ 1,499	296,000	490,000	99	1							
Chiengi	CH- 7	Mukonko Village	Unknown	800	A			no	yes			yes				Red Cross	yes	1,000 ~ 1,499	151,667	220,000	100								
Chiengi	CH- 8	Mukompa Village	Munwa	600	A			no	yes								yes	500 ~ 999	68,000	98,000	100								
Chiengi	CH- 9	Musolo Village	Munwa	400	A			no	yes								yes	1,000 ~ 1,499	121,667	226,667	100								
Chiengi	CH- 10	Mwilika Village	Munwa	350	A			no	no	yes		yes				Community Group	yes	1,000 ~ 1,499	135,000	185,000	100								
Chiengi	CH- 11	Mutampuka school	Munwa	650	A			no	yes					yes		Chilanga Community Group	yes	1,000 ~ 1,499	70,000	104,000	100								
Chiengi	CH- 12	Chishipula Village	Munwa	320	A			no	yes		yes					Community Group	yes	1,000 ~ 1,499	153,333	216,667	95								5
Chiengi	CH- 13	Muya Basic School	Chitutu	350	A			no	yes					yes		Fishing Association	yes	1,500 ~ 2,000	255,000	325,000	97	1							2
Chiengi	CH- 14	Sichilaba Village	Chitutu	1,650	A			no	yes							Village Productivity Committee	yes	1,500 ~ 2,000	135,000	191,667	90								10
Chiengi	CH- 15	Kafwanka Village	Kalobwa	1,750	A			no	yes			yes	yes				yes	500 ~ 999	90,000	400,000	84	16							
Chiengi	CH- 16	Kabungo Village	Kalobwa	659	A			no	yes		yes	yes					yes	1,000 ~ 1,499	56,000	66,000	100								
Chiengi	CH- 17	Kalobwa Basic School	Kalobwa	765	Unknown			no	yes			yes		yes			yes	1,500 ~ 2,000	356,667	466,667	50	2							48
Chiengi	CH- 18	Sensele Village	Kalobwa	700	A			no	no	yes		yes	yes			Kalumba Community Group	yes	1,000 ~ 1,499	Unknown	290,000	100								
Chiengi	CH- 19	Munkunta Village	Kalobwa	3,500	A	yes		no	yes		yes	yes	yes			Village Productive Committee	yes	1,000 ~ 1,499	75,833	78,000	100								
Chiengi	CH- 20	Mukabe Village	Chipamba	1,900	A			no	yes		yes						yes	1,000 ~ 1,499	76,000	125,000	100								
Chiengi	CH- 21	Kalima Village	Chipungu	600	C			no	yes			yes					yes	1,000 ~ 1,499	45,000	162,500	80							20	
Chiengi	CH- 22	Kalembwe Village	Ifuna	465	A			no	yes			yes					yes	1,000 ~ 1,499	68,333	100,000	100								
Chiengi	CH- 23	Katentu Village	Ifuna	300	A			no	yes			yes					yes	1,000 ~ 1,499	82,000	102,000	100								
Chiengi	CH- 24	Putu market	Kantete	2,880	A			no	yes			yes				District Business Association	yes	1,000 ~ 1,499	213,333	275,000	100	1							
Chiengi	CH- 25	Putu Basic School	Kantete	2,000	A			no	yes			yes				Putu Community Group	yes	1,000 ~ 1,499	158,000	230,000	100								
Chiengi	CH- 26	Mutoba Village	Kantete	2,527	B			no	yes			yes					yes	1,000 ~ 1,499	120,000	168,000	75								25
Chiengi	CH- 27	Chilando Village	Kantete	1,000	A			no	yes			yes				Village Planning Committee	yes	1,000 ~ 1,499	146,667	221,667	100								
Chiengi	CH- 28	Kawila Village	Chiengi	365	B			no	no	yes							yes	1,000 ~ 1,499	41,667	56,667	93								7
Chiengi	CH- 29	Natende Village	Chiengi	900	A			no	yes		yes	yes					yes	1,000 ~ 1,499	103,333	133,333	100								
Chiengi	CH- 30	Chembe Village	Unknown	1,078	C			no	no	yes		yes					yes	1,000 ~ 1,499	305,000	310,000	75								25
Chiengi	CH- 31	Shilumbwe Village	Mwabu	1,060	B			no	yes		yes	yes					yes	1,000 ~ 1,499	76,667	95,000	100								
Chiengi	CH- 32	Kasase Basic School	Mwabu	250	B			no	no	yes				yes		Bee Keeping	yes	1,000 ~ 1,499	73,333	161,667	99	1							
Chiengi	CH- 33	Kasembe Village	Chiengi	1,200	C			no	yes			yes					yes	1,000 ~ 1,499	101,667	183,333	100								
Chiengi	CH- 34	Kaputula Village	Chiengi	563	C			no	yes		yes	yes	yes			Village Committee	yes	1,000 ~ 1,499	45,833	90,000	80								20
Chiengi	CH- 35	Chipungu Basic School	Chipungu	3,000	C	yes		no	yes			yes	yes			Red Cross	yes	1,000 ~ 1,499	273,000	516,667	100								
Chiengi	CH- 36	Chibata Village	Chipungu	Unknown	C			no	no	no						Neighbourhood Watch	yes	1,000 ~ 1,499	48,250	281,000	100								
Chiengi	CH- 37	Eliya Shebele	Chipungu	900	C			no	yes					yes			yes	1,000 ~ 1,499	79,167	111,667	80								20
Chiengi	CH- 38	Kapandila Village	Chiengi	1,100	A			no	no	yes		yes				Neighbourhood Watch	yes	1,000 ~ 1,499	33,333	356,667	95								5
Chiengi	CH- 39	Chakaba Village	Chiengi	1,200	C			no	yes		yes	yes		yes			yes	1,000 ~ 1,499	83,333	166,667	80								20
Chiengi	CH- 40	Munkanshya Village	Chipungu	1,920	C		yes	no	yes							Marketeer's Association	yes	1,000 ~ 1,499	118,333	176,333	90								10
Chiengi	CH- 41	Lambwe Chomba MCT	Lambwe Chomba	2,614	C			no	yes		yes	yes	yes	yes		Area Development Committee	yes	1,000 ~ 1,499	75,000	492,800	90								10
Chiengi	CH- 42	Yakobo Village	Chipungu	500	C			no	yes			yes					yes	1,000 ~ 1,499	220,000	306,000	80								20
Chiengi	CH- 43	Mikwela Village	Lambwe Chomba	718	C			no	yes			yes					yes	1,000 ~ 1,499	45,000	337,500									Unknown

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP		Other project	V-WASHE		Other community-based organizations							Water fee		Households' Economy		Type of Latrine (%)								
						Possible to use	Out of order		Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other		
Nchelenge	NC- 1	Kasumpa Village	Chipita	500	A			no	yes		yes	yes	yes			yes	yes	1,000 ~ 1,499	105,000	152,667	90								10	
Nchelenge	NC- 2	Kasumpa Basic School	Chipita	300	A			no	yes						yes	Community Development Committee	yes	1,000 ~ 1,499	182,000	364,167	90								10	
Nchelenge	NC- 3	Mangamu Basic School	Katofyo	320	A	yes		no	no	yes							yes	1,500 ~ 2,000	65,833	86,167										
Nchelenge	NC- 4	Nakafwaya Village	Katofyo	800	B			no	yes							Community Development Committee	yes	1,000 ~ 1,499	104,000	235,000	85	5						10		
Nchelenge	NC- 5	Mfundaula Village	Katofyo	620	A			no	no	yes	yes	yes					yes	1,000 ~ 1,499	71,667	112,500	88							12		
Nchelenge	NC- 6	Kashita Village	Momfwe	1,400	A			no	no	yes	yes	yes					yes	1,000 ~ 1,499	91,667	123,333	100									
Nchelenge	NC- 7	Kapambwe Clinic	Shabo	3,171	A			no	yes		yes	yes	yes			yes	yes	1,000 ~ 1,499	43,750	220,167	85							15		
Nchelenge	NC- 8	Bupina Village	Mulwe	480	A			no	yes			yes			yes		yes	1,000 ~ 1,499	73,000	356,000	80							20		
Nchelenge	NC- 9	Chipayeni Village	Mulwe	2,172	A			no	yes		yes	yes	yes				yes	1,000 ~ 1,499	143,333	322,500	80							20		
Nchelenge	NC- 10	Kampampi Village	Mulwe	3,722	A	yes		no	yes		yes	yes	yes				yes	1,000 ~ 1,499	81,667	218,333	35							65		
Nchelenge	NC- 11	Mantapala Basic School	Mulwe	500	B			no	yes		yes	yes		yes	yes		yes	1,500 ~ 2,000	58,333	325,000	80						20			
Nchelenge	NC- 12	Chipakila Village	Mulwe	1,500	A			no	no	yes							yes	1,000 ~ 1,499	144,000	188,333	75							25		
Nchelenge	NC- 13	Mulwe Village	Mulwe	3,500	A			no	yes		yes	yes	yes				yes	1,000 ~ 1,499	85,000	217,000	96							4		
Nchelenge	NC- 14	Mukange Village	Mulwe	1,002	A			no	yes		yes	yes				VAG	yes	1,500 ~ 2,000	65,000	84,167	93							7		
Nchelenge	NC- 15	Kambwali Basic School	Kasamba	1,386	A			no	yes		yes	yes	yes		yes		yes	1,500 ~ 2,000	260,000	660,000	80							20		
Nchelenge	NC- 16	Mumba Village	Kasamba	1,872	A			no	yes		yes						yes	1,000 ~ 1,499	80,000	120,500	70							30		
Nchelenge	NC- 17	Mukumbwa Village	Kasamba	736	A			no	yes		yes	yes	yes		yes	yes	yes	1,000 ~ 1,499	200,000	250,000	80							20		
Nchelenge	NC- 18	Kalimbwa Comm. School	Kasamba	300	A			no	yes		yes	yes	yes		yes		yes	2,000 ~	121,667	200,833	70						30			
Nchelenge	NC- 19	Mutiwanama Village	Kasamba	1,008	A			no	yes		yes	yes	yes		yes		yes	1,000 ~ 1,499	233,333	245,750	80							20		
Nchelenge	NC- 20	Mutepuka Village	Kasamba	1,876	A	yes		no	yes		yes	yes			yes	yes	yes	1,500 ~ 2,000	Unknown	219,333	70							30		
Nchelenge	NC- 21	Shikapambwa	Kasamba	250	A			no	yes		yes	yes	yes				yes	1,000 ~ 1,499	150,000	245,750	90							10		
Nchelenge	NC- 22	Chintakwa Village	Kasamba	2,280	A			no	yes								yes	1,000 ~ 1,499	250,000	450,000	80							20		
Nchelenge	NC- 23	Kaseka Village	Kasamba	1,887	C			no	yes		yes	yes					yes	1,000 ~ 1,499	80,000	126,667	80							20		
Nchelenge	NC- 24	Kafimbwa Village	Kashikishi	1,887	A	yes		no	yes		yes	yes	yes		yes		yes	1,500 ~ 2,000	225,000	320,000	90							10		
Nchelenge	NC- 25	Chilongoshi Village	Kashikishi	815	A			no	yes		yes	yes	yes		yes	yes	yes	1,000 ~ 1,499	200,000	450,000	95							5		
Nchelenge	NC- 26	Mulumba Village	Kashikishi	1,033	A			no	yes		yes		yes		yes		yes	1,000 ~ 1,499	200,000	241,500	95							5		
Nchelenge	NC- 27	Shikapande Village	Kashikishi	1,869	C			no	yes		yes	yes	yes		yes	Parent Community School	yes	1,500 ~ 2,000	156,667	161,000	70							30		
Nchelenge	NC- 28	Kawama Comm. School	Kashikishi	1,650	B			no	yes		yes	yes			yes	yes	yes	1,000 ~ 1,499	300,000	533,333	70							30		
Nchelenge	NC- 29	Chandwe Basic School	Kashikishi	1,179	A			no	yes						yes		yes	1,500 ~ 2,000	300,000	461,000	90							10		
Nchelenge	NC- 30	Kamwangila Village	Kashikishi	1,500	A			no	yes			yes					yes	1,000 ~ 1,499	100,000	175,000	80							20		
Nchelenge	NC- 31	Malulu Village	Kashikishi	765	A			no	yes			yes			yes		yes	1,500 ~ 2,000	75,000	204,200	100									
Nchelenge	NC- 32	Yenga Village	Kashikishi	1,290	A			no	yes								yes	1,500 ~ 2,000	150,000	226,000	90							10		
Nchelenge	NC- 33	Mulambi Village	Kashikishi	621	B			no	yes								yes	1,000 ~ 1,499	200,000	400,000	80							20		
Nchelenge	NC- 34	Mumpundu Village	Nchelenge	1,200	A			no	yes		yes	yes	yes		yes	Village Development Committee	yes	1,000 ~ 1,499	140,000	337,500	90							10		
Nchelenge	NC- 35	Kaseta Menda Village	Nchelenge	4,020	B	yes		no	yes		yes	yes	yes	yes	yes	yes	yes	1,000 ~ 1,499	100,000	264,800	80							20		
Nchelenge	NC- 36	Kalweo Comm. School	Nchelenge	3,000	B			no	yes		yes	yes	yes	yes	yes	yes	yes	1,000 ~ 1,499	137,500	181,750	95							5		
Nchelenge	NC- 37	Kafwala Village	Nchelenge	2,796	B			no	yes		yes	yes	yes			Village Market Committee	yes	1,000 ~ 1,499	70,333	70,333	90							10		
Nchelenge	NC- 38	Mulonda Village	Nchelenge	550	B			no	yes		yes	yes	yes		yes	Fishing Association	yes	1,500 ~ 2,000	133,333	180,000	100									
Nchelenge	NC- 39	Seketi Village	Mwatishi	1,500	C			no	yes			yes	yes		yes		yes	1,000 ~ 1,499	100,000	141,333	70							30		
Nchelenge	NC- 40	Chitwalo Village	Mwatishi	1,317	B			no	yes		yes	yes	yes		yes	yes	yes	1,000 ~ 1,499	200,000	350,000	80							20		
Nchelenge	NC- 41	Chishima Village	Mwatishi	4,786	B			no	yes		yes	yes	yes		yes	yes	yes	1,000 ~ 1,499	125,000	125,000	100									
Nchelenge	NC- 42	Kayope Village	Mwatishi	1,500	B			no	yes		yes	yes			yes	DAPP, MSF	yes	1,000 ~ 1,499	123,333	225,000	90							10		
Nchelenge	NC- 43	Kapela Village	Mwatishi	960	C			no	yes		yes	yes	yes		yes	Village Production Unit	yes	1,000 ~ 1,499	100,000	375,000	80							20		
Nchelenge	NC- 44	Chula Village	Mwatishi	886	C			no	yes				yes		yes		yes	1,000 ~ 1,499	150,000	233,333	80							20		
Nchelenge	NC- 45	Lusha Comm. School	Mwatishi	886	A			no	yes						yes	Project Committee	yes	1,000 ~ 1,499	150,000	320,000	80							20		
Nchelenge	NC- 46	Chafuma	Mwatishi	4,200	C			no	yes						yes	Fishing Association	yes	1,000 ~ 1,499	150,000	300,000	70							30		
Nchelenge	NC- 47	Mukeya Comm. School	Kabuta	250	B			no	yes		yes	yes			yes	Fishing Association	yes	1,000 ~ 1,499	250,000	600,000	70							30		
Nchelenge	NC- 48	Kaputo Village	Munkombwe	596	C			no	yes		yes				yes	Agroforest, Africare	yes	1,000 ~ 1,499	70,000	300,000	70							30		
Nchelenge	NC- 49	Kamfunka Village	Munkombwe	252	C			no	yes		yes	yes			yes		yes	1,000 ~ 1,499	80,000	80,000	70							30		
Nchelenge	NC- 50	Kasasa Village	Munkombwe	1,200	C			no	yes		yes	yes			yes	Bee Keeping	yes	1,000 ~ 1,499	Unknown	80,000	60								40	

