

付属資料

1. 要請書
2. **Scope of Work (S/W)**
3. **Minutes of Meeting (M/M)**
4. 主要面接者リスト
5. 打合せ議事
6. 事前評価表
7. 質問票及び回答
8. ウガンダ・ローカルコンサルタント、ローカルNGO及び工事業者一覧
9. 主要収集資料リスト

付属資料1. 要請書

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THE REPUBLIC OF UGANDA

MINISTRY OF WATER AND
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KAMPALA - UGANDA

In any correspondence on
this subject please quote no. ADM/38/39/01

January 31, 2007

The Permanent Secretary/Secretary to Treasury,
Ministry Of Finance and Economic Development,
P. O. Box 8147,
KAMPALA

JAPAN SUPPORT TO STUDIES ON WATER RESOURCES OF LAKE KYOGA BASIN

Ministry of Water and Environment has prepared an application herewith attached for Japanese support in carrying out a study on Water Resources on water Resources Development and Management in the Lake Kyoga Basin.

The study will lead to the development of plan for integrated water resources management for sustainable use of water resources in Lake Kyoga basin for economic development of the region as recommended in the Water Resources Reform Study of the sub-sector. Necessity for integrated water resources management in Lake Kyoga basin was approved by the Water Sector Working Group and in general, integrated water resources management was selected among priority areas for implementation this year by the Joint Sector Review in September 2006.

The purpose of this communication is to request you to pursue the application with the Embassy of Japan.

A handwritten signature in black ink, appearing to read 'E. S. M. Bantuma'.

E. S. M. Bantuma
ACCOUNTING OFFICER

Ministry of Water and Environment,
Minister of State (Water)
Director of Water Development

APPLICATION FORM FOR JAPAN'S DEVELOPMENT STUDIES

Date of entry:

September 2006

Applicant: the Government of

The Republic of Uganda

1. Project Digest

1.1 Project Title:

The Study on Water Resources Development and Management in the Lake Kyoga Basin in the Republic of Uganda

1.2 Location (province/county name):

(City/town/village name):

Mbale, Soroti, Kumi, Pallisa, Katakwi, Sironko, Kaberamaido, Kayunga, Luwero, Nakasongora, Moroto, Nakapiripit, Amoratar, Dokolo, Iganga, Tororo, Jinja and other districts: about 3 hours' drive

1.3 Implementing Agency

Name of the Agency:

Water Resources Management Department (WRMD), Directorate of Water Development (DWD) of the Ministry of Water and Environment

(Refer to attached Organization structure)

Number of Staff of the Agency:

56 professional staff, 12 technicians and 23 support staff

(on a category basis)

Budget allocated to the Agency:

Shs 3.1 billion per year

1.4 Justification of the Project

Since the 1990s, government of Uganda has developed a number of guidelines, which paved the way for the review of water legislation and sector policy development process. A number of policy and legal issues and plans have been prepared to guide the sub-sector development efforts and direct the operations of the users of its services.

The Sector has developed a number of Statutes/Laws/Acts, Policies, Regulations and plans which direct the operations of the users of its services. The current policies, laws and plans represent a comprehensive regulatory framework for the management of the sector and reflect the socio-economic, development and

financial fabric prevailing in present day Uganda with foresight to the future. A Water policy Committee (WPC) has been established and operationalised to guide government on policy issues, as stipulated by the Water Act.

The relevant sector laws, policies and plans include:

Table 1 Policy and legal framework for proposed multipurpose water project

Thematic Area	Policies and Laws
All	The Constitution of Uganda (1995) The Local Government Act (1997) National Gender Policy (1997) The Land Act (1998) Poverty Eradication Action Plan (2004/2007)
Water and Environmental Resources Development and Management	The Water Action Plan (1994) The National Environment Management Policy (1994) The National Policy for the Conservation and Management of Wetland Resources (1995) The National Environmental Health Policy (2005) The National Water Policy (1999) The Water Act Cap. 152 (2000) The National Environment Act Cap. 153 (2000) The Water Resources Regulations (1998) The Water (Waste Discharge) Regulations (1998) The Waste Management Regulations (1999) Environmental Impact Assessment Regulations (1998) The National Environment (Standards for Discharge of Effluent in Water or Land) Regulations (1999) National Environment (Waste Management) Regulations (1999)
Services	The National Environmental Health Policy (2005) The Water Supply Regulations (1998) The Sewerage Regulations (1998)
Production	The Water Supply Regulations (1998) The Fisheries Act (2003)

The overall water policy objectives of the government for the water and sanitation sector, which are contained in the National Water Policy (1999) are:

- To manage and develop water resources of Ugandan in an integrated and sustainable manner so as to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations with the full participation of all stakeholders.
- To achieve sustainable provision of safe water within easy reach and hygienic sanitation facilities based on management responsibility and ownership by the users, to 77% of the population in rural areas and 100% of the urban population by the year 2015 with 80-90% effective use and functionality of facilities.
- To promote development of water supply for agricultural production in order to modernize agriculture and mitigate effects of climatic variations on rain fed agriculture.

Sector plans

Government has put in place a Poverty Eradication Action Plan (PEAP) as a national framework for poverty eradication. The PEAP was prepared in 1997 and revised in 2000 and 2004. It has adopted a multi-sectoral approach, recognizing the multi-dimensional nature of poverty and the links between influencing factors. The issues raised in the PEAP are being addressed through various programmes including water and sanitation. In the revised PEAP the water and sanitation sector falls under two pillars:

- Pillar 2: Enhancing production, competitiveness and incomes (includes water for production and water resources management) and
- Pillar 5: Human Development (includes water supply and sanitation)¹.

The Government of Uganda is reforming the water and sanitation sector in order to ensure that services are provided and managed with improved performance and cost effectiveness, the Government's burden is decreased while maintaining commitment to equitable and sustainable provision of services in Uganda. The reforms required in-depth studies, situation analysis, and studies of African region experiences. Rural Water Supply and Sanitation (RWSS) and Urban Water Supply and Sanitation (UWSS) reform studies were completed in 2000 while the Water for Production and the Water Resources Management Reform studies were completed in December 2003 and January 2005 respectively. The reform studies included sector strategic investment plans (SIPs) with appropriate policies, strategies and action plans.

-Present conditions of the sector:

Water sector activities are a responsibility of the Directorate of Water Development of the Ministry of Water and Environment. The mission of the Government for the Water Sector is "integrated and sustainable management, development and use of water resources in Uganda for the present and future generations". The sector goals and targets have been set as:

- To promote coordinated integrated and sustainable water resources management to ensure conservation of water resources and provision of water for all social and economic activities.
- Sustainable safe water supply and sanitation facilities, based on management responsibility and ownership by users, within easy reach of 77% or 95% of the rural population and 100% of the urban population by the year 2015 with an 80%-90% effective use and functionality of facilities.
- To promote development of water resources for agricultural production

¹ Pillar 5 states that a healthy and educated population is both a necessary condition for and an objective of national development.

in order to modernize agriculture and mitigate effects of climatic variations on rain-fed agriculture.

The mission of WRMD is *"To promote and ensure rational and sustainable utilization and development, and effective management and safeguard of water resources of Uganda for social and economic welfare and development"*. The mandate of WRMD is thus *"To ensure that the country's water resources are managed and utilized in an integrated and sustainable manner so as to ensure provision of adequate quality and quantity of water for all social and economic needs for the present and future generations."*

In pursuit of its mission and execution of its mandate, WRMD's functions are:

- Regulation of water use and waste discharge through issuance of water permits. Currently 223 groundwater, 124 surface water, 81 drilling, 70 wastewater and 11 hydraulic works construction permits have been issued.
- Monitoring of the quality and quantity of water resources. WRMD has established a water resources monitoring network of 72 surface water, 15 groundwater and 103 water quality stations in order to monitor impacts of both natural and manmade phenomena.
- Water resources data storage and information dissemination. Four databases for surface water, groundwater, water quality and water permits have been established and they linked to GIS.
- Water resources quality and quantity assessment. A number of water resources studies are carried out to assess the quality and quantity of water resources in order to guide appropriately water resources development activities.
- Provision of advisory services. WRMD formulates and reviews national water resources development plans and frameworks and also provides advice on water related environmental impacts as well as on standards for water quality and effluent standards.

WRMD also provides a secretariat to the Water Policy Committee (WPC), which is responsible for formulation of policies, plans and agreements on national and trans-boundary water resources to ensure their equitable use and adequate protection.

- Provision of reference water quality analytical services. Recently, the water sector has been undergoing reforms with the aim of improving service delivery while involving all the stakeholders in water supply provision and water resources management.

Under the "Water Resources Management Reform Study", a number of recommendations have been made to improve the management of water resources in the country. The most notable recommendation is the decentralization of water resources management to realize the objectives of "Integrated Water Resources Management". It is through this framework that all stakeholders will be involved in water resources management and planning in an integrated and sustainable manner.

-Sector development policy of the national government:

The Government of Uganda established a National Development Plan: "Poverty Eradication Action Plan (PEAP)" for the period of 1997-2017 to provide a framework to guide national action to eradicate poverty and reduce poverty level to less than 10 percent by 2017. Under the PEAP it has been recognized that water resources contribute greatly for poverty eradication through a number of programmes of the economy such as provision of water and sanitation services, rural electrification and plan for modernization of agriculture, security and good governance. It has been found that it is necessary not only to ensure availability of adequate water quantity and good quality when and where it is needed for the different uses now and in future but also to ensure that the planned programmes do not have adverse negative effects on water resources and the general environment. It has further been recognized that the success and sustainability of all the water related poverty eradication programmes depends on availability of adequate water resources of appropriate quality with improved and functional regulatory programme.

To this effect, the mission of government for the water and sanitation sector is, "Integrated and sustainable management, development and use of water resources for the present and future". It is in realization of this and pursuit of the mission that the Joint Uganda government and Donor Water and Sanitation Sector (JSR) annual review that took place in September 2006 selected development and piloting of Integrated Water Resources management (IWRM) as the 1st of the six undertakings for the sector in the year 2007.

This project will therefore go a long way in strengthening the sector in the realization of this objective within Lake Kyoga basin as provided under the Water Resources Reform Strategy.

-Outline of the Project:

This project is intended to support government plans to formulate a basic strategy and an action plan on water resources development and management for the Lake Kyoga Basin, the largest basin in Uganda. The plan shall deal with; a) assessment of Water Resources Potential, b) establishing Water

Resources Demand and Current Utilization, c) development of Flood Mitigation procedures, d) Water Quality, comprehensively from the viewpoint of sector wide approaches in order to utilize water resources most effectively and sustainably. Based on the project, the PEAP objectives for the water-sanitation sector will be accomplished. In addition, the development not only of agriculture, the main industry of Uganda but also livestock and fisheries will be improved and poverty addressed. Water resources potential and utilization for domestic water, irrigation water, supplies for animals and other resource use in the basin like mini-hydropower issues will be addressed to improve on the chronic shortage of electrical power in Uganda and also, the movement of people and animals in search of food and water.

-Purpose (short-term objective) of the Project:

The objectives of proposed project is to assess the quantity and quality of Uganda's water resources on a catchment scale for use in development of integrated water resources plans in line with principles of Integrated Water Resources Management.

-Goal (long-term objective) of the Project:

The long-term objective is to build the capacity of the country to manage and develop water resources in an integrated and sustainable manner based on management of water resources at the lowest appropriate level so as to promote socio-economic development and hence alleviate poverty.

-Prospective beneficiaries:

Approximately 7.5 million citizens in the study area

-The Project's priority in the National Development Plan / Public Investment Program:

Sustainable and integrated water resources management and development is the key to the socio-economic development of Uganda. Improvement of availability of water resources will directly contribute to development of good strategies for food security and poverty reduction efforts thus contributing to achievement of the first goal in the Millennium Development Goals (MDGs) which is to halve the proportion of the people living on less than a dollar a day and those who suffers from hunger. Similarly, availability of clean water contributes to better health lowering mortality rates among children, since lack of clean water and basic sanitation is the main cause of diseases in developing countries, which contributes to the fourth goal of the MDGs. Having all the households with a reliable source of water that is reasonably protected from contamination would be an important step towards improving health and reducing time spent collecting

water. This will contribute to reduction of the proportion of people without sustainable access to safe drinking water and basic sanitation thus contributing to achievement of the seventh goal of the MDGs.

This project is thus key to achievement of the National Development Plan.

1.5 Desirable or scheduled time of the commencement of the Project:

October 2007

1.6 Expected-funding source and/or assistance (including external origin) for the Project:

Government of Japan with Government of Uganda counterpart

1.7 Other relevant Projects, if any.

- Support to Water Resources Management Department (SWRMD): This is a countrywide programme that is aimed at strengthening the management capacity of WRMD to effectively meet the obligations and objectives of the sub-sector.
- Mitigation of Lake Kyoga Floods Project: This is a government supported Project initiated to address the effects of lake Kyoga flooding that had displaced a lot of people and paralyzed economic activities around the shoreline of Lake Kyoga. As a result of this project, Egypt has provided equipment and is supporting the clearance of blockage (sudds) that had blocked the lake outflow and impeded free flow of water. It is hoped that with the support from Japan through JICA, the other objective of government for development of an integrated plan to effectively use floodwater for economic development of the rural population will be realized.

2. Terms of Reference of the Proposed Study

2.1 Necessity/Justification of the Study:

Uganda's population is currently estimated at 26 million people with an annual growth of approximately 3.4 percent. Most of the population lives below the poverty line with an average annual income of less than US\$1,000 per year and over 80% of the population living on less than one dollar per day. In an effort to eradicate poverty and improve the living conditions of the people, the Government of Uganda has prepared a Poverty Eradication Action Plan (PEAP) in which the key strategic interventions have been highlighted and prioritized.

PEAP recognizes Water resources as a strategic resource that contributes greatly to poverty eradication through a number of programmes such as provision of water and sanitation services, security, HEP, transport & navigation, environment, fisheries, rural electrification and plan for modernization of agriculture (Irrigation, livestock and Aquaculture). It has been found that it is necessary not only to ensure availability of adequate water quantity and good quality when and where it is needed for the different uses now and in future but also to ensure that the planned programmes do not have adverse negative effects on water resources and the general environment. It has further been recognized that the success and sustainability of all the water related poverty eradication programmes depends on availability of adequate water resources of appropriate quality.

Similarly, Uganda Government is a signatory to the Johannesburg Plan of implementation of Millennium Development Goals adopted at the United Nations World Summit on Sustainable Development in September 2002. The plan recognized that lack of access to safe water resources is limiting factor for the sustainable development. The plan highlighted the key role of water resources in socio-economic development and identified eight major goals necessary for poverty eradication.

Lake Kyoga basin is wholly in Uganda and supports about 30% of the rural poor population of Uganda. The region has massive water resources investment potential and yet with lots of pressures arising out of poor water resources management practices and availability of water in time and space. There are various conflicts already experienced in the region and disasters that are water related which are preventable through effective planning and good management practices.

2.2 Area of Study:

The study area is Lake Kyoga Basin, one of the largest basin in Uganda covering 57,233Km² or approximating to 25% of the total area of Uganda. covering 14 whole districts and parts of 15 districts with a total population of approximately 7.5 million. (*Ref. attached map*). The major socio economic activity in the study area is rural agriculture, which comprises mainly of livestock farming and growing of cash crops such as cotton and coffee.

The study area is considerably blessed with water resources namely: rivers, lakes and groundwater with an annual precipitation ranging between 600mm to 1,400mm. However, limited and uneven distribution of the water resources does not satisfy the population particularly in rural areas in terms of safe water accessibility. On average, the safe water coverage in the basin is

approximately 40% compared to the national coverage of 58% and some districts like Tororo, Mbale and Sironko districts have as low as 30% and less.

These among other reasons result from the unfavorable hydrological and hydrogeological conditions that has led to unfeasible groundwater development and in some cases led to a result to high costs of construction of surface water supplies including the purification and distribution.

On the other hand, overgrazing and poor agricultural practices have caused serious surface erosion in Karamoja and the mountainous areas of the basin. The resulting floods with intense soil erosion and stream capture have resulted in heavy damage to infrastructure, agriculture and well being of the people.

It is not only problems of “water resources utilization” and “flood control and mitigations” that affect the basin but also water pollution caused by domestic sewage, livestock waste, industrial and mining waste is recognized as a critical issue. Upland degradation and wetland conversion have induced higher runoff and export of nutrients and sediments from the basin. Combined with changes in climate the flood production sustainability of the basin and its lake is now threatened. These effects have only been recently revealed; assessment of biophysical, nutritional or socio-economic impacts has not been undertaken.