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP			V-WASHE		Other community-based organizations							Water fee		Households' Economy		Type of Latrine (%)								
						Possible to use	Out of order	Other project	Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other		
Kawambwa	KA- 1	Nshinka	Mununshi	800	A			no	yes									yes	1,000 ~ 1,499	50,000	360,333	90				5				5
Kawambwa	KA- 2	Chipunka	Mununshi	4,802	A		no	no	yes			yes	yes				Anti-AIDS	yes	500 ~ 999	58,000	143,333	50							25	25
Kawambwa	KA- 3	Sesa Turn Off	Mununshi	1,330	A	yes		no	no	yes	yes	yes	yes				Home Based Care	yes	1,000 ~ 1,499	10,000	11,667	50						30	20	
Kawambwa	KA- 4	Salanga (*)	Mulele	850	A			no	yes		yes	yes	yes				Home Based Care	yes	1,000 ~ 1,499	16,667	20,000	45					5	50		
Kawambwa	KA- 5	Mumbolo	Mulele	691	A	yes		no	yes		yes	yes	yes				Home Based Care	yes	500 ~ 999	50,000	55,000	75				15		10		
Kawambwa	KA- 6	Chilange Basic School (*)	Lufubu	422	A			no	no	yes	yes	yes	yes					yes	1,500 ~ 2,000	140,000	179,000	74						10	16	
Kawambwa	KA- 7	Nsensema (*)	Lufubu	480	A			no	yes			yes						yes	1,000 ~ 1,499	28,667	145,000	70	6		20			4		
Kawambwa	KA- 8	Mwilu	Ntumbachushi	500	C	yes		no	yes				yes					yes	1,000 ~ 1,499	55,000	63,333	80	2			4		14		
Kawambwa	KA- 9	Yamba	Unknown	250	C			no	yes								Home Based Care	yes	1,000 ~ 1,499	19,833	19,833	90	0						10	
Kawambwa	KA- 10	Kasawo	Chipita	284	A			no	yes		yes							yes	1,000 ~ 1,499	58,750	128,333	80	4			6		10		
Kawambwa	KA- 11	Nakabamba	Ntumbachushi	1,280	A	yes		no	yes		yes	yes					Developmental Organisations	yes	1,000 ~ 1,499	34,167	48,333	80	20							
Kawambwa	KA- 12	Chipeta	Chipita	1,500	A	yes		no	no	yes	yes	yes						yes	500 ~ 999	36,250	43,600	75				20		5		
Kawambwa	KA- 13	Libansa	Kayo	1,500	A	yes		no	no	yes								yes	1,000 ~ 1,499	29,250	353,000	50			25			25		
Kawambwa	KA- 14	Mukamba (*)	Kayo	3,000	A			no	yes			yes	yes		yes			yes	1,000 ~ 1,499	55,000	56,667	95						5		
Kawambwa	KA- 15	Tomas	Ngona	650	A			no	no	yes	yes	yes						yes	1,000 ~ 1,499	56,667	60,000	80				8		12		
Kawambwa	KA- 16	Stati	Ngona	2,500	A			no	no	yes	yes	yes		yes				yes	1,000 ~ 1,499	86,000	116,667	75	15					10		
Kawambwa	KA- 17	Domnico	Unknown	420	A			no	yes			yes						yes	1,500 ~ 2,000	39,100	63,333	95	5							
Kawambwa	KA- 18	Paraffin School (*)	Fisaka	193	A			no	yes		yes				yes			yes	500 ~ 999	30,833	50,833	99	1							
Kawambwa	KA- 19	Sikalaba	Luena	681	A	yes		no	yes		yes						Natwange	yes	1,000 ~ 1,499	47,500	83,333	80							20	
Kawambwa	KA- 20	Nefas (*)	Unknown	366	A			no	yes				yes					yes	1,500 ~ 2,000	53,333	84,167	90				5		5		
Kawambwa	KA- 21	Chitembo	Unknown	480	A			no	yes			yes						yes	1,000 ~ 1,499	21,667	68,333	100								
Kawambwa	KA- 22	Katungulu	Kabanse	400	A			no	yes		yes	yes	yes					yes	500 ~ 999	85,833	115,833	50				20		30		
Kawambwa	KA- 23	Mulyoni	Kabanse	260	B			no	yes									yes	500 ~ 999	63,333	93,750	90						10		
Kawambwa	KA- 24	Mwendakana	Kabanse	270	A			no	yes			yes	yes				Anti-AIDS	yes	1,000 ~ 1,499	40,833	105,000	100								
Kawambwa	KA- 25	Mwaba	Kabanse	250	A			no	yes						yes		Home Based Care	yes	500 ~ 999	64,667	89,667	95							5	
Kawambwa	KA- 26	Sevent 1	Kabanse	250	A			no	yes			yes					Home Based Care	yes	500 ~ 999	49,167	1,710,833	100								
Kawambwa	KA- 27	Kabonde	Kabanse	249	A			no	yes		yes	yes						yes	1,000 ~ 1,499	100,000	145,000	96							4	
Kawambwa	KA- 28	Chimpembe	Kabanse	392	A			no	Unknown	Unknown	yes	yes			yes		Health and Nutrition Drama Group	yes	1,500 ~ 2,000	325,000	525,000	25	75							
Kawambwa	KA- 29	Mukuma 1	Kabanse	300	A			no	no	yes		yes					Drama Group	yes	1,500 ~ 2,000	56,250	115,000	80						20		
Kawambwa	KA- 30	Mukuma 2 (*)	Kabanse	300	A			no	yes		yes						Drama Group	yes	1,000 ~ 1,499	188,000	208,333	100								
Kawambwa	KA- 31	Chabanya	Ilombe	600	A		no	no	yes				yes					yes	1,000 ~ 1,499	22,000	31,000	95						5		
Kawambwa	KA- 32	Kalyo School	Ilombe	208	A			no	yes				yes					yes	1,000 ~ 1,499	15,000	20,833	45							55	
Kawambwa	KA- 33	Katontolo	Ilombe	164	A		no	no	no		yes							yes	1,000 ~ 1,499	53,000	69,000	90							10	
Kawambwa	KA- 34	Yaya	Ilombe	1,500	A	yes		no	yes		yes	yes						yes	1,500 ~ 2,000	30,833	75,000	50							50	
Kawambwa	KA- 35	Mutuna	Ilombe	700	A			no	no	yes	yes	yes						yes	1,000 ~ 1,499	25,500	69,167	50	10			25		15		
Kawambwa	KA- 36	Chinyama	Ilombe	160	A			no	yes								Home Based Care	yes	1,500 ~ 2,000	23,400	32,333	90							10	
Kawambwa	KA- 37	Kusungulwila	Ilombe	453	A			no	yes			yes						yes	1,500 ~ 2,000	36,250	58,000	75						20	5	
Kawambwa	KA- 38	Mbilima	Ilombe	330	A			no	yes		yes							yes	1,000 ~ 1,499	14,100	32,000	75							25	
Kawambwa	KA- 39	Kapambwe 1 (*)	Ilombe	500	A			no	yes			yes			yes			yes	Unknown	69,000	125,000	9							91	
Kawambwa	KA- 40	Kapambwe 2	Unknown	2,000	A	yes		no	yes									yes	1,000 ~ 1,499	34,000	65,000	98							2	
Kawambwa	KA- 41	Chitembwa	Ilombe	2,800	A	yes		no	yes								Anti-AIDS	yes	1,000 ~ 1,499	23,750	104,000	50							50	
Kawambwa	KA- 42	Nachampana	Ilombe	608	A			no	yes			yes	yes					yes	1,000 ~ 1,499	22,000	23,333	50						25	25	
Kawambwa	KA- 43	Shimwenya	Ilombe	155	A			no	yes								Village Productive Committee	yes	1,000 ~ 1,499	45,000	50,833	75						15	10	
Kawambwa	KA- 44	Munasha/Malitti	Ilombe	540	A			no	yes		yes		yes				Rapids HIV/AIDS	yes	1,000 ~ 1,499	25,000	62,167	50							50	
Kawambwa	KA- 45	Kabanda (*)	Ilombe	565	A			no	yes			yes	yes				Cooperatives	yes	1,000 ~ 1,499	10,000	11,667	50						30	20	
Kawambwa	KA- 46	Chibatama	Chibote	500	A			no	yes		yes							yes	1,000 ~ 1,499	19,000	24,167	30						40	30	
Kawambwa	KA- 47	Wapamesa	Ilombe	400	A			no	yes		yes							yes	1,000 ~ 1,499	53,750	56,250								90	
Kawambwa	KA- 48	Folotiya	Luongo	250	A			no	yes		yes							yes	1,000 ~ 1,499	57,500	107,500								5	
Kawambwa	KA- 49	Kota	Luongo	200	A			no	no	yes	yes							yes	1,000 ~ 1,499	10,000	10,000								Unknown	
Kawambwa	KA- 50	Musungu Yambala	Unknown	773	A			no	no	yes		yes						yes	1,000 ~ 1,499	30,000	39,000							10	5	
Kawambwa	KA- 51	Mullilo	Unknown	400	A			no	yes									yes	1,000 ~ 1,499	40,000	48,333	85							15	
Kawambwa	KA- 52	Chibende	Luongo	280	A			no	no	yes	yes							yes	1,000 ~ 1,499	25,833	56,667	60						2	38	
Kawambwa	KA- 53	Musungu School	Luongo	385	A			no	yes								ACC	yes	1,000 ~ 1,499	283,333	550,000	13							87	
Kawambwa	KA- 54	Mutuna 1	Ngona	2,000	C			no	no	yes	yes						OVCS	yes	1,000 ~ 1,499	191,667	283,333	100								
Kawambwa	KA- 55	Lumpa	Senga	3,000	B			no	yes									yes	1,000 ~ 1,499	93,333	175,000	99				1				
Kawambwa	KA- 56	Chisheta	Senga	275	A			no	yes				yes				Anti-AIDS	yes	1,000 ~ 1,499	245,000	257,500	95							5	
Kawambwa	KA- 57	Totolo	Senga	567	C			no	yes								Anti-AIDS	yes	500 ~ 999	94,000	106,000	75							25	
Kawambwa	KA- 58	Chipwalalw	Senga	376	A			no	yes		yes		yes				Home Based Care	yes	1,000 ~ 1,499	47,000	133,333	85						10	5	
Kawambwa	KA- 59	Chisembwe	Unknown	3,600	A	yes		no	yes			yes						yes	500 ~ 999	43,333	62,500	70					30			
Kawambwa	KA- 60	Mutuna 2	Ngona	2,000	A			no	no	yes	yes	yes						yes	1,500 ~ 2,000	114,167	114,167	80				5			15	
Kawambwa	KA- 61	Buyendele	Ngona	300	A	yes		no	yes									yes	1,500 ~ 2,000	23,167	37,500	80					10		10	
Kawambwa	KA- 62	Musuku	Iyanga	500	A		no	no	yes		yes						Kwatipa	yes	1,500 ~ 2,000	22,000	44,167	75						20	5	
Kawambwa																														