On the other hand, hydropower that is important for the economical development of Uganda now generated from Jinja upstream of lake Kyoga is becoming increasingly unreliable due to shortage of water in Lake Victoria and yet there are potentials for mini-hydropower stations at Muyembe, Atari, Sipi and Simu rivers raised from Mt. Elgon (4,321m ASL) within the Kyoga basin that is not yet well studied for development.

Therefore to deal with these issues: namely “Water Resources Utilization”, “Flood Mitigation” and “Water Quality”, in the basin, an integrated plan for water resources development and management is necessary in line with the water resources reform study recommendations that must be supported by comprehensive and consistent data of all aspects of social, hydrological, economic etc. The plan will contribute to the growth and development of the agricultural production hence, reduction of absolute poverty harmonizing a sustainable economic development with the appropriate water resources management.

Government of Uganda recognizes the need for good water resources database as a prerequisite for meaningful water resources assessment for planning development and management of water resources. The study will therefore strengthen the existing database and GIS under WRMD with additional

facilities and assist in establishment of these facilities in the basin to ensure that water resources are managed at the lowest appropriate level. These facilities are for improvement in the planning and decision-making processes at both national and lower levels.

It's on the basis of this background that the Government of Uganda strongly requests for the provision of both technical and financial assistance for "The Study on Water Resources planning, Development and Management of the Lake Kyoga Basin in the Republic of Uganda".

2.3 Necessity/Justification of the Japanese Technical Cooperation:

The government of Japan has been very active in providing extensive and valuable technical cooperation programs Uganda in different sectors as indicated below.

- (1) Technical cooperation to the water sector was provided through, "The Project for Rural Water Supply in Central Uganda in the Republic of Uganda" under the Japanese Grant Aid for the districts of Mpigi, Mubende and Kiboga (as known 1st. Phase project) that was executed from 1997 to 2001. The 2nd Phase of the project for districts of Masaka, Kayunga and Mukono has just been completed having been implemented from 2004-2006.
- (2) Technical cooperation to the agriculture sector under the Japanese Grant aid was provided through "The Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda" has just been completed having been implemented from 2003 to 2006.

As mentioned above, the government of Japan has greatly contributed to the development of Uganda through the provision of technical assistance and capacity development; therefore it is appropriate that Japan's Technical Cooperation is most preferable and welcome.

2.4 Objectives of the Study:

Main objectives of the study are as follows:

- (1) To formulate a basic strategy and an action plan for integrated water resources management (IWRM) in the Lake Kyoga Basin.
- (2) To build capacity of Ugandan counterpart personnel in IWRM through technology and knowledge transfer during implementation of the Study

- (3) To formulate a master plan for water Resource development for domestic, agricultural and hydropower development in some selected priority areas
- (4) To build capacity of personnel in selected priority areas in appropriate intervention technology through knowledge transfer their direct participation into the Study

2.5 Area of the Study:

The study area is the Lake Kyoga Basin (57,233km²) located in the eastern-central part of Uganda (*refer to attached map*). The major 15 districts in the study area are; Apach, Iganga, Jinja, Kaberamaido Kamulji, Kumi, Mbale, Palisa, Sironko, Soroti, Tororo, Amolatar, Dokolo, Nakasongola and Kayunga, and while the other 15 districts are partially included.

2.6 Scope of the Study:

2.6.1 Phasing of the Study

The Study is divided into the following three phases:

- **Phase-1:** Basic study and identification of problems and issues on water resources management and development in the Lake Kyoga Basin
- **Phase-2:** Formulation of a basic strategy and an action plan for integrated water resources management in the Lake Kyoga Basin
- **Phase-3:** Formulation of a master plan for harnessing and development of water resources in selected priority areas

Note): The counterpart (C/P) agency for Phase-1 and 2 is the Water Resources Management Department (WRMD) and Rural Water Supply Department (RWSD) would join as C/P for Phase-3.

2.6.2 Study Setup

JICA dispatches a Study Team consisting of experts. The C/P agency shall formulate the following team and committees for smooth implementation of the Study.

- C/P Team
- Steering Committee
- Preparatory Committee for Lake Kyoga Basin

2.6.3 Study Items

(1) Phase-1: Basic study and identification of problems and issues on water resources management and development in the Lake Kyoga Basin

- 1) Collection and review of basic data and information
- 2) Field survey and investigation
- 3) Analysis of present conditions
- 4) Water demand projection (some scenarios including water saving), evaluation of water resources potential, evaluation of water balance between demand and potential
- 5) Evaluation of available water by sub-basin and administrative area
- 6) Study on water resources utilization and water-saving for rural water supply, urban water supply, small scale hydropower generation, irrigation water, water for domestic animals and fish culture, saving water by crop conversion and water-saving irrigation, etc.
- 7) Study on conservation of water resources environment (water quality of river/lake/marsh/groundwater, ecological system of lake and marsh, sewerage and sanitation, control of land-use and development, sediment discharge and flood protection, etc.)
- 8) Study on water resources management system (organization and institution, strengthening of organization and personnel, stakeholder participation, implementation of policy and measures, etc.)

(2) Phase-2: Formulation of a basic strategy and an action plan for integrated water resources management in the Lake Kyoga Basin

- 9) Formulation of a basic strategy and an action plan for water resources management and development (water resources utilization and saving, conservation of water resources environment, water resources management system)

(3) Phase-3: Formulation of a master plan for harnessing and development of water resources in selected priority areas

- 10) Formulation of a master plan for water resources development in priority areas

Stakeholder meetings are to be held for confirmation of problems and issues, formulation of common view, and foundation of the basis of the basin committee.

2.6.4 Team of required Experts

The following experts are required for the implementation of the study.

- (1) Water resources Management

- (2) Hydrogeologist
- (3) Hydrologist / flood mitigation
- (4) Simulation expert
- (5) Geophysicist / test drilling supervisor
- (6) Water resources development planner
- (7) Water Resources Regulation expert
- (8) Water quality management,
- (9) Environmental Scientist
- (10) Land use/City planner
- (11) Sociologist-Economist
- (12) Organization & institutions expert
- (13) Remote sensing / database / GIS expert
- (14) Agronomist / Penologist
- (15) Public consultation expert

2.6.5 Study Schedule

(1) Study Period

The total period for the study will be 28 months. The period for each phase is as follows:

Phase-1: Basic study and identification of problems and issues on water resources management and development in the Lake Kyoga Basin;	10 months
Phase-2: Formulation of a basic strategy and an action plan for integrated water resources management in the Lake Kyoga Basin	11 months
Phase-3: Formulation of a master plan for harnessing and development of water resources in selected priority areas	7 months
Total	28 months

(2) Reporting Schedule

The following reports shall be prepared and submitted to the Government of Uganda in the course of the study. The language for the reports will be English.

(1) Inception Report

Thirty (30) copies of the Inception Report shall be submitted within one (1) month after the commencement of the Study. The Inception Report shall include the initial findings, methodology of the study, the study schedule, staffing of the experts and necessary survey works.

(2) Progress Report (1)

Thirty (30) copies of the Progress Report (1) shall be submitted by the end of the 1st. Field Survey. The Progress Report (1) shall include basic data collection and findings.

(3) Interim Report (1)

Thirty (30) copies of the Interim Report (1) shall be submitted by the end of the Phase-1 Study. The Interim Report (1) shall present all results in the Phase-1.

(4) Progress Report (2)

Thirty (30) copies of the Progress Report (2) shall be submitted by the end of 3rd. Field Survey. The Progress Report (2) shall include basic data, findings and a framework of the action plan.

(5) Interim Report (2)

Thirty (30) copies of the Interim Report (2) shall be submitted by the end of Phase-2 Study. The Interim Report (2) shall include the basic strategy and action plan for water resources management.

(6) Draft Final Report

Thirty (30) copies of the Draft Final Report shall be submitted one month before the completion of the Study. The Draft Final Report shall present all the results of the study among Phase-1, 2 and 3, which include basic data, assessment, analysis, proposed action plan and the master plan of water resources development in priority areas. The period for the comments on the Draft Final Report will be 30 days before submission of the final report.

(7) Final Report

Fifty (50) copies of the Final Report shall be submitted at the end of the Study after receiving comments of the Draft Final Report.

2.6.6 Expected Major Outputs of the Study:

- (1) Quantitative clarification of present conditions of water resources for Lake Kyoga Basin
- (1) Developed Hydro-geological and Hydrological monitoring stations
- (2) Water resources potential and demand assessment report and map
- (3) GIS Packages for the water resources management.
- (4) Basic strategy and action plan for water resources development and management.
- (5) Master plan for harnessing /development of water resources for water supplies and flood water management systems in priority selected areas
- (6) Competent staff/experts for preparation of IWRM plans for Lake Kyoga Basin

2.6.7 Other relevant information

- 1) DWD has published "The National Rural Water Supply Atlas 2001" supported by UNICEF. Although the Atlas covers the whole study area, accuracy of the data will be improved by the study.

- 2) The phase-2 of the project of "The Project for Rural Water Supply in Central Uganda in the Republic of Uganda" supported by Japanese government has covered some part of the study area, namely Kayunga and Mukono districts. This new drilling data shall be directly applied to this Study.

- 3) The Office of the Prime Minister (OPM) has built up the "Karamoja Database Center" in the study area. Collaboration with the Center shall be expected for the effective implementation of the Study.

- 4) "The Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda" supported by Japanese Government is currently being conducted since 2004. The results from this study shall be applied to the Study.

- 5) "The Project on the Mitigation of Floods in the Kyoga Basin is currently being implemented under the WRMD and its completion date expected in 2009. Collaboration between both projects shall be expected for their effective implementation.
 - Water Resources Management Reform Study
 - Support to Water Resources Management Department

3. Facilities and information for the Study

3.1 Assignment of counterpart personnel of the implementing agency for the Study:

MWE/ DWD (WRMD) will assign counterpart personnel during the course of the study and provide full support to the Study Team.

3.2 Available data, information, documents, maps, etc. related to the Study:

All related data, information, documents, maps, database etc. available with MWE/DWD shall be made available to the Study Team.

3.3 Information on the security conditions in the Study Area:

The security conditions in the study area are good at present. Still, timely information on security will be given to the Study Team during the course of the study.

4. Global Issues (Environment, Women in Development, Poverty, etc.)

4.1 Environmental components (such as pollution control, water supply, sewage, environmental management, forestry, biodiversity) of the Project, if any.

Through the Project, it is expected that any negative environmental issues leading to water pollution, forest degradation, misuse of water resources and imbalance in water supplies based on inadequate information shall be identified and addressed to contribute to the proper use of water resources in the study area.

4.2 Anticipated environmental impacts (both natural and social) by the Project, if any.

No adverse environmental impacts are anticipated, however, some water resources development projects proposed by the study might have a negative impact on the environment, such as the micro-hydropower project. Possible mitigation measures for such impacts will be proposed during Environmental Impact assessments, which are carried out for all projects.

4.3 Women as main beneficiaries or not.

Men, Women, youth, elderly and other vulnerable groups will be beneficiaries. The gender mainstreaming policy of the ministry will be followed to ensure active participation and involvement of all parties and especially, women.

4.4 Project components, which require special considerations for women (such as gender difference, women specific role, women's participation), if any.

Women have considerable knowledge on water resources conservation aspects that will be vital in the implementation of the project and will therefore attract women involvement

4.5 Anticipated impacts on women caused by the Project, if any.

No adverse impacts specifically on women are anticipated.

4.6 Poverty alleviation components of the Project, if any.

The Project shall, in the follow up later phases contribute to poverty reduction through economic growth and improvement of living environmental conditions of people in the study area.

4.7 Any constraints against the low-income people caused by the Project.

No constraints are anticipated.

5. Undertakings of the Government of (the recipient country)

In order to facilitate a smooth and an efficient conduction of the Study, the Government of Uganda shall undertake the following necessary measures and responsibilities:

- (1) Secure the safety of the Study Team,
 - (2) Permit the members of the Study Team to enter, leave and sojourn in Uganda, in connection with their assignment therein,
 - (3) Exempt the Study Team from taxes, duties and any other charges on equipment, machinery and other materials brought into and out of Uganda for conduct of the Study,
 - (4) Exempt the Study Team from income tax and charges of any kind imposed in connection with any emoluments or allowances paid to the members of the Study Team for their services in connection with the implementation of the Study.
 - (5) Provide necessary facilities for the Study Team for remittance as well as utilization of the funds introduced in Uganda from Japan in connection with the implementation of the Study,
 - (6) Secure permission to enter private properties or restricted areas for the conduction of the Study,
 - (7) Provide medical services as needed. The expenses will be chargeable to members of the Study Team.
6. The Government of Uganda shall bear claims, if any arises against members of the Japanese Study Team resulting from the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct by member(s) of the Study Team.
7. The Ministry of Water and Environment (MWE) shall act as counterpart agency to the Study Team and as coordinating body in relation to other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

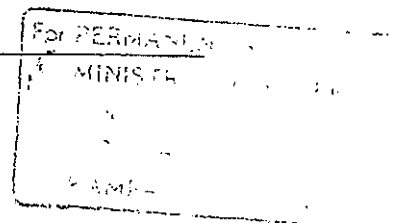
The Government of Uganda assures that the matters referred to in this form shall be ensured to the Japanese Study Team to facilitate a smooth conduction of the Development Study.

On behalf of the Government of Uganda:

Signed: _____

Title: _____

Date: _____

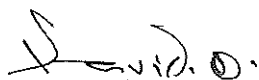


Scope of Work
for
The Development Study
on
Water Resources Development and Management
for
Lake Kyoga Basin
in
The Republic of Uganda

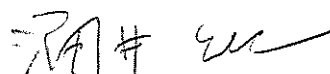
Agreed upon between

Ministry of Water and Environment
and
Japan International Cooperation Agency

Kampala, September 11, 2008



Mr. David O. O. ÓBONG
Permanent Secretary,
The Ministry of Water and Environment
The Republic of Uganda



Mr. Junji WAKUI
Leader,
Preparatory Study Team
Japan International Cooperation Agency

I . INTRODUCTION

In response to the official request of the Government of Republic of Uganda (herein after referred to as "the Government of Uganda"), the Government of Japan decided to conduct the Study on Water Resources Development and Management for Lake Kyoga Basin (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will jointly undertake the Study with the authorities concerned of the Government of Uganda.

The present document sets forth the Scope of Work with regard to the Study.

II . OBJECTIVES OF THE STUDY

The objectives of the Study are:

- (1) to formulate a basic plan on water resources development and management for Lake Kyoga Basin
- (2) to formulate a master plan for rural water supply in priority areas
- (3) to transfer technology and knowledge to the counterpart personnel through their direct participation into the Study

III . STUDY AREA

The Study will cover Lake Kyoga Basin as attached in Appendix 1.

IV . SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Scope of Work for the Study shall cover the following items:

The Study is divided into the following three phases:

- (1) Phase-1: Basic study and identification of problems and issues on water resources development and management in Lake Kyoga Basin
- (2) Phase-2: Formulation of a basic plan on water resources development and management in Lake Kyoga Basin
- (3) Phase-3: Formulation of a master plan for rural water supply in priority areas

Phase-1 Basic study and identification of problems and issues on water resources development and management in Lake Kyoga Basin

- (1) Collection and review of basic data and information
- (2) Field survey and investigation
- (3) Analysis of present conditions
- (4) Water demand projection, evaluation of water resources potential, evaluation of water balance between demand and potential
- (5) Survey on water resources utilization
- (6) Review of environmental conditions
- (7) Survey on existing control/management system
- (8) Social/economic Survey
- (9) Pre-evaluation of water resources potential
- (10) Review on previous water resources management plan
- (11) Formulation of basic strategy for water resources development and management in Lake Kyoga Basin including rural water supply.
- (12) Selection of priority area(s) for formulation of master plan for rural water supply.

Phase-2 Formulation of a basic plan on water resources development and management in Lake Kyoga Basin

- (1) Water balance study
- (2) Water allocation among water sectors
- (3) Study on efficient utilization/demand side management
- (4) Groundwater Survey (aerial photo interpretation, geo-physical prospection, test drilling, pumping test, etc.)
- (5) Evaluation of water resources potential
- (6) Formulation of a basic plan for water resources development and management, including institutional and policy

framework

(7) Environmental and social consideration

Phase-3 Formulation of a master plan for a rural water supply in priority areas

- (1) Water demand forecast
- (2) Review on previous water supply plan and alternative plan set up
- (3) Conceptual design on water supply facilities
- (4) Initial environment examination
- (5) Formulation of a operation and maintenance plan in priority area(s)
- (6) Formulation of a master plan for rural water supply in priority area(s)
- (7) Evaluation of projects
- (8) Selection of priority projects

V. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the tentative schedule as attached in the Appendix 2. The schedule is tentative and subject to be modified when both parties agree upon any necessity that will arise during the course of the Study.