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP			V-WASHE		Other community-based organizations							Water fee		Households' Economy		Type of Latrine (%)												
						Possible to use	Out of order	Other project	Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other						
Mwense	MW- 1	Shi Chama West	Kalanga	1,600	A			no	yes								Women's Lobby, Neighbourhood Orphans and Widows Association	yes	1,000 - 1,499	133,333	225,000	40											60	
Mwense	MW- 2	Kanyombo	Kalanga	4,000	A			no	yes		yes	yes	yes					yes	1,000 - 1,499	124,000	200,000	90										10		
Mwense	MW- 3	Kabundafyela	Kalanga	330	A			no	yes			yes	yes				Social Welfare, Home Based Care	yes	500 - 999	130,833	941,667	70										30		
Mwense	MW- 4	Chimbini	Nsomfi	720	A			no	no	yes								yes	500 - 999	150,000	631,667	81										19		
Mwense	MW- 5	Laula	Nsomfi	580	A			no	yes								Tweshoko	yes	500 - 999	86,667	166,667	34										66		
Mwense	MW- 6	Chintole	Nsomfi	380	A			no	yes		yes						NHC	yes	500 - 999	190,000	233,333	70										30		
Mwense	MW- 7	Mulangu	Nsomfi	250	A			no	yes		yes		yes				NHC	yes	1,000 - 1,499	120,000	230,000	70										30		
Mwense	MW- 8	Nkomba	Nsomfi	1,117	A			no	yes				yes				ADC, CBO, Kashiba Women's Group	yes	500 - 999	83,333	184,167	89										11		
Mwense	MW- 9	Soshiki	Nsomfi	412	A			no	no	yes		yes					Anti-AIDS	yes	1,000 - 1,499	137,500	224,000	90											10	
Mwense	MW- 10	Chafwa	Nsomfi	157	A			no	yes		yes							yes	1,000 - 1,499	96,000	190,000	90										10		
Mwense	MW- 11	Mukomansala	Nsomfi	400	A			no	no	yes								yes	1,000 - 1,499	250,000	300,000	70										30		
Mwense	MW- 12	Shibesa	Nsomfi	1,500	A			no	no	yes	yes						Neighbourhood Health Committee	yes	1,000 - 1,499	190,000	280,000	80											20	
Mwense	MW- 13	Mitamba B	Unknown	510	A			no	yes									yes	1,000 - 1,499	123,333	224,167	100												
Mwense	MW- 14	Chbumbui	Msonda	486	A			no	yes								Home Based Care, OVC, Neighbourhood Health Committee, CWA	yes	500 - 999	99,167	153,333	74										26		
Mwense	MW- 15	Chalata	Msonda		A			no	yes								Home Based Care, OVC, Neighbourhood Health Committee, CWA	yes	500 - 999	103,333	185,000	44											56	
Mwense	MW- 16	Chawe	Msonda	720	A			no	yes			yes					Home Based Care, Neighbourhood Health Committee, VDC, Anti-A	yes	1,500 - 2,000	120,000	207,500	70											30	
Mwense	MW- 17	Muchinga School	Msonda	2,600	A			no	yes		yes	yes					Home Based Care, Craids	yes	500 - 999	56,000	115,000	100												
Mwense	MW- 18	Musonda	Msonda	3,595	A			no	yes			yes					Home Based Care, CWAC	yes	1,500 - 2,000	62,000	86,000	80											20	
Mwense	MW- 19	Musalula	Unknown	355	A			no	yes			yes					Bee Keeping, CBO	yes	500 - 999	146,000	902,000	90											10	
Mwense	MW- 20	Chibondo RHC	Chibembe	2,500	A			no	yes			yes					CBO, DVC, VCT	yes	500 - 999	150,000	1,180,000	60											40	
Mwense	MW- 21	Kapesha	Mpasa	200	A			no	no	yes		yes					Home Based Care, Social Welfare, Anti-AIDS	yes	500 - 999	145,833	191,667	70											30	
Mwense	MW- 22	Katuta RHC	Mpasa	2,000	A			no	no	yes		yes					Neighbourhood Health Committee, CBO, Anti-AIDS	yes	1,000 - 1,499	276,667	475,000	70											30	
Mwense	MW- 23	Chipala	Chipala	200	A			no	yes				yes				Tweshe Development Club	yes	500 - 999	95,000	138,333	70										30		
Mwense	MW- 24	Sunshine School	Kasengu	270	A			no	no	yes								yes	1,500 - 2,000	343,333	400,000	86		14										
Mwense	MW- 25	Mwense RHC	Kasengu	9,000	A			no	no	yes							Neighbourhood Health Committee, Malaria Control Agents	yes	1,500 - 2,000	831,250	945,000	70		67		33								
Mwense	MW- 26	Shingwe West	Kasengu	2,000	A			no	yes		yes	yes					Disatnce Business Association	yes	1,000 - 1,499	128,000	272,000	30											70	
Mwense	MW- 27	Kapakala East	Kasengu	2,850	A			no	yes								Home Based Care, NBC, TBA	yes	1,000 - 1,499	82,000	155,000	75											25	
Mwense	MW- 28	Mwanda	Kasengu	240	A			no	no	yes							Butungwa, Neighbourhood Health Committee	yes	1,000 - 1,499	230,000	387,500	80												20
Mwense	MW- 29	Kambule	Katiti	250	A			no	yes								Neighbourhood Health Committee	yes	500 - 999	228,333	1,300,000	90												10
Mwense	MW- 30	Nakabeka	Unknown	1,792	A			no	no	yes	yes							yes	500 - 999	86,667	205,000	50											50	
Mwense	MW- 31	Kabosha	Unknown	1,000	A				yes		yes						Kabosha Association	yes	500 - 999	191,667	866,667	90												10
Mwense	MW- 32	Chiposa	Unknown	500	A			no	yes				yes				Africare	yes	1,500 - 2,000	146,000	206,000	80												20
Mwense	MW- 33	Loto	Unknown	750	A			no	yes								Africare	yes	500 - 999	156,667	277,500	90												10
Mwense	MW- 34	Mulonga	Chachacha	1,668	A			no	yes			yes						yes	1,000 - 1,499	180,000	300,000	60											40	
Mwense	MW- 35	Saini	Kapela	306	A			no	no	yes								yes	1,000 - 1,499	275,000	280,000	90												10
Mwense	MW- 36	Lifuka	Kapela	750	A			no	yes								Anti Malaria	yes	1,500 - 2,000	250,000	278,333	90												10
Mwense	MW- 37	Musangu Filling Station	Unknown	3,000	A			no	yes								Bee Keeping	yes	1,000 - 1,499	110,000	200,000	80												20
Mwense	MW- 38	Musangu Station	Kapela	1,000	A			no	no	yes							anti aids	yes	500 - 999	118,333	481,667	90												10
Mwense	MW- 39	Kapena	Peb Kabesa	3,000	A	yes		no	yes								Bwananyina	yes	500 - 999	141,667	195,000	60												40
Mwense	MW- 40	Mumporokoso	Luche	2,000	A	yes		no	yes		yes	yes					Anti-AIDS	yes	500 - 999	238,333	600,000	90												10
Mwense	MW- 41	Chisopa	Unknown	900	A			no	yes			yes					Neighbourhood Health Committee	yes	1,000 - 1,499	151,667	566,667	90												10
Mwense	MW- 42	Kasonge	Luche	1,500	A		yes	no	yes			yes					Anti Malaria	yes	1,000 - 1,499	250,000	700,000	85												15
Mwense	MW- 43	Chilolo	Nkanga	1,000	A	yes		no	no	yes	yes							yes	1,000 - 1,499	253,333	275,000	90												10
Mwense	MW- 44	Kapala	Nkanga	3,565	A			no	no	yes			yes				Anti-AIDS	yes	500 - 999	132,000	244,167	80												20
Mwense	MW- 45	Chifita	Nkanga	500	A			no	no	yes							Village Production Committee	yes	1,500 - 2,000	101,667	796,667	90												10
Mwense	MW- 46	Bunde Bunde	Kaombe	3,000	A			no	no	yes	yes							yes	1,000 - 1,499	253,750	1,230,000	50												50
Mwense	MW- 47	Kankomba	Katiti	300	A			no	yes		yes							yes	500 - 999	203,333	1,016,667	90												10
Mwense	MW- 48	Chululuongo	Unknown	1,000	A			no	no	yes	yes							yes	500 - 999	65,833	75,833	75											25	
Mwense	MW- 49	Mutipula	Unknown	1,000	B		yes	no	no	yes							Neighbourhood Health Committee, Home Based Care, Anti-AIDS	yes	1,500 - 2,000	253,333	265,000	70												30
Mwense	MW- 50	Kamshimba	Nalupempe	600	A			no	no	yes	yes		yes				Anti-AIDS	yes	1,000 - 1,499	562,500	1,035,500	20												80
Mwense	MW- 51	Mwenda	Chibalashi	803	A			no	no	yes	yes						Knitting	yes	500 - 999	50,000	60,000	90												10
Mwense	MW- 52	Mulunda	Nsenga	1,200	A			no	yes		yes		yes				Anti-AIDS	yes	500 - 999	33,000	34,000	60												40
Mwense	MW- 53	Mukanga	Nsenga	620	A			no	no	yes							Neighbourhood Health Committee	yes	1,500 - 2,000	27,500	57,500	90												10
Mwense	MW- 54	Chipeleme	Chibalashi	402	A			no	yes		yes		yes				Neighbourhood Health Committee, Home Based Care, Anti-AIDS	yes	1,000 - 1,499	Unknown	15,000	90												10
Mwense	MW- 55	Lupososhi	Chibalashi	670	A		yes	no	yes								CDC, Neighbourhood Health Committee, Home Based Care, Anti	yes	1,000 - 1,499	68,333	81,667	30												70
Mwense	MW- 56	Munganga	Nalupempe	2,000	A			no	yes								Community Develop	yes	500 - 999	32,500	48,000	90												10
Mwense	MW- 57	Kaomamakasa-A	Nalupempe	1,200	B		yes	no	yes								CBO, Home Based Care	yes	500 - 999															