VI. REPORTS

JICA shall prepare and submit following reports in English to the Government of Uganda.

(1) Inception Report:

Twenty (20) copies will be submitted to at the commencement of the first work period in Uganda. This report will contain the schedule and methodology of the Study as well.

(2) Progress Report I:

Twenty (20) copies will be submitted at the time of sixth (6th) months after the commencement of the first work period in Uganda. This report will summarize the findings of the first phase of the Study and include the basic strategy.

(3) Progress Report II:

Twenty (20) copies will be submitted at the time of thirteenth (13th) months during the second work period in Uganda. This report will summarize the preliminary findings of the second phase.

(4) Interim Report:

Twenty (20) copies will be submitted at the time of about twentieth (20th) months after the commencement of the first work period in Uganda. This report will summarize the findings of the second phase of the Study and include the draft of the basic plan.

(5) Draft Final Report:

Twenty (20) copies will be submitted at the end of the last work period in Uganda. The Government of Uganda shall submit its comments within one (1) month after the receipt of the Draft Final Report.

(6) Final Report:

Fifty (50) copies will be submitted within one (1) month after the receipt of the comments on the Draft Final Report.

VII. UNDERTAKINGS OF THE GOVERNMENT OF UGANDA

1. The Government of Uganda shall accord privileges, exemptions and other benefits to the Japanese study team (hereinafter referred to as "the Team") in accordance with the Agreement on Technical Cooperation between the Government of Japan and the Government of the Republic of Uganda, signed on December 8, 2005.

2. The Government of Uganda shall bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when the two parties agree that such claims arise from gross negligence or willful misconduct on the part of the team.

3. The Government of Uganda (represented by Ministry of Water and Environment) shall act as a counterpart agency to

the Team and also as a coordinating body with other relevant organizations for the smooth implementation of the Study, on behalf of the Government of Uganda

4. The Government of Uganda (represented by Ministry of Water and Environment) shall, at its own expense, provide the Team with the following, in cooperation with other organizations concerned

- (1) Information on as well as measures to ensure the safety of the Team
- (2) Information on as well as assistance in obtaining medical service
- (3) Available data (including maps and photographs) and information related to the Study
- (4) Counterpart personnel
- (5) Suitable office space with necessary equipment
- (6) Credentials or identification cards, and
- (7) Appropriate numbers of vehicles with drivers.

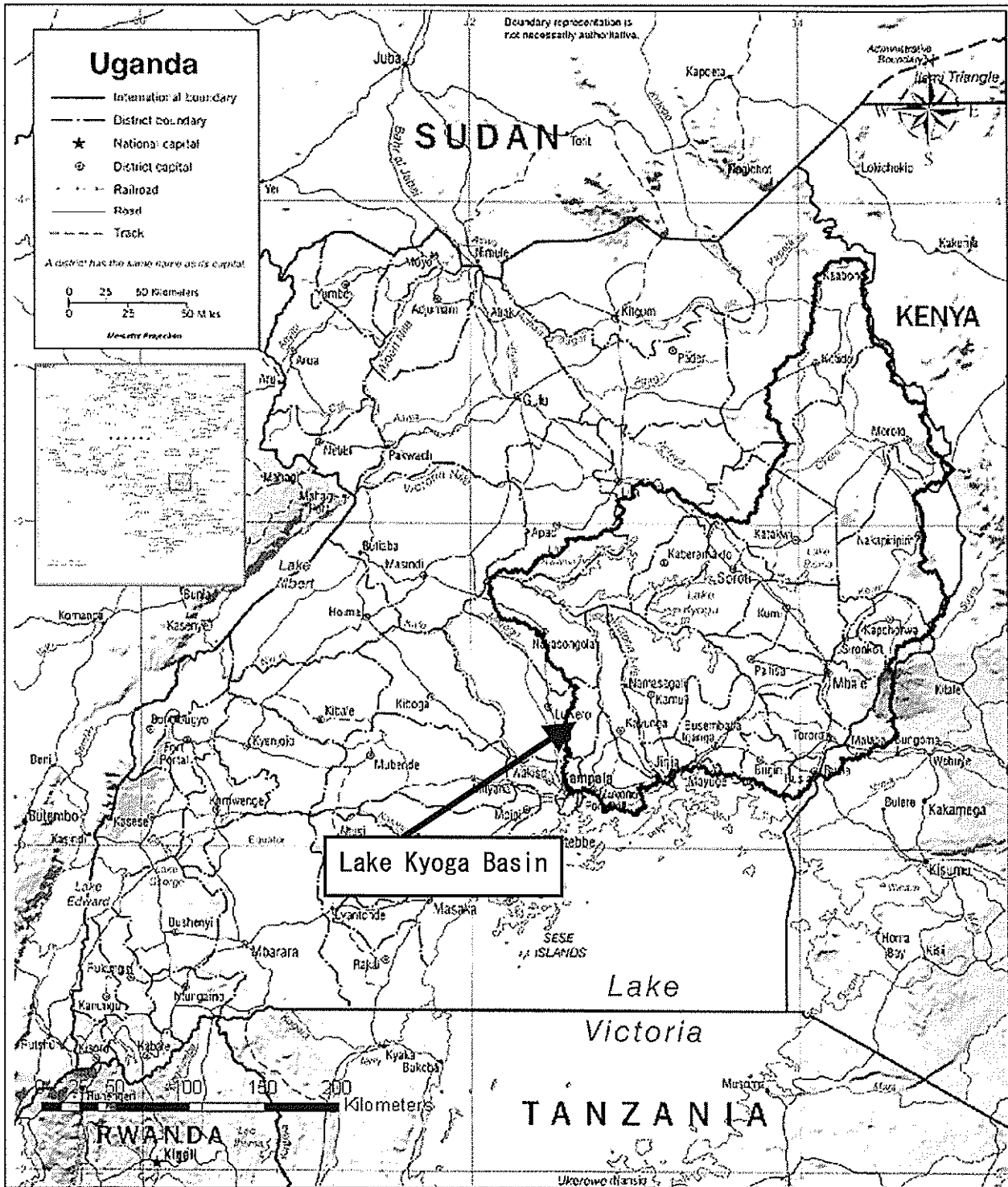
VIII. CONSULTATION

JICA and the Ministry of Water and Environment shall consult with each other in respect of any matter that may arise from or in connection with the Study.

(end of document)

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17



Map of Lake Kyoga Basin

4

47

Appendix 2

2009	
Month	1 2 3 4 5 6 7 8 9 10 11 12
Phase	Phase 1 (Months 2-7) ← → Phase 2 (Months 9-12) ← →
Study in UGANDA	Study in JAPAN
Reports	IC/R (Month 2) ▲ PG/R1 (Month 7) ▲

2010	
Month	1 2 3 4 5 6 7 8 9 10 11 12
Phase	Phase 2 (Months 1-6) → Phase 3 (Months 9-12) ← →
Study in UGANDA	Study in JAPAN
Reports	PG/R2 (Month 3) ▲ IT/R (Month 9) ▲

2011	
Month	1 2 3 4 5 6 7 8 9 10 11 12
Phase	Phase 3 (Months 1-3) →
Study in UGANDA	Study in JAPAN
Reports	DF/R (Month 1) ▲ F/R (Month 3) ▲

↘

47

Minutes of Meetings
on
the Scope of Work

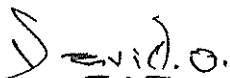
for

The Development Study
on
Water Resources Development and Management
for
Lake Kyoga Basin
in
The Republic of Uganda

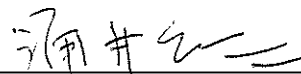
Agreed upon between

Ministry of Water and Environment
and
Japan International Cooperation Agency

Kampala, September 11, 2008



Mr. David O. O. OBONG
Permanent Secretary,
The Ministry of Water and Environment
The Republic of Uganda



Mr. Junji WAKUI
Leader,
Preparatory Study Team
Japan International Cooperation Agency

In response to the official request of the Government of the Republic of Uganda (hereinafter referred to as “the Ugandan Government”), the Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched the Preparatory Study Team, headed by Mr. Junji WAKUI, to Uganda from September 1 to September 11, 2008 to discuss the Scope of Work (hereinafter referred to as “the S/W”) for the Development Study on Water Resources Development and Management for Lake Kyoga Basin in the Republic of Uganda (hereinafter referred to as “the Development Study”).