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP			V-WASHE		Other community-based organizations						Water fee		Households' Economy		Type of Latrine (%)									
						Possible to use	Out of order	Other project	Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other		
Mansa	MA- 1	Lumbu Village	Luapula	270	B			no	no			yes				Community School	yes	1,500 - 2,000	7,500	23,750	90									10
Mansa	MA- 2	Dominic Village	Luapula	700	C			no	yes			yes	yes			Village Committee	yes	1,000 - 1,499	7,500	50,000	20								80	
Mansa	MA- 3	Temfw Village	Luapula	836	A	yes		no	no	yes							yes	500 - 999	88,333	138,333	35								65	
Mansa	MA- 4	Mulilo Village	Luapula	415	A			no	yes			yes					yes	1,000 - 1,499	65,833	160,833	90								10	
Mansa	MA- 5	Kasanga Village (A)	Luapula	300	A			no	no	yes			yes				yes	1,000 - 1,499	76,250	291,667	70								30	
Mansa	MA- 6	Kasanga Village (B)	Luapula	600	A			no	yes		yes	yes					yes	1,000 - 1,499	8,667	50,000	80								20	
Mansa	MA- 7	Luo Village (Chipense)	Luapula	300	A		yes	no	yes		yes	yes	yes				yes	1,500 - 2,000	46,000	70,000	90								10	
Mansa	MA- 8	Kaisala Village	Luapula	1,230	A			no	no	yes							yes	1,000 - 1,499	10,000	130,000	60								40	
Mansa	MA- 9	Lusaya Village	Luapula	2,000	A			no	yes		yes		yes			Seed Growers	yes	1,000 - 1,499	12,500	150,000	90								10	
Mansa	MA- 10	Mibinde/Chipilipili	Luapula	200	A	yes		no	no			yes	yes	yes			yes	500 - 999	113,000	376,250	10								90	
Mansa	MA- 11	Lwilu/Mwansa	Luapula	400	A			no	no								yes	1,000 - 1,499	21,400	28,400	20								80	
Mansa	MA- 12	Chiswishi/Jereman	Luapula	105	A			no	no	yes	yes	yes	yes			Literacy Group	yes	1,500 - 2,000	98,000	114,000	90								10	
Mansa	MA- 13	Milombwe/Mpita	Unknown	335	B			no	no			yes					yes	1,000 - 1,499	70,000	76,000	75								25	
Mansa	MA- 14	Chabala Village	Luapula	5,000	A	yes		no	no		yes	yes			yes		yes	2,000 -	136,667	841,667	95								5	
Mansa	MA- 15	Yonda Village	Mushipashi	200	A			no	no	yes	yes					Productivity Committees	yes	1,000 - 1,499	35,833	255,000	70							30		
Mansa	MA- 16	Kale Village (A)	Lungwishi	1,350	A			no	yes		yes	yes	yes		yes		yes	1,500 - 2,000	38,333	47,667	90								10	
Mansa	MA- 17	Kale Village (B)	Lungwishi	1,350	A			no	yes		yes	yes	yes		yes		yes	1,500 - 2,000	38,333	47,667	90								10	
Mansa	MA- 18	Katulwende Village	Unknown	1,800	A			no	no	no		yes		yes			yes	500 - 999	9,000	108,333	80		5				5	10		
Mansa	MA- 19	Elasto/Miyembe RHC	Unknown	280	A			no	no	yes	yes	yes					yes	1,000 - 1,499	11,667	175,000	30								70	
Mansa	MA- 20	Twapya/Meleti	Misakalala	360	A		yes	no	no	yes					yes		yes	500 - 999	135,000	165,000	100									
Mansa	MA- 21	Mpemba Village	Unknown	460	Unknown			no	no	no		yes					yes	500 - 999	116,667	230,000	80								20	
Mansa	MA- 22	Mutipula Village	Chansusu	432	B			no	no	yes		yes	yes			Red Cross	yes	1,000 - 1,499	144,000	180,000	90								10	
Mansa	MA- 23	Chisongo (A)	Chansusu	1,000	A			no	yes		yes	yes	yes		yes		yes	1,000 - 1,499	40,000	80,000	75						5	20		
Mansa	MA- 24	Mufuma Village (A)	Myuulu	675	A			no	no	yes						Bee-keeping, Carpentry	yes	500 - 999	9,000	94,000	50								20	
Mansa	MA- 25	Kaseke Village	Chansusu	1,580	B			no	yes		yes	yes					yes	2,000 -	16,833	34,167	90								10	
Mansa	MA- 26	Chisongo (B)	Chansusu	1,000	A			no	yes		yes	yes	yes		yes		yes	1,000 - 1,499	40,000	80,000	75						5	20		
Mansa	MA- 27	Mufuma Village (B)	Myuulu	1,000	A			no	no	no	yes	yes	yes				yes	500 - 999	9,000	94,000	80								20	
Mansa	MA- 28	Chisamba Village	Chansusu	1,200	A			no	no	yes	yes	yes	yes	yes			yes	1,000 - 1,499	26,667	225,000	80								20	
Mansa	MA- 29	Kalimba Village	Misakalala	180	A			no	no	no		yes					yes	2,000 -	95,000	106,667	100									
Mansa	MA- 30	Kaseya/Kampalala 2	Unknown	203	Unknown			no	yes		yes	yes					yes	500 - 999	34,000	94,167	20								80	
Mansa	MA- 31	Mano RHC	Misakalala	5,931	A			no	yes		yes	yes				HIV/AIDS Club	yes	1,000 - 1,499	43,333	90,000	75								25	
Mansa	MA- 32	Mano/Kabengele	Misakalala	5,931	A			no	no	yes	yes	yes	yes				yes	500 - 999	49,167	60,000	80								20	
Mansa	MA- 33	Kaseye/Kampalala 1	Unknown	203	Unknown			no	yes		yes	yes					yes	1,000 - 1,499	5,000	100,000	20								80	
Mansa	MA- 34	Mbaso/Musabila	Unknown	500	A			no	no	no		yes					yes	1,000 - 1,499	52,000	94,000	90								10	
Mansa	MA- 35	Mano Mulala/Chanda	Misakalala	300	B			no	no	no		yes					yes	500 - 999	37,000	118,333	30							20	50	
Mansa	MA- 36	Mano/Chibamba	Misakalala	492	A	yes		no	yes			yes				Nutrition Club/Red Cross	yes	500 - 999	26,667	32,500	95								15	
Mansa	MA- 37	Mashimi	Lungwishi	270	B			no	no	no	yes	yes	yes	yes			yes	1,000 - 1,499	66,667	165,000	20								80	
Mansa	MA- 38	Moloshi	Myuulu	800	B			no	no	no	yes	yes		yes			yes	500 - 999	21,250	151,000	50								50	
Mansa	MA- 39	Mibenge RHC	Lungwishi	500	A			no	no	no	yes	yes				Malaria Committee	yes	1,500 - 2,000	34,500	105,750	60							20	20	
Mansa	MA- 40	Chimbwa Village	Mushipashi	189	A	yes		no	no	yes			yes			Village Committee	yes	1,500 - 2,000	50,000	92,500	80		10						10	
Mansa	MA- 41	Mabumba East	Chansusu	2,000	A			no	no	no		yes	yes			HIV/AIDS Task Force	yes	1,500 - 2,000	62,000	186,000	75								25	
Mansa	MA- 42	Kalyongo Village (A)	Chibeleka	3,000	B			no	yes		yes						yes	1,000 - 1,499	42,500	4,499,167	75								25	
Mansa	MA- 43	Kalyongo Village (B)	Chibeleka	3,000	B			no	yes		yes						yes	1,000 - 1,499	42,500	4,499,167	75								25	
Mansa	MA- 44	Kapyata Village	Mutuna	1,200	A			no	no	yes		yes					yes	500 - 999	36,667	246,000	100									
Mansa	MA- 45	Musaila Comm. Market	Unknown	510	A			no	no	yes	yes	yes				Market Committee	yes	1,500 - 2,000	426,667	1,960,000	10								90	
Mansa	MA- 46	Mabumba West	Chansusu	1,200	A		yes	no	no	yes			yes				yes	1,000 - 1,499	76,667	109,167	84		16							
Mansa	MA- 47	Kundamfumu RHC	Lukangaba	10,000	A	yes		no	no	yes	yes		yes	yes			yes	1,000 - 1,499	264,000	333,333	90								10	
Mansa	MA- 48	Kafuula Comm. School	Lungwishi	340	A			no	no	yes							yes	1,500 - 2,000	68,000	78,333	25								75	
Mansa	MA- 49	Chalwe/Chiba	Mutuna	675	A			no	no	yes						Bee Keeping Club	yes	500 - 999	32,500	60,000	80								20	
Mansa	MA- 50	Sepe Community	Katangashi	696	B			no	no	yes		yes			yes		yes	1,000 - 1,499	73,000	125,833	75								25	

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP		Other project	V-WASHE		Other community-based organizations							Water fee		Households' Economy		Type of Latrine (%)								
						Possible to use	Out of order		Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other		
Samfya	SA- 1	Chibuye basic School	Kasongole	400	B			no	yes		yes	yes				yes		yes	1,500 ~ 2,000	590,000	536,117	85							15	
Samfya	SA- 2	Cholansega Basic School	Kasongole	380	C			no	yes			yes				yes		Twikatane Cooperative	1,500 ~ 2,000	358,000	346,333	100								
Samfya	SA- 3	Chifuko Comm. School	Masonde	257	B			no	yes		yes	yes						Orphans and Vulnerable Children	1,000 ~ 1,499	52,500	60,833	55							45	
Samfya	SA- 4	Mwewa East	Kafumbo	900	B	yes		no	no	no	yes							PAM	1,500 ~ 2,000	126,667	272,167	85							15	
Samfya	SA- 5	Kasuba Basic School (A)	Kasansa	1,500	B	yes		no	no	no					yes			Kasansa Multi-Purpose Society	1,500 ~ 2,000	345,000	485,833	80							20	
Samfya	SA- 6	Kaponda/Filipo Bas. Sch.1	Unknown	420	B			no	no	yes		yes							yes	1,000 ~ 1,499	177,500	225,833	95						5	
Samfya	SA- 7	Chikuwe Basic School	Kapamba	387	B			no	yes						yes			Home Based Care	1,000 ~ 1,499	196,667	235,000	40							60	
Samfya	SA- 8	Masembe Village	Kapamba	232	B			no	no	yes		yes						Cooperative Society	1,000 ~ 1,499	55,000	148,833	56							44	
Samfya	SA- 9	Kasamba/Kasanka	Lumanya	928	A	yes		no	no	yes		yes						PAM	1,000 ~ 1,499	60,000	91,667	90							10	
Samfya	SA- 10	Sashi basic school	Kasansa	300	B			no	no	yes		yes			yes			PAM Committee, ADC	1,500 ~ 2,000	75,000	100,000	90	10							
Samfya	SA- 11	Bombawamenshi Bas.Sch.	Masonde	287	C	yes		no	yes						yes			Bee Keeping Group	1,500 ~ 2,000	136,667	156,667	40							60	
Samfya	SA- 12	Kasaba/Chapa Village	Unknown	165	B			no	yes			yes							yes	1,000 ~ 1,499	114,000	416,667	100							
Samfya	SA- 13	Mwansakombe Village	Unknown	4,600	B			no	no	no	yes				yes			Home Based Care	1,500 ~ 2,000	40,000	53,320	90							10	
Samfya	SA- 14	Kafwimbi Basic School	Kasansa	300	B			no	no	no	yes				yes				yes	1,000 ~ 1,499	89,167	158,333	40						60	0
Samfya	SA- 15	Kalasa Middle Bas. Sch.	Musaba	960	A			no	no	yes		yes			yes				yes	1,000 ~ 1,499	237,500	277,500	40							60
Samfya	SA- 16	Kasaba Basic School	Kasansa	840	B			no	no	yes									yes	1,500 ~ 2,000	458,333	822,500	40	60						
Samfya	SA- 17	Kanengo Comm. School	Unknown	500	B			no	no	yes	yes	yes						Neighbourhood Health Committee	1,500 ~ 2,000	123,333	208,333	90							10	
Samfya	SA- 18	Chinweshiba Bas. School	Mano	274	B			no	yes		yes	yes							yes	1,500 ~ 2,000	131,250	246,000	40	60						
Samfya	SA- 19	Mwamfuli Market	Chimana	800	A	yes		no	no	no								Zanama/Fitaz	2,000 ~	320,000	329,917	90							10	
Samfya	SA- 20	Lupili Market	Chimana	187	B	yes		no	no	no									yes	1,000 ~ 1,499	500,000	916,667	70			30				
Samfya	SA- 21	Musokololo Village	Chimana	570	A			no	no	yes	yes	yes			yes				yes	1,000 ~ 1,499	45,000	121,533	95						5	
Samfya	SA- 22	Sakala Village	Unknown	673	B			no	no	yes	yes	yes			yes			ADC	1,000 ~ 1,499	57,083	76,250	60							40	
Samfya	SA- 23	Kalasa M RHC	Musaba	412	A		yes	no	no	yes	yes				yes			ZAWA	1,500 ~ 2,000	153,333	271,667	80	5						15	
Samfya	SA- 24	Kabongo RHC	Musaba	760	A	yes		no	no	yes		yes			yes			Kabongo Area Development Committee	500 ~ 999	23,000	58,700	90							10	
Samfya	SA- 25	Yamba Basic School	Musaba	700	A	yes		no	no	yes	yes	yes			yes			Area Zona Development Committee	1,000 ~ 1,499	343,333	470,000	99							1	
Samfya	SA- 26	Lwame Basic School	Musaba	400	B			no	no	yes	yes	yes			yes				yes	1,000 ~ 1,499	180,000	186,667	50							50
Samfya	SA- 27	Mwita Village	Kasansa	212	B			no	yes			yes						Home Based Care	2,000 ~	67,500	205,000	87							13	
Samfya	SA- 28	Kalimanshi Village	Kasansa	720	B			no	no	yes		yes						Pre-School Association	1,000 ~ 1,499	55,000	213,333	80							20	
Samfya	SA- 29	Chisuku Basic School	Katanshya	300	B			no	no	no								Orphans and Vulnerable Children	1,500 ~ 2,000	220,000	311,667	60							40	
Samfya	SA- 30	Nambale Village	Kasansa	3,000	C			no	yes			yes			yes			Home Based Care	1,000 ~ 1,499	47,500	71,667	40							60	
Samfya	SA- 31	Kasuba Village B	Kasansa	4,000	B			no	no	yes		yes			yes			Cooprative Society	1,500 ~ 2,000	53,333	65,000	75							25	
Samfya	SA- 32	Njipa Rural Health Centre	Katanshya	5,742	B			no	yes		yes	yes			yes				yes	1,500 ~ 2,000	137,500	327,217	75						25	
Samfya	SA- 33	Mungulube	Isamba	250	A			no	yes			yes						Anti-AIDS Club	1,000 ~ 1,499	215,000	292,167	80							20	
Samfya	SA- 34	Mano/Malemba	Mano	450	C			no	yes										yes	1,500 ~ 2,000	43,000	120,000	20							80
Samfya	SA- 35	Kafubashi Agric. Camp	Lumanya	8,535	C			no	no	yes								Bee Keeping Group	1,500 ~ 2,000	313,333	641,667	40							60	
Samfya	SA- 36	Mpolo Comm. School	Unknown	1,128	A			no	no	yes		yes			yes			Saw Milling	1,000 ~ 1,499	146,000	283,333	99	1							
Samfya	SA- 37	Malombola Village	Chimana	355	A			no	no	yes									yes	1,500 ~ 2,000	105,000	238,333	90			10				
Samfya	SA- 38	Musa Village	Chimana	312	A			no	no	yes		yes						Musa Cooperative	1,500 ~ 2,000	68,333	102,660	80							20	
Samfya	SA- 39	Tula Village	Chimana	1,600	A			no	no	yes		yes						Bee Keeping Group	1,000 ~ 1,499	53,050	98,050	45							55	
Samfya	SA- 40	Maximo Village	Chimana	2,071	B			no	no	no					yes			Taonga Neighbourhood Watch	1,500 ~ 2,000	125,000	209,017	100								

The Groundwater Development Project in Luapula Province in Zambia
The Inventory Data of Villages (Chiengi District)

District	Site No.	Site Name	WARD	Population	Access	Existing HP			V-WASHE		Other community-based organizations							Water fee		Households' Economy		Type of Latrine (%)								
						Possible to use	Out of order	Other project	Already existing	willingness to establish	Farmers' Association	Health Association	Women's Association	Faith-Based Organisation	PTA	Youth Group	Others	Willingness to Pay	Amount of Payment to intent (ZK)	Monthly Average Expenditure (ZK)	Monthly Average Income(ZK)	Traditional Pit Latrine	VIP Latrine	Pour Flush Latrine	Flush to Sewage System or Septic Tank	Communal Toilet	Nothing/Goto Bush	Other		
Milenge	ML- 1	Lunga Village (A)	Mikula	736	A			no	yes		yes	yes	yes					yes	1,000 ~ 1,499	25,833	52,500	13								87
Milenge	ML- 2	Talayi Village (A)	Mikula	600	A	yes		no	yes			yes	yes			Men's Club	yes	1,500 ~ 2,000	78,333	205,000									100	
Milenge	ML- 3	Chisensa Village	Mikula	600	B			no	no	yes							yes	1,000 ~ 1,499	56,667	165,000	18								82	
Milenge	ML- 4	Nyembe Village	Mikula	220	A			no	no	yes			yes				yes	1,000 ~ 1,499	71,667	230,000	81								20	
Milenge	ML- 5	Milenge High School	Unknown	1,060	A	yes		no	yes				yes				yes	1,000 ~ 1,499	148,333	348,333	87								13	
Milenge	ML- 6	chalyalya-Kapande	Unknown	586	B			no	no	yes		yes					yes	1,000 ~ 1,499	30,000	45,000	80							10	10	
Milenge	ML- 7	John Nkumba Village	Mikula	500	B	yes		no	no	yes			yes				yes	1,000 ~ 1,499	65,000	183,333	68								58	
Milenge	ML- 8	Garden Village	Unknown	380	A			no	no	yes							yes	1,000 ~ 1,499	26,667	41,667	42								32	
Milenge	ML- 9	Mununshi Turn Off	Mikula	2,400	A			no	no	yes							yes	1,000 ~ 1,499	49,000	117,000	0								100	
Milenge	ML- 10	Katena Comm. School	Mikula	330	A			no	yes		yes						yes	1,000 ~ 1,499	33,333	45,000	74								27	
Milenge	ML- 11	Kubi Village	Mikula	605	A			no	no	yes	yes	yes	yes				yes	500 ~ 999	65,833	181,667	100									
Milenge	ML- 12	Muntu (Kapala/Milenge TC)	Mikula	207	C			no	no	yes							yes	1,000 ~ 1,499	26,667	51,667	95								5	
Milenge	ML- 13	Senama (Mwenda Chabe)	Unknown	230	A			no	no	yes							yes	1,000 ~ 1,499	36,667	46,667	100									
Milenge	ML- 14	Shitambuli Village	Sokontwe	325	Unknown			no	no	yes	yes				Village Product Committee	yes	1,000 ~ 1,499	40,000	69,000	78									22	
Milenge	ML- 15	Musoolo Village	Mumbotuta	526	A			no	yes			yes					yes	1,000 ~ 1,499	32,500	60,000	68								32	
Milenge	ML- 16	Muwaya Village	Sokontwe	103	A			no	yes		yes						yes	1,000 ~ 1,499	36,400	64,000	88								12	
Milenge	ML- 17	Kalebaila Village	Mumbotuta	492	A			no	yes			yes					yes	1,000 ~ 1,499	30,000	53,000	63							37		
Milenge	ML- 18	Malenga Turn Off	Mikula	459	A			no	no	yes		yes					yes	1,000 ~ 1,499	40,833	56,667	22								78	
Milenge	ML- 19	Kulelwa Village	Sokontwe2	384	A			no	no	yes		yes	yes				yes	1,000 ~ 1,499	39,200	70,000	87								13	
Milenge	ML- 20	Issac Chifukula Village	Mikula	372	A			no	yes								yes	1,000 ~ 1,499	55,000	84,000	72								28	
Milenge	ML- 21	Mashika Basic School	Sokontwe2	200	A			no	yes			yes					yes	1,500 ~ 2,000	118,333	291,667	20								80	
Milenge	ML- 22	Changwe Neti Village	Sokontwe2	215	A			no	no	yes		yes					yes	1,000 ~ 1,499	82,500	278,333	92								8	
Milenge	ML- 23	Lunga Village (B)	Mikula	200	B			no	no	yes			yes				yes	1,000 ~ 1,499	108,000	212,000	86								14	
Milenge	ML- 24	Tola Village	Sokontwe2	186	A			no	no	yes							yes	1,000 ~ 1,499	36,667	77,000	59								41	
Milenge	ML- 25	Talayi Village (B)	Mikula	467	A			no	no	yes							yes	1,000 ~ 1,499	54,167	197,500	60								40	
Milenge	ML- 26	Kapalalala Basic School	Mikula	406	A			no	yes		yes						yes	1,500 ~ 2,000	211,000	344,000	10								90	
Milenge	ML- 27	Mapula Village	Itemba	390	A			no	no	yes							yes	1,000 ~ 1,499	125,000	351,667	60								40	
Milenge	ML- 28	Chungwe Village	Unknown	122	A			no	no	yes							yes	1,500 ~ 2,000	63,333	128,500	50								50	
Milenge	ML- 29	Chishimuteshi RHC	Mulumbi	226	B			no	no	yes							yes	1,000 ~ 1,499	40,250	124,000	40								60	
Milenge	ML- 30	Chilimabwe	Mulumbi	155	B			no	yes		yes				Bee Keeping	yes	1,000 ~ 1,499	6,500	228,000	75									25	
Milenge	ML- 31	Mulungushi School	Not surveyed because of its impossibility to access to the site throughout year																											
Milenge	ML- 32	Kachenje Village	Mulumbi	715	B			no	no	yes	yes						yes	1,500 ~ 2,000	29,167	148,333	66								34	
Milenge	ML- 33	Totolo Village	Unknown	116	A			no	no	yes							yes	1,000 ~ 1,499	110,000	110,000	87								13	
Milenge	ML- 34	Mulumbi RHC	Sokontwe	6,037	B			no	no	yes	yes	yes	yes				yes	1,000 ~ 1,499	187,600	336,000	49								51	
Milenge	ML- 35	Misenga Health Post	Milambo	308	B			no	no	yes							yes	1,000 ~ 1,499	8,333	91,667	30								70	
Milenge	ML- 36	Lwela Basic School	Itemba	612	A			no	yes			yes					yes	1,000 ~ 1,499	450,000	616,667	66								34	
Milenge	ML- 37	Kuyalya 1&2 Village	Mulumbi	700	A			no	no	yes							yes	1,000 ~ 1,499	8,500	25,833	48								52	
Milenge	ML- 38	Chintu Village	Itemba	287	A			no	yes			yes					yes	1,000 ~ 1,499	22,083	30,000	87								13	
Milenge	ML- 39	Springa Village	Itemba	364	A			no	no	yes							yes	500 ~ 999	19,200	45,000	84								16	
Milenge	ML- 40	Butute Village	Sokontwe	360	B			no	no	yes			yes				yes	1,000 ~ 1,499	10,750	22,500	33								67	
Milenge	ML- 41	Milambo Basic School	Milambo	252	A			no	no	yes		yes					yes	1,500 ~ 2,000	192,833	391,667	40								60	
Milenge	ML- 42	Buyantashi Village	Unknown	218	B			no	yes				yes				yes	1,000 ~ 1,499	76,250	165,000	38								62	
Milenge	ML- 43	Kalaba Shitembeya	Unknown	360	B			no	no	yes							yes	1,000 ~ 1,499	185,000	343,333	80								20	
Milenge	ML- 44	Kalebwe Village	Not surveyed because of its impossibility to access to the site throughout year																											