During its stay in Uganda, the Preparatory Study Team held a series of meetings with Ministry of Water and Environment (hereinafter referred to as “MOWE”) and other authorities concerned and conducted site surveys.

As a result of the discussions, both sides came to an agreement on the S/W, which was signed on September 11, 2008.

The Minutes of Meetings have been prepared for the better understanding of the S/W. Both sides agreed and confirmed the following points for the smooth implementation of the Study.

1. Validity of the S/W

The S/W would come into effect after the approval of the JICA Headquarters.

2. Target Areas

- (1) The target area of the Development Study is Lake Kyoga Basin.
- (2) The Preparatory Study Team and the Development Study Team will follow the security measures of JICA and the Japanese Government and will not be able to conduct site surveys in some areas of the Lake Kyoga Basin. However, the Preparatory Study Team and the Development Study Team will review any data and information of the area provided by the Ugandan Authorities.
- (3) The target area of the Rural Water Supply Master Plan will be selected during Phase 1 of the Development Study in consultation with Ugandan side.

3. Target Year for the Development Study and for the Rural Water Supply Master Plan

The target year for the Development Study would be year 2025 according to the Ugandan Policies(Strategic Sector Investment Plan, Vision 25) and the target year for the Rural Water Supply Master Plan would be 2025.

4. Counterpart Directorate and Personnel

- (1) The counterpart directorate of the Project is Directorate of Water Development and Directorate of Water Resources Management. Directorate of Water Development and Directorate of Water Resources Management shall closely collaborate for smooth implementation and utilization of the Development Study.
- (2) As to VII. 4. (4) of the S/W, the Ugandan side will select counterpart personnel of the Development Study before the commencement of the Development Study for ensuring better cooperation. The counterparts shall be responsible for the implementation of the Development Study. The counterpart personnel will be,
 - The Directorate of Water Development : Two or Three (2~3) Engineers/Officers
 - The Directorate of Water Resources Management : Two or Three (2~3) Engineers/Officers

5. Joint Steering Committee

- (1) A Joint Steering Committee, involving relevant agencies and personnel of Ugandan Side and Japanese Side will be established. Joint Steering Committee Meetings will be organized by MOWE during the Development Study period.
- (2) The role and functions of the Joint Steering Committee is to share the information on the

Development Study and to guide the Development Study in the proper direction by providing instructions and sharing information. MOWE is required to organize meetings at the time of submission of reports as well as upon the request of the forthcoming Development Study team.

- (3) The Joint Steering Committee will be Co-Chaired by Director of Directorate of Water Development and Director of Directorate of Water Resources Management. Other Members shall be comprised of the following.
- Representatives from Ministry of Agriculture, Animal Industry and Fisheries, Ministry of Local Government, Ministry of Energy and Mineral Development and Ministry of Finance, Planning and Economic Development
 - Representatives from relevant districts
 - Representative from JICA UGANDA
 - Others as necessary.

6. Coordination among Relevant Ministries and Donors

The MOWE will coordinate as necessary with relevant Ministries and Donors.

7. Reports

The Final Report should be open to the general public in order to share the Development Study results with relevant organizations as many as possible.

8. Environmental and Social Consideration

The Preparatory Study Team explained that the current category of the Development Study is “B” according to JICA’s Environmental and Social Consideration Guideline. The Ugandan Government understood the policy of JICA’s guideline, and agreed in principle to the following responsibilities and requirements.

- (1) Based on the guideline, the Ugandan Government shall be responsible for conducting Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) in accordance with environmental laws and regulations of the Ugandan Government, in collaboration with JICA.
- (2) JICA shall provide MOWE with technical support in order to conduct IEE and EIA.
- (3) In the course of conducting IEE and EIA, public consultations with communities and stakeholders shall be included, if necessary.
- (4) The disclosure of information such as Development Study Reports is necessary to ensure the participation and dialogues with various stakeholders, in order to achieve appropriate environmental and social considerations.

9. Office Space

MOWE agreed to provide adequate office space, necessary office equipment and furniture both at MOWE.

10. Provision of Necessary Information

- (1) In accordance with the Article VII.4.(3) of the S/W, both sides confirmed that Ugandan side would provide the necessary information with the Development Study Team, including the following items ;
 - Aero photograph of the target area,
 - Hydro-geological, meteorological and hydrological data,
 - Progress on the sector reform on water supply,
 - Water supply projects to be conducted by the other donor funds,
 - Inventories of the water sources and the water supply facilities, and

- Financial status of the related organizations.
- (2) MOWE will also coordinate to provide the Development Study Team with information and data other than those managed by MOWE.

11. Position of the Development Study in the National Policies

The Development Study is consistent with the Ugandan Policies such as Strategic Sector Investment Plan and shall be utilized in order to contribute to the MDGs.

12. Transport and Equipment

MOWE requested the Team that the Japanese side would arrange an appropriate number of transport and equipment. The Team would convey this request to JICA HDQs.

(end of document)

付属資料 4. 主要面接者リスト

主要面接者リスト

所属先	氏名 / 職位
MoWE	Mr. Obong O O David、Permanent Secretary
DWRM	Eng. Mugisha-Shillingi /Director、 Mr. Jackson Twinomujuni /Ag. Commissioner、 Dr. Callist Tindimugaya /Ag. Commissioner (Regulatory)、 Dr. Nicholas Azza /Ag. Commissioner、 Ms. Florence G. Adong / Ag. Commissioner、 Mr. John Metzger /Water Resources Management Advisor、 Mr. David Kataoatambi /Monitoring & Assessment Dept., Surface Water、 Mr. Pule Johnson /Monitoring & Assessment Dept., Groundwater
DWD	Eng. Sottie L. M. Bomukama /Director、 Eng. Aaron M. Kabirizi /Ag. Commissioner-Rural Water Development、 Eng. Richard Cong /Ag. Commissioner-Water for Production、 Dr. Nicholas Azza /Ag. Commissioner、 Eng. Kavulse D. /Ag. Commissioner、 Eng. Mugsee Shullrgi、 Eng. Dran Hozzi PE、 Eng. Disau Ssozi /PE、 Eng. Eyatu Owiwo、 Eng. Joseph Orino Eyacy、 Eng. Ahmed Seutumbwe /SE、 Mr. Erisa Kyeyune /Rural Water Supply -Hydrogeologist
TSU-4	Ms. Khasif Nantaba (Community Development Specialist)
ムバレ県	DWO : Mr. Ddeme Fred (District Water Officer)
シロンコ県	県庁 : Mr. Kibaale /県知事、 Mr. Sam Odem (助役) DWO : Eng. Sukila /District Water Officer
カプチョルワ県	県庁 : Mr. Chelimo. N. Kaprokuto /県知事
ムコノ県	DWO : Mr. Kalule James (Asst. District Water Officer) , Ms. Kaio Ronald (住民啓発担当)
カユンガ県	DWO : Mr. Drate Edema Robert (District Water Officer)
カムリ県	DWO : Mr. Kiwalazi Charles (District Water Officer)
MoEMD	Eng. Moses Murengezi /Manager, Project Monitoring & Evaluation, Rural Electrification Agency
NEMA	Mr. Waiswa Ayazika Arnold (Environmental Impact Assessment Co-ordinator)
SIADP	西牧リーダー、小林専門家、伊藤調整員
JOCV	松岡仁輝 (ムピシ県水道局)、鹿野正明 (地図局)
JICA ウガンダ事務所	洲崎所長、藤家所員、高野所員、 Ms. KYOBE Eva Nakiyingi /Programme Officer-Water & Sanitation

註 : MoWE= Ministry of Water and Environment、 DWRM = Directorate of Water Resources & Management、 DWD = Directorate of Water Development DWO=District Water Office、 MoEMD = Ministry of Energy & Mineral Development、 NEMA = National Environmental Management Authority、 SIADP = Sustainable Irrigated Agriculture Development Project in Eastern Uganda