A: Accessible throughout the year
B: Accessible only in dry season
C: Accessible only accompanied with road construction

APPENDIX 6-4 QUESTIONNAIRE FOR SURVEY OF SOCIAL STATUS

(1) Questionnaire for Key Informants

(2) Questionnaire for Sample Households

Questionnaire for Key Informant

The Study for Groundwater Development in Luapula Province in the Republic of Zambia

Village Key Informant Interview Sheet

A. GENERAL INFORMATION

A-1. Date of Interview: ___ / ___ /2006
(Day) (Month)

A-2. Name of Interviewer: _____

A-3. Serial No.: _____

A-4. Name of Village: _____

A-5. Category of Village: Urban.....1 Rural.....2 []

A-6. District		
Chiengi.....	1	Mwense..... 5
Kawambwa.....	2	Nchelenge..... 6
Mansa.....	3	Samfya..... 7
Milenge.....	4	

A-7. Name of Representative of Key Informants: _____

A-8. Designation of Key Informants: (multiple answers allowed)	Village head	1
	Responsible person of school.....	2
	Responsible person of Rural Health Centre (R.H.C.)	3
	Community Development Agent	4
	Face based leader	5
	Other (specify _____).....	6

B. DEMOGRAPHIC INFORMATION

B-1. Population of Village	_____	B-2. No. of Household	_____
	No record.....-1		No record.....-1
B-3. No. of Female Headed Household	_____	B-4. No. of Child Headed Household	_____
	No record.....-1		No record.....-1
B-5. Which is the principal user when the water supply facility is constructed?	Village1 School2 Rural Health centre ...3	B-6. How many water users are there when the water supply facility is constructed? a) In case of answer in B-5 is 1, No. of Household b) In case of answer in B-5 is 2, No. of Pupils c) In case of answer in B-5 is 3, No. of People who come to RHC	_____
			No record.....-1

C. ACCESSIBILITY

C-1. Please indicate combination of means of transport which the community members usually rely on to access to the centre of District.	On foot..... 1 By bicycle 2 By public transport (buses)..... 3 By asking somebody for a lift..... 4 Others (specify _____) 5
C-2. How long does it take to centre of District from the village by means of transport which community members usually use?	C-2 a) _____ hours in dry season C-2 b) _____ hours in rainy season
C-3. How is the road condition from the village to the centre of District?	Good condition through the year 1 Good condition only in dry season 2 Bad condition through the year 3
C-4. Where does the most central point which is nearest for everyone of the village? (Please take the interviewer to the point and indicate it to him.)	The point indicated by Global Positioning System _____ . (Please attach the picture taken by digital camera)
C-5. Is there any road enough to bring heavy vehicles and/or machines to the point of C-4 for construction works?	Yes, enough condition through the year 1 Yes, enough condition only in dry season 2 Yes, but necessary some works for access 3 No, impossible through the year (the reason: _____) 4 (Please attach the picture taken by digital camera)

3=>C-6

Questionnaire for Key Informant

	(Memo: <i>interviewer's comments about access condition to the village by his/her direct observation.</i>)	
C-6	If works need to be carried out on the road, is it possible for the community to voluntarily undertake works?	Yes, with pleasure 1 Yes, but not completely 2 No 3
	(Memo: <i>interviewer's comments about access condition to the village by his/her direct observation.</i>)	

D. ECONOMIC ACTIVITIES

D-1.	What are the key industries <u>in this village</u> ? Please indicate up to three of them from the one with the biggest percentage of involvement by the community members.	Agriculture (small scale)	1	1 st
		Peasant farming	2	
		Fishing.....	3	2 nd
		Livestock rearing.....	4	
		Retail.....	5	
		Manufacturing with handcraft	6	3 rd
		Public service.....	7	
		No particular industry. Most people work in nearby town.....	8	
		Other (specify _____)	9	
D-2.	What are the major food crops and cash crops in the village, respectively? Please indicate <u>up to two</u> of them from the one which is most widely cultivated in the village.	Maize.....	1	Food Crops 1 st
		Rice.....	2	
		Cassava.....	3	2 nd
		Sorghum	4	
		Beans	5	Cash Crops 1 st
		Wheat.....	6	
		Other (specify _____)	7	
		Not applicable (no production of agricultural crops).....	99	2 nd

E. EXISTING ORGANISATIONS AND COMMUNAL ACTIVITIES

E-1.	Does Village WASHE Committee (V-WASHE) exist <u>in this village</u> ?	Yes	1	2=>E-2
		No.....	2	
E-2	If answer is "No" in E-1, Is there any plan to organize V-WASHE <u>in this village</u> ?	Yes	1	
		No.....	2	
E-3.	Please indicate existing community-based organisations which are voluntarily formed by the community members for different development issues in the village. [multiple answers allowed]	Farmers' association	1	
		Health association	2	
		Women's association	3	
		Faith-based organization	4	
		Parents and Teachers Association	5	
		Youth Group	6	
		Other (specify _____)	7	
		No organization	8	
E-4	Does the community receive any support from government and/or NGO presently? (including extension services by the government organisations)	Yes	1	1=>E-5,6
		No.....	2	
E-5	If the answer to E-4 is [1] Yes, please indicate name(s) of major organisation(s) among them <u>up to four</u> .			
E-6	If the answer to E-3 is 1-6, what kinds of activities are implemented by the organisation(s)? [multiple answers allowed]	Health and hygiene education.....	1	
		Support for construction of improved latrine.....	2	
		Support for construction of water supply facilities.....	3	
		Distribution of food/ seeds	4	
		Technical guidance on farming	5	
		Adult literacy class.....	6	

Questionnaire for Key Informant

Micro credit scheme.....	7
Others (specify _____)	8
Not applicable (no support services are available).....	99

What kind of communal activities has the community ever conducted in order to improve social infrastructure in the village?

Communal activities to improve social infrastructure in the village	E-7. Please indicate "X" if the community has experience in.	E-8. What kinds of contribution were made by the community members? [multiple answers allowed] 1. cash for investment cost 2. cash for O&M cost 3. in kind for investment cost 4. in kind for O&M cost 5. provision of labour force 6. Other (specify) 88. No contribution 99. No experience of activity	E-9. <u>If contribution was made in cash and/or in kind for investment cost, how much was paid by each household?</u>	E-10.
				From which external organisation (government, NGO, donor) did the community receive support? Please indicate name(s) of organisation(s). No support from external organisations99
1) Construction/rehabilitation of water supply facility			a) Cash ZK _____ b) Kind	
2) Construction/rehabilitation of irrigation scheme			a) Cash ZK _____ b) Kind	
3) Construction/rehabilitation of school			a) Cash ZK _____ b) Kind	
4) Construction/rehabilitation of community hall			a) Cash ZK _____ b) Kind	
5) Construction/rehabilitation of road/bridge			a) Cash ZK _____ b) Kind	
6) Other (specify _____)			a) Cash ZK _____ b) Kind	
7) No experiences at all				

F. STATUS OF HEALTH AND SANITATION

F-1. What are the major diseases affecting the community members in this village in rainy season and dry season, respectively? Please indicate <u>up to three</u> of them from the one which most widely affects the community members.	Diarrhoea.....	1	F-1a) Rainy 1 st
	Cholera.....	2	
	Eye diseases.....	3	
	Bilharzias.....	4	F-1b) Dry 2 nd
	Scabies.....	5	
	Malaria.....	6	
Respiratory diseases.....	7	1 st	
Other (specify _____)	8		
			2 nd
			3 rd
F-2. Please describe type of latrines used in the village with approximate percentage.	Traditional pit latrine.....	[]%	
	VIP latrine.....	[]%	

Questionnaire for Key Informant

[Please make the total 100%]		Pour flush latrine.....	[]%
		Flush to sewage system or septic tank.....	[]%
		Communal toilet	[]%
		Nothing/ go to bush.....	[]%
		Other (specify _____)	[]%
F-3.	How do you receive your health and hygiene information? [multiple answers allowed]	Staff of dispensary / Rural Health Centre	1
		Village Health Worker	2
		Traditional Birth Attendants	3
		School	4
		Radio	5
		TV	6
		Faith-based organisation	7
		Other (specify _____)	8
		No health and hygiene education is available in the village..	99
F-4.	If the health and hygiene education programme is currently provided in the village, what kinds of issues are dealt with in the programmes? [multiple answers allowed]	Protection of water borne diseases.....	1
		Malaria prevention	2
		HIV/AIDS.....	3
		Reproductive health.....	4
		Nutrition	5
		Other (specify _____)	6
		No health and hygiene programme is provided.....	99
F-5.	Where is the health centre located nearest to the village?	Within village/ community.....	1
		In other village/community (name of place _____)	2

G. PRESENT STATUS OF WATER SUPPLY

Type of Water Source/ Facility	G1				G2		G3	G4	G5	G6
	Please indicate "X" for all sources which are used by the community members. [multiple answer]				No. of water sources/facilities located within the village		What is the reason of "not in use"? [multiple answer]	Unit Price of User Fee (ZK) [Please specify mode of payment: 1. ZK/ litre 2. ZK/ container 3. ZK/ HH/day etc]	Name of village if the community members use water source/facility located in other village.	If G5 is applicable, Unit Price of User Fee (ZK) [Please specify mode of payment: ZK/ litre ZK/ container ZK/ HH/day etc]
	Domestic Use	Livestock Watering	Gardening	Construction	a) In Use	b) Not in Use	1. Source dried up 2. Problem of water quality 3. Breakdown of pumping device 4. Lack of funds for running cost 5. Other (specify)	Free of charge...-1	Not applicable...-1	Free of charge...-1 Not applicable...-2
1. Stream/River										
2. Dam/ Pond										
3. Rainwater										
4. Unprotected spring (point source)										
5. Unprotected shallow well (point source)										
6. Protected spring (point source)										
7. Protected s/well with bucket										

Questionnaire for Key Informant

8. Protected s/well with HP <i>(Please attach the picture taken by digital camera)</i>								
9. Borehole with HP <i>(Please attach the picture taken by digital camera)</i>								
10. Independent Piped Scheme								
11. Piped Network (City Water)				No. of Water Point	No. of Water Point			
12. Other(specify _____)								
99. No Source								

Questionnaire for Key Informant

SHEET 1. FOR COMMUNITY WHICH HAS EXISTING HANDPUMP WELL/BOREHOLE
IN THE VILLAGE

H. OPERATION & MAINTENANCE OF EXISTING WATER SUPPLY FACILITIES

Now, we would like to ask you about existing shallow well/borehole with handpump located in your village.