付属資料 5. 打合せ議事録

日時	2008年9月4日(木) 11:15~11:45
場所	TSU-4 (Technical Support Unit)、ムバレ県 District Water Office (両機関が同居している)
出席者	TSU-4 : Ms. Khasif Nantaba (Community Development Specialist) ムバレ県 District Water Office : Mr. Ddeme Fred (District Water Officer)他数名 MoWE : DWD- Eng. Ahmed Seutumbwe (Senior Eng.)、DWRM-Mr. David Kataoatambi 調査団 : 涌井団長、吉田、小島、村上、山川、Ms. KYOBE Eva Nakiyingi (JICA ウガンダ事務所)
概要	<p>1. 来訪の目的説明 (団長) 来訪の目的、団員の紹介</p> <p>2. TSU-4 の業務概要等</p> <ul style="list-style-type: none"> ・学校を含めた community の水供給施設の建設監理及び技術上の問題点を支援 (例 : 水質試験、水質汚染、水源の持続性等) ・水供給施設建設後の管理は community の責任となる (Ownership 確保のため) ・給水施設の建設時の投資に、住民分担金を入れようとしている ・community の水管理組合設立の奨励、組合のメンバーは約6人である ・通常、水は無料であるが維持・管理費を徴収 ・水の供給率は低いため、2015年までに100%にする計画がある。資金が無いためこの目標達成のためにはドナー・NGO等の協力が必要である ・TSU-4の職員はDWD本部からFocal Point Officer 1名、元コンサルタントの契約職員がWater & Sanitation Engineer 1名、Community Development Specialist 2名、Public Health Specialist 1名の5人体制となっている ・許認可事項は、1) Drilling Permit、2) Extract Permit 及び 3) Discharge Permit である <p>3. 水資源管理上の問題点について (団長→TSU-4)</p> <p>① Water for Production ダム建設、灌漑計画等は今のところ無いが、コンクリートブロックの作成等、小規模家内工業等に必要の水需要はある</p> <p>② 水に関する法規 水に関する法規が幾つかあるが、守られていない</p> <p>③ 開発計画について 県レベルで作ることになっている</p> <p style="text-align: right;">以上</p>

日時	2008年9月4日(木) 16:10~16:20
場所	シロンコ県庁
出席者	シロンコ県庁 : Mr. Kibaal (県知事)、Mr. Sam Odem (助役)、Eng. Sukila (District Water Officer) MoWE : DWD- Eng. Ahmed Seutumbwe (Senior Eng.)、DWRM-Mr. David Kataoatambi 調査団 : 涌井団長、吉田、小島、村上、山川、Ms. KYOBE Eva Nakiyingi (JICA ウガンダ事務所)
概要	<p>1. 来訪の目的説明 (団長) 来訪の目的、団員の紹介</p> <p>2. シロンコ県の水部門の概要等</p> <ul style="list-style-type: none"> ・灌漑部門の水需要については、1) 野菜及び 2) 植樹である ・給水施設については井戸のみでなく、重力送水式も多い ・上流部の3つの郡 (sub-county) については1999年にヨーロッパの資金が供与された ・水の供給地点が増加しているが、その位置図は1年半前に作成されたままになっている <p style="text-align: right;">以上</p>

日時	2008年9月5日(金) 9:40~10:20
場所	カプチョルワ県庁
出席者	カプチョルワ県庁 : Mr. Chelimo. N. Kaprokuto (県知事)、他3名 (District Water Officer、District Engineer, District Finance Officer) MoWE : DWD- Eng. Ahmed Seutumbwe (Senior Eng.)、DWRM-Mr. David Kataoatambi 調査団 : 涌井団長、吉田、小島、村上、山川、Ms. KYOBE Eva Nakyingi (JICA ウガンダ事務所)
概要	<p>1. 来訪の目的説明 (団長) 来訪の目的、団員の紹介</p> <p>2. カプチョルワ県の水部門の概要等</p> <ul style="list-style-type: none"> 水の需要は、家庭用水、家畜用水及び灌漑用水がある 県の5ヶ年計画(2008/9年~2012/13年)があり、水部門の計画も含まれる カプチョルワ県はエルゴン山の北側の山麓とそれに続く平地で構成されている。以前(1960年代まで)は平地部に住民が居住し、牧畜、農耕を行っていたが、北部のカラモジョン族の略奪が激しくなったため、現在は大部分の住民は山麓部に住んでいる。しかし、人口増加率が高く山麓部の人口密度が高くなったこと、人口増加による土地所有面積の減少、政府の懐柔政策により平地部が安全になったため、平地部への移住が必要である。従って、移住のためにはこの平地での飲料水供給、灌漑用水等の計画が必要である District Water Office に水源のインベントリーがあり、資料を提供する カラモジャ地方への導水計画がある 県独自に給水部門の予算があり、施設建設とソフト支援を合わせた本年予算は4億7700万 Ush である <p style="text-align: right;">以上</p>

日時	2008年9月5日(金) 16:45~17:00
場所	クミ県 District Water Office
出席者	クミ県 District Water Office : to be filled MoWE : Mr. Jackson Twinomujuni (Assist. Commissioner, DWRM)、Eng. Ahmed Seutumbwe (Senior Eng. DWD)、DWRM : Mr. David Kataoatambi (Monitoring & Assessment Dept.) 調査団 : 涌井団長、吉田、小島、村上、山川、Ms. KYOBE Eva Nakyingi (JICA ウガンダ事務所)
概要	<p>1. 来訪の目的説明 (団長) 来訪の目的、団員の紹介</p> <p>2. クミ県の水部門の概要等</p> <ul style="list-style-type: none"> 北側に隣接するカタクイ県と境界を共有する Bisina 湖に流入する Akokoro 川の流域は危険地帯とされ、上流域の荒廃から flush flood が頻繁に発生する 上流域の荒廃の問題については、国連、上流の県との協議を始めているが、早急な対策が必要 洪水(昨年)により、住居・家畜等の流失、給水井の被害、飲料水の汚染(泉や浅井戸の水没)、マラリア及び水の汚染に起因する病気の罹患者の増加等、多くの被害を受けた(洪水被害の調査団が明日来る) 西に隣接するソロティ県も類似の状況であるが、洪水と旱魃被害の中心地となっている。特に Kipiri を始めとする Bisina 湖南側が激しい 昨年の洪水は 40~50 年確率と想定され、2~3 ヶ月続いた クミ県に湧水はなく、井戸の成功率が悪く削孔しても地下水が出ないことが多い 昨年 8,000 人に給水施設を建設したが、予算が少なく、人口増加に追いついておらず、給水率は向上しなかった 村の経済レベルにもよるが、給水施設の維持管理の問題多い。District Water Office にハンドポンプの維持管理担当者が 1 人いる 約 400 箇所のハンドポンプの内約 300 箇所が稼働している コモロ地区は新規の灌漑システムの可能性が高い 日本の援助による米作の小規模灌漑施設があり、協力隊員を要請している。ウガンダではインド系の住民とイスラム教徒が米食である。 <p style="text-align: right;">以上</p>

日時	2008年9月6日(土) 9:10~9:25
場所	ソロティ県 District Water Office
出席者	ソロティ県 District Water Office : Mr. Petter Opwanga (District Water Officer) MoWE : Mr. Jackson Twinomujuni (Assist. Commissioner, DWRM)、Eng. Ahmed Seutumbwe (Senior Eng. DWD)、DWRM : Mr. David Kataoatambi (Monitoring & Assessment Dept.) 調査団：涌井団長、吉田、小島、村上、山川、Ms. KYOBE Eva Nakiyingi (JICA ウガンダ事務所)
概要	<p>1. 来訪の目的説明 (団長) 来訪の目的、団員の紹介</p> <p>2. ソロティ県の水部門の概要等</p> <ul style="list-style-type: none"> ・洪水の影響により水質が悪化した ・給水は、主に深井戸、浅井戸、泉によっており、深井戸が最も多い ・北東側に隣接するカタクイ県との境界付近は地下水の生産性が低い ・農業には主に天水が使われており、灌漑はあまり行われていない ・灌漑についての具体的な計画は無いが、チョガ湖周辺での稲作の可能性は高い ・県南部の Kasilo~Serere 周辺の一部では地下水の塩分濃度が高い ・天水利用として流域面積の小さい谷地に溜池を作っている <p style="text-align: right;">以上</p>

件名	ウガンダ国チョガ湖流域水資源開発・管理計画調査事前調査
日時・場所	平成20年9月11日(木) 15:00~15:45 Rural Water Department, DWD, MoWE
出席者	DWD : Eng. Aaron M. Kabirizi (Ag. Commissioner Rural Water Department) 調査団：村上、山川
概要	<p><u>調査団</u></p> <p>1. 来訪の目的説明 給水分野の質問票の説明 チョガ湖流域の小水力発電の開発状況及び開発計画についての概要説明を依頼</p> <p>2. 関連資料の供与依頼 質問票を用いて、主要項目ごとに資料の存在の確認と提供を依頼</p> <p><u>DWD</u></p> <p>1. Rural Grouh Centre (RGC)については、給水関連の規定で定められている。1500人までの集落は Village で点水源で給水される。1500~5000人が RGC で小規模パイプ給水が行われる。5000~15000人が Small Town の都市給水で、15000人以上は Large Town で上下水道公社の水道の対象となる。</p> <p>2. 給水の政策としては国家水政策 (National Water Policy) がある。給水の戦略は、Sector Investment Plan に示されている。地方給水のミレニアム開発目標は、2015年に77%の給水率の達成となっている。</p> <p>3. 給水状況の資料、予算、調査地域の状況、運営・維持管理、既存のプロジェクトのリスト、法令関係、現地企業リスト等は提供できる。水質と地下水関連の資料はエンテベの DWRM にある。</p> <p>4. DWD のデータベースには給水施設の数のデータしかない。給水施設のインベントリーは県にある。DWRM には全てのボアホールインベントリーがある。</p> <p>5. 給水・衛生分野の2008年の年報は9月末に発行する予定である。</p> <p>6. 給水計画や施設設計の基準に関しては、デザインマニュアルがある。</p> <p>7. 質問票の回答と資料提供は、各担当者に分けて手配し準備させる。</p> <p style="text-align: right;">以上</p>
収集資料	

件名	ウガンダ国チョガ湖流域水資源開発・管理計画調査事前調査
日時・場所	平成20年9月12日(金) 14:00~14:30 Rural Electrification Agency (REA), Ministry of Energy and Mineral Development
出席者	REA : Eng. Moses Murengezi (Manager, Project Monitoring & Evaluation, REA) 調査団 : 村上、山川
概要	<p><u>調査団</u></p> <p>1. 来訪の目的説明 チョガ湖流域の小水力発電の開発状況及び開発計画についての概要説明を依頼</p> <p>2. 関連資料の供与依頼</p> <p><u>REA</u></p> <p>1. ウガンダの小水力は西側の山岳部で開発・設置されているが、チョガ湖流域には既存施設は無い。既存施設としては、Mubuku : 6 Mw、Mubuku-3 等があり、Mubuku-2 : 13 Mw は現在、建設中である。これらの施設は、電力網に組込まれるが、100 kW 以下の小規模な施設は周辺で消費される。</p> <p>2. チョガ湖流域の小水力発電の開発計画については、若干、古い資料ではあるが、Annual Rural Electrification Report (July 2005~June 2006) に記されているようにシロンコ県で2件、カプチョルワ県で3件ある。</p> <p>3. ウガンダ国の電力開発・供給は私企業の電力会社が行っているため、特に開発については動きが遅い。このため、大水力の開発については国が介入して進める場合があるが、小水力についてはそのような状況には至っていない。</p> <p style="text-align: right;">以上</p>
収集資料	Annual Rural Electrification Report (July 2005~June 2006)、オリジナル、冊子

件名	ウガンダ国チョガ湖流域水資源開発・管理計画調査事前調査
日時・場所	平成20年9月12日(金) 15:00~15:45 National Environmental Management Authority (NEMA)
出席者	NEMA : Mr. Waiswa Ayazika Arnold (Environmental Impact Assessment Co-ordinator) DWRM : Mr. Jackson Twinomuyuni, Director of DWRM 調査団 : 村上、山川
概要	<p><u>DWRM</u></p> <p>来訪の目的説明後、退出。</p> <p><u>NEMA</u></p> <p>1. 午前中、DWRM とチョガ湖流域水資源開発・管理計画調査の環境社会配慮について協議したが、未だプロジェクトが具体的になっていないので、SEA (Strategic Environmental Analysis)を実施し、環境上、配慮が想定される点を調査すれば良いものと考えられる。</p> <p>2. EIA については、個々のプロジェクトで実施すれば良いため、当該の調査では必要ない。</p> <p><u>調査団</u></p> <p>1. ウガンダでSEAを実施したことがあるかどうか、またSEAのガイドラインがあれば入手したい。</p> <p>2. 水資源開発、水供給に関するEIAのガイドラインについても同様に入手したい。</p> <p><u>NEMA</u></p> <p>1. ウガンダではSEAもどきのものは実施したことはあるが、SEAを実施した実績は無い。このためSEAのガイドラインは無い。</p> <p>2. 一般のEIAのガイドラインで従来、対応してきた。個別の分野、例えばエネルギー開発に関するEIAのガイドラインは既に完成しているが、水資源開発、水供給についてのガイドラインは現在、整備中で来年2月には完成の予定。</p> <p><u>調査団</u></p> <p>1. パブリック・コンサルテーションはSEAでも必要かどうか。</p> <p>2. 必要な場合、召集する範囲は。</p> <p><u>NEMA</u></p> <p>パブリック・コンサルテーションはSEAでも必要であり、その範囲は、各県のEnvironmental Officer (各県に1人在籍) までが良い。</p> <p style="text-align: right;">以上</p>
収集資料	環境専門家のリスト依頼 (メールにて後日送付予定)

日時	2008年9月15日(木) 9:20~9:50
場所	ムコノ県 DWO
出席者	DWO : Mr. Kalule James (Asst. District Water Officer), Ms. Kaio Ronald (住民啓発担当) DWD : Mr. Erisa Kyeyune (Hydrogeologist), Rural Water Supply 調査団 : 村上、山川、Ms. KYOBE Eva Nakiyingi (JICA ウガンダ事務所)
概要	<p>1. <u>来訪の目的説明(調査団)</u></p> <p>2. <u>ムコノ県及びムコノ県 DWO の概要</u></p> <ul style="list-style-type: none"> ・カンパラから約 21 km の距離にあり、ムコノ県は 4 つの郡 (county) があり、DWO には 8 人のスタッフがいる。 ・飲料水の給水率は 65%、下水・トイレの普及率は 72% である。 ・給水施設の水源は地下水及び湧水であり、多くの給水施設は DWD が建設した。 ・深井戸 (ボアホール) の成功率は約 90% で、ムコノ県の北部とカユンガ県が低くなっている。深井戸の平均深度は約 60 m。30m 以深で出水し、地下水位は 10 m 程度である。浅井戸の深度は 10~30m である。 ・水質については、大体良好であるが、カユンガ県との県境を流れる Sezibwa 川 (流末はチョガ湖) 周辺では少し塩分が含まれ水質が悪い。 ・給水に係るデータベースはあるが、あまり改新されておらず、水源の位置、種類、水質などが入力されているが、技術的な詳細データはない。 <p style="text-align: right;">以上</p>

日時	2008年9月15日(木) 12:35~14:00
場所	カユンガ県 DWO
出席者	カユンガ県 DWO : Mr. Drate Edema Robert (District Water Officer) 他 2 名 DWD : Mr. Erisa Kyeyune (Hydrogeologist), Rural Water Supply 調査団 : 村上、山川、Ms. KYOBE Eva Nakiyingi (JICA ウガンダ事務所)
概要	<p>1. <u>来訪の目的説明(調査団及びDWD)</u></p> <p>来訪の目的、団員の紹介</p> <p>2. <u>カユンガ県の水部門の概要等</u></p> <ul style="list-style-type: none"> ・県南部に深井戸が多く北部には少ない。また、浅井戸は、南部に多く北部にはあまりない。 ・地下水位は県南部で 10m 程度と浅く、北部で 30m と深く、地下水は北方 (チョガ湖) に流れているものと推察される。 ・地下水の水質は、南部、Sezibwa 川沿いの一部、北部の一部地域で悪い地域がある。硬度と塩分濃度が高いものがあり、硬度、硝酸、塩素が飲料水基準を超えることがある。 ・DWRM が 2008 年 9 月に作成したカユンガ県の地下水ポテンシャル図があり、揚水量と水質の分布が示されている。 ・