H-1.	When was construction of the shallow well/borehole with handpump completed?	Year [] Don't know-1	
H-2.	Is the facility currently in operational?	Yes 1 No..... 2	1=>H-6 2=>H-3
H-3.	If answer to H-2 is [2] No, since when has the facility been out of operation?	_____ / _____ => H-4 (month) (year)	
H-4	If answer to H-2 is [2] No, what is the reason of malfunctioning of the facility? <u>Please indicate up to three of them.</u> [multiple answers allowed]	Water source has dried up..... 1	a)
		Cylinder broke down..... 2	b)
		Leakage of riser pipe..... 3	
		Worn out of bolt/ nut..... 4	c)
		Other (specify _____) 5	
Don't know..... 88			
	Not applicable (no problem at the facility)..... 99		
H-5.	If answer to H-2 is [2] No, what kind of measure has been taken by the community to remedy the operation of the facility? [multiple answers allowed]	Tried to repair by the community themselves, but failed..... 1	
		Asked a private plumber for repair works, and still waiting..... 2	
		Asked a private plumber for repair works, but failed..... 3	
		Asked District Office/Government/NGO for support, and still waiting..... 4	
		Asked District Office/Government/NGO for support, but failed.. 5	
		Other (specify _____) 6	
		No action has been made by the community..... 7	
	Not applicable (the scheme is operational)..... 99		
H-6.	Who is/was responsible for daily operation and maintenance of the shallow well/borehole with handpump?	Village Head..... 1	
		Village Water Committee/V-WASHE..... 2	
		School 3	
		Rural Health Centre 4	
		Water Users Group..... 5	
		Local authority (District Council) 6	
		DWA 7	
		Other (specify _____) 8	
H-7.	Which types of handpumps are/were installed in the shallow well(s)/borehole(s)? [multiple answers allowed]	Afridev..... 1	
		India Mark II..... 2	
		India Mark III..... 3	
		Other (specify _____) 4	
		Don't know the name of handpump..... 99	
H-8.	Has the water facility had any break down since completion of construction?	Yes..... 1 No..... 2	1=>H-9 2=>H-14
H-9.	If answer to H-8 is [1] Yes, what kind of repair works were done for the facility <u>most recently</u> ? [multiple answers allowed]	Drilling a new well/borehole..... 1	
		Re-deepen the well..... 2	
		Replacing broken parts of cylinder..... 3	
		Replacing entire cylinder assembly..... 4	
		Replacing riser pipes..... 5	
		Replacing the worn out bole/nut 6	
		Other (specify _____) 7	
	Not applicable (no problem with the facility)..... 99		
H-10.	If answer to H-8 is [1] Yes, when was it repaired?	_____ / _____ (month) (year) Not applicable (no problem with the facility)....-1	
H-11.	If answer to H-8 is [1] Yes, who did the last repair works?	Community themselves..... 1	
		Private plumber/mechanics..... 2	
		Local authority (District Office)/ Government 3	

Questionnaire for Key Informant

	[multiple answers allowed]	NGO..... 4 Other (specify _____) 5 Not applicable (no problem with the facility)..... 99	
H-12.	If answer to H-8 is [1] Yes, how much did it cost for the last repair works?	ZK _____ Don't know-1 Not applicable (no problem with the facility) -2	
H-13.	If answer to H-8 is [1] Yes, what was the cost for? [multiple answers allowed]	Payment to personnel who did repair 1 For buying spare parts 2 For transport cost for the community member to travel to report the breakdown / purchase spares..... 3 Others (Specify _____) 4 Don't know..... 5 Not applicable (no problem with the facility)..... 99	
H-14.	If answer to H-8 is [1] Yes, how did the community organise the fund required for the last repair? [multiple answers allowed]	From the Village Water Fund..... 1 Collecting fund from each household additionally..... 2 Contribution from the well-wishers in the community..... 3 Other (specify _____) 4 Not applicable (no problem with the facility)..... 99	
H-15.	Are/Were the caretakers attached to the well/borehole with handpump?	Yes..... 1 No..... 2	
H-16.	How do/did the users pay for user fee of water?	Pay per container/bucket to attendant every time..... 1 Tap attendant charges a flat rate per household per month..... 2 Users contribute cash only when the facility breaks down..... 3 Other (specify _____) 4 Water use from the handpump is free of charge..... 99	
H-17.	What happens/happened if the users do/did not pay user fee?	Nothing..... 1 Barred from using the facility..... 2 Other (specify _____) 3 Water use from the handpump is free of charge..... 99	
H-18.	Is/Was there any measure taken in the community to exempt or reduce the user fee for those who are underprivileged?	Yes 1 No..... 2 Not applicable (use of handpump is free of charge)..... 99	1=>H-19 2=>H-20
H-19.	If the answer to H-18 is [1] Yes, which group is/was exempted or reduced payment of user fee?	Female / Child headed households..... 1 Households without any economic activities..... 2 Other (specify _____) 3 Not applicable..... 99	
H-20.	How does/did the Village Water Committee keep the Village Water Fund?	Kept in a bank account of the Water Committee..... 1 Kept in a bank account of the Village Government..... 2 Kept at the treasurer of the Water Committee in the village..... 3 Other (specify _____) 4 Not applicable (no water fund is raised in the community)..... 99	1,2,3,4=>H21 99=>H-26
H-21	For which purpose is/was the Village Water Fund used? [multiple answers allowed]	For buying spare parts of handpump..... 1 For payment of allowance to members of Water Committee.... 2 For payment of allowance to pump attendants..... 3 For payment of remuneration to private person when the repair work is done..... 4 Other (specify _____) 5 Not applicable (no water fund is raised in the community)..... 99	2,3=>H22 1,4,5=>H23
H-22.	In case Water Committee/ pump attendants are/were being paid allowance, how much is/was the amount?	H-23 a) Water Committee members : ZK _____/ person/month H-23 b) Pump attendants : ZK _____/ person/month Not applicable-1	
H-23.	How much is the <u>latest</u> remaining balance of the Village Water Fund?	ZK _____ Don't know.....-1 Not applicable (no water fund is raised).....-2	

Questionnaire for Key Informant

H-24.	Please indicate income and expenditure of the Village Water Fund per month on average during the last one year.	H-24 a) Income : ZK _____ / month H-24 b) Expenditure: ZK _____ / month Don't know.....-1 Not applicable (no water fund is raised).....-2	
H-25.	Is the financial record of the Village Water Fund kept by the Water Committee?	Yes..... 1 No..... 2 Not applicable (no water fund is raised)..... 99	
H-26.	Before construction of the shallow well/borehole with handpump, which water source was the community using for domestic water? [multiple answers allowed]	Stream/ river..... 1 Dam/ pond..... 2 Unprotected spring/ shallow well..... 3 Protected spring 4 Protected shallow well with bucket..... 5 Buying water from vendors..... 6 Other (specify _____) 7	
H-27.	What kinds of positive impacts are/ were observed in the community by construction of shallow well/borehole with handpump? Please indicate <u>up to three of them</u> from the most significant one. [Please do not prompt]	Increased accessibility to perennial water supply..... 1 Increased accessibility to safe water supply..... 2 Increased volume of water which can be obtainable 3 Reduced time/work load for water fetching 4 Increased time for children to attend school..... 5 Increased time for women to do economic activities..... 6 Reduced cases of diarrhoea 7 Increased income of Village Water Fund by selling water to other villages..... 8 Others (specify _____) 9 No positive impact is/was observed..... 99	
H-28.	What kinds of negative impacts are/were observed in the community by construction of shallow well/borehole with handpump? Please indicate <u>up to three of them</u> from the most significant one. [Please do not prompt]	Increased costs for users to pay for water..... 1 Increased influx of population seeking for water supply..... 2 Others (specify _____) 3 No negative impact is/was observed..... 99	
H-29.	If the existing water supply conditions are improved, which option is desirable for this village under the rule that all of the operation and maintenance cost should be covered by water users?	Protection of spring 1 Construction of protected hand-dug well with windlass and bucket ... 2 Construction of borehole with handpump 3 Rehabilitation of existing borehole with handpump 4 Other (specify _____) 5 Satisfied with the existing water supply conditions..... 99	
H-30.	If the existing water supply conditions are improved, who should primarily recover costs for operation, maintenance and replacement of the improved water facility?	Community/ users of the facility..... 1 Local authority (District office)/ Government/NGO..... 2 Private water company..... 3 Both community and local authority/government..... 4 Other (specify _____) 5	

Thank you very much for your cooperation in the interview.

MEMO

Questionnaire for Key Informant

SHEET 2. FOR COMMUNITY WHICH HAS NO PROTECTED WATER SOURCE IN THE
VILLAGE

H. OPERATION & MAINTENANCE OF EXISTING WATER SUPPLY FACILITIES

H-1.	Who is responsible for daily operation and maintenance of the communal water sources located in this village?	Village Government..... 1 Village Water Committee..... 2 Water Users Association..... 3 Water Users Group..... 4 Local authority (District office)/ Government 5 Other (specify _____) 6	
H-2.	How does the Village Water Committee keep the Village Water Fund?	Kept in a bank account of the Water Committee..... 1 Kept in a bank account of the Village Government..... 2 Kept at the treasurer of the Water Committee in the village..... 3 Other (specify _____) 4 Not applicable (no water fund is raised in the community.)..... 99	1,2,3,4=>H-3 99=>H-8
H-3.	For which purpose is the Village Water Fund used? [multiple answers allowed]	a)For maintaining existing water sources..... b)For upgrading/improving existing water sources..... c)For payment of allowance to members of Water Committee . d)Other (specify _____) e)Not applicable (no water fund is raised in the community.).... 99	Yes 1 No 2 3=>H4 1,2,4=>H5
H-4.	In case Water Committee members are being paid allowance, how much is the amount?	Water Committee members: ZK _____/ person/month Not applicable-1	
H-5.	How much is the <u>latest</u> remaining balance of the Village Water Fund?	ZK _____ Don't know.....-1 Not applicable (no water fund is raised in the community).....-2	
H-6.	Please indicate income and expenditure of the Village Water Fund per month on average during the last one year.	H-6 a) Income : ZK _____/ month H-6 b) Expenditure: ZK _____/ month Don't know.....-1 Not applicable (no water fund is raised in the community).....-2	
H-7.	Is the financial record of the Village Water Fund kept by the Water Committee?	Yes..... 1 No..... 2 Not applicable (no water fund is raised in the community)..... 99	
H-8.	If the existing water supply conditions are improved, which option is desirable for this village?	Constructing shallow well(s)/borehole(s) with handpump..... 1 Constructing piped water scheme independently serving for this village..... 2 Having connection of pipeline from the existing piped network (such as City Water)..... 3 Other (specify _____) 4 Satisfied with the existing water supply conditions..... 99	
H-9.	If the existing water supply conditions are improved, who should be primarily responsible for operation and maintenance of the improved water facility?	Village Government..... 1 Village Water Committee..... 2 Water Users Association..... 3 Water Users Group..... 4 Local authority (District office)/ Government/NGO..... 5 Private water company..... 6 Other (specify _____) 7	

Questionnaire for Key Informant

<p>H-10. If the existing water supply conditions are improved, who should primarily recover costs for operation, maintenance and replacement of the improved water facility?</p>	<p>Community/ users of the facility..... 1 Local authority (District office)/ Government/NGO..... 2 Private water company..... 3 Both community and local authority/government..... 4 Other (specify _____) 5</p>	
<p>H-11. If the existing water supply conditions are improved, What kinds of positive impacts are expected in the community?</p> <p>Please indicate <u>up to three of them</u> from the most significant one.</p> <p>[Please do not prompt]</p>	<p>Increased accessibility to perennial water supply..... 1 Increased accessibility to safe water supply..... 2 Increased volume of water which can be obtainable 3 Reduced time/work load for water fetching 4 Increased time for children to attend school..... 5 Increased time for women to do economic activities..... 6 Reduced cases of diarrhoea 7 Increased income of Village Water Fund by selling water to other villages..... 8 Others (specify _____) 9 No positive impact is/was observed..... 99</p>	
<p>H-12. If the existing water supply conditions are improved, What kinds of negative impacts are expected in the community?</p> <p>Please indicate <u>up to three of them</u> from the most significant one.</p> <p>[Please do not prompt]</p>	<p>Increased costs for users to pay for water..... 1 Increased influx of population seeking for water supply..... 2 Others (specify _____) 3 No negative impact is/was observed..... 99</p>	

Thank you very much for your cooperation in the interview.

Questionnaire for Households

The Study for Groundwater Development in Luapula Province in the Republic of Zambia

Questionnaire for Sample Household Survey

Section A: SITE INFORMATION

A-1. Date of Interview: _____ / _____ /2006
(Day) (Month)

A-2. Name of Interviewer: _____

A-3. Serial No.: _____

A-4. Name of Village: _____

A-5. District:	
Chiengi..... 1	Mwense..... 5
Kawambwa..... 2	Nchelenge..... 6
Mansa..... 3	Samfya..... 7
Milenge..... 4	

Section B. INFORMATION ON THE RESPONDENT

B-1. Name of Respondent	_____	
B-2. Sex of Respondent	Male	1
	Female	2
B-3. Age of Respondent	_____ years	
B-4. Relationship of Respondent to the Household Head	Household Head	1
	Spouse	2
	Father or Mother	3
	Son or Daughter.....	4
	Brother or Sister	5
	Other (Specify _____)	6

Section C. FINANCING FOR WATER USE

C-1. How much money in total does your household spend a day on average to obtain water for domestic use in rainy season and dry season, respectively? <i>[Please add amounts spent by the household in a day if they use several water sources for domestic use.]</i>	C-1 a) Rainy Season			
	* ZK _____/household/day			
	* No money is spent to obtain domestic water.	-1 [Go to C-3]		
	* Unknown	-2 [Go to C-3]		
	C-1 b) Dry Season			
	* ZK _____/household/day			
	* No money is spent to obtain domestic water.....	-1 [Go to C-3]		
	* Unknown	-2 [Go to C-3]		
C-2. What is your perception on the amount mentioned in C-1?	Very expensive.....	1	C-2 a) Rainy Season	
	Expensive.....	2		
	Fair.....	3	C-2 b) Dry Season	
	Cheap.....	4		
	Very cheap.....	5		
	Not applicable (no money is spent to get water).....	99		
C-3. Does your household have to pay any money, apart from user fee for domestic water, to obtain water for livestock?	Yes.....	1	C-3a) Rainy Season	
	No.....	2	1=> C-4 2,3,4=> C-5	
	Unknown.....	3		
	Not applicable (Having no livestock)	4	C-3b) Dry Season	
			1=> C-4 2,3,4=> C-5	
C-4. If the answer to C-3 is [1] Yes, how much does your household have to pay for water for livestock? <i>[Please choose a mode of payment.]</i>	C-4 a) ZK _____/ container or bucket			
	C-4 b) ZK _____/ litre			
	C-4 c) ZK _____/ head of livestock			
	C-4 d) Others (specify _____)			
	C-4 e) Unknown			-1
	C-4 f) Not applicable			-2

Questionnaire for Households

	Please indicate "X" for all sources which the household uses for domestic water	C-5 What is the <u>unit price</u> of the user fee? C-5 a) ZK ___/container or bucket C-5 b) ZK ___/litre C-5 c) ZK ___/household/day C-5 d) ZK ___/household/month C-5 e) Other (specify _____) C-5 f) Unknown-1 C-5 g) Use of the facility is free of charge -2 C-5 h) Owner of the facility-3 C-5 i) Not a user of the facility-4	C-6. What is your perception on the rate mentioned in C-5? Very expensive.....1 Expensive.....2 Fair.....3 Cheap.....4 Very cheap.....5 Not applicable.....99 (no cost incurred)	C-7. What quantity of water does your household usually get per day from the source? C-7 a) ___ container/bucket C-7 b) Unknown-1 C-7 c) Not applicable-2	C-8 How do you pay for user fee when your household uses the source? Pay every time drawing water...1 Pay weekly2 Pay monthly3 Other (specify _____)4 Unknown5 Not applicable.....99
a	Spring or shallow well (unprotected/protected) without handpump				
b	Shallow well or borehole (deep well) with handpump				
c	Public tap connected to piped water scheme				
d	Private tap connected into yard or dwelling of a neighbour				
e	Buying water from water vendor				

Questionnaire for Households

Section D. VALUATION ON THE IMPROVED WATER SUPPLY

D-1.	Are you satisfied with level of water supply service which your household is receiving from the main water source presently?	Yes, very satisfied..... 1 Yes, satisfied..... 2 Not sure..... 3 Not satisfied..... 4 Not satisfied at all..... 5	1, 2 => D-2/ 3 => D-4 4, 5 => D-3
D-2.	If answer to D-1 is [1] or [2], what are the reasons for satisfaction? [multiple answers allowed]	Water quality (physical appearance, taste, smell) 1 Water quantity which the household can get..... 2 Availability of water throughout year..... 3 Distance..... 4 Queuing time..... 5 Amount of user fee 6 Technology of device of the water supply..... 7 Others (specify _____) 8 Not applicable..... 99	
D-3.	If answer to D-1 is [4] or [5], what are the reasons for dissatisfaction? [multiple answers allowed]	Water quality (physical appearance, taste, smell) 1 Water quantity which the household can get..... 2 Availability of water throughout year..... 3 Distance..... 4 Queuing time..... 5 Amount of user fee 6 Technology of device of the water supply..... 7 Others (specify _____) 8 Not applicable..... 99	
D-4.	Do you need the borehole with handpump as improved water supply service to obtain the domestic water , even if your household has to pay water fee?	Yes, even the rate is more expensive than present 1 Yes, if the rate remains same level as the present..... 2 Yes, if the rate is cheaper than the present one..... 3 No, even the rate remains same level as the present..... 4 No, even the rate is cheaper than the present..... 5 I am satisfied with the current water supply service..... 99	1,2,3,4,5=>D-5
D-5.	If the borehole with handpump is constructed, who do you think should be primarily responsible for its daily operation and maintenance?	Local authority (District)/ Government..... 1 Private water company 2 Users of the facility..... 3 Village Water Committee/ Water User Association..... 4 Village Government..... 5 External donor/ NGO 6 Others (specify _____) 7 Don't know 99	
D-6.	Do you agree to pay ZK per month as water fee for the improved water supply service from a borehole with handpump ?	~ 499 ZK 1 500 ~ 999 ZK 2 1000 ~ 1499 ZK 3 1500 ~ 2000 ZK 4 2001 ZK ~ 5	
D-7.	What type of billing method for user fee is preferable for your household?	Cash..... 1 Agricultural products..... 2 Other (specify _____) 3 Don't know 99	
D-8.	If the borehole is constructed, what kind of contribution could your household do <u>for the construction</u> ? [multiple answers allowed]	Cash 1 Labour force 2 Provision of locally available construction material 3 Can contribute nothing 4 Others (specify _____) 5 Don't know..... 99	
D-9.	If your household can contribute cash for construction of the borehole with handpump, how much would your household be prepared for it?	ZK _____ Not applicable -1	

Questionnaire for Households

Section E. ECONOMIC STATUS OF THE HOUSEHOLD

E-1. What kind of income sources does your household have? Please indicate primary and secondary source of income, respectively. [In case no secondary source of income, please indicate as "not applicable" in the box for E-1b]]	Farming.....	1	E-1a) Primary																								
	Fishing.....	2																									
	Livestock raising	3																									
	Retail	4																									
	Salary from employer (permanent employment).....	5																									
	Casual work.....	6	E-1b) Secondary																								
	Pension.....	7																									
	Remittance from family working elsewhere.....	8																									
	Other (specify _____)	9																									
	Not applicable (only one income source).....	99																									
E-2. How much is your household's total expenditure per month on average?	ZK _____ Don't know-1																										
E-3. How much does your household spend for household fuel (cooking & lighting) per month on average?	ZK _____ Don't know-1																										
E-4. What is your perception of the amount your household spends for household fuel?	Very expensive.....	1																									
	Expensive.....	2																									
	Fair.....	3																									
	Cheap.....	4																									
	Very cheap.....	5																									
	Not applicable.....	99																									
E-5. How much does your household spend for medical care per month on average?	ZK _____ Don't know-1																										
E-6. What is your perception of the amount your household spends for the medical care?	Very expensive.....	1																									
	Expensive.....	2																									
	Fair.....	3																									
	Cheap.....	4																									
	Very cheap.....	5																									
	Not applicable.....	99																									
E-7. Please show household's total income per month on average from all sources.	ZK _____ per month																										
E-8. When can you get cash income in a year? (Please tick in the box) [multiple answers allowed]	<table border="1"> <tr> <td>Jan.</td> <td>Feb.</td> <td>Mar.</td> <td>Apr.</td> <td>May</td> <td>Jun.</td> <td>Jul.</td> <td>Aug.</td> <td>Sep.</td> <td>Oct.</td> <td>Nov.</td> <td>Dec.</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.														
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.																

APPENDIX 7 REFERENCES

No.	Title	Publisher	Published Year
1	National Accounts Statistical Bulletin No.9 1994-2005	Central Statistical Office	2006
2	Consumer Price Index June 2007 Releas	Central Statistical Office	2007
3	Selected Socio-Economic Indicators 2003-2004	Central Statistical Office	2006
4	Selected Socio-Economic Indicators 2004-2005	Central Statistical Office	2007
5	Micro-Level Estimates of Poverty in Zambia	Central Statistical Office	2007
6	Estimates of Revenue and Expenditure for the year 2006	Republic of Zambia	2006
7	Living Condition Monitoring Survey Report 2002-2003	Central Statistical Office	2004
8	Living Condition Monitoring Survey Report 2004	Central Statistical Office	2005
9	2000 Census of Population and Housing Volume four Luapula Province	Central Statistical Office	2004
10	2000 Census of Population and Housing Volume six Northern Province	Central Statistical Office	2004
11	Report on the National Water Resources Action Programme (WRAP) Consultative Forum	Ministry of Energy and Water Development	2003
12	Report on the Restructuring of the Ministry of Energy and Water Development	Management Development Division	1999
13	The Geology of the Musonda Falls Area	Ministry of Mines and Mining Development	1971
14	The Geology of the Mansa Area	Ministry of Mines and Mining Development	1970
15	National Guideline for Sustainable Operation and Maintenance of Hand Pumps in Rural Arias (Final Draft)	Ministry of Local Government and Housing	2007
16	Joint Appraisal of the National Rural Water Supply and Sanitation Programme Appraisal Report	Republic of Zambia	2006
17	Fifth National Development Plan 2006-2010	Ministry of Finance and National Planning	2006
18	Strateic Plan for the Ministry of Energy and Water Development	Ministry of Finance and National Planning	2003
19	National Rural Water Supply and Sanitation Programme 2006-2015	Ministry of Local Government and Housing	2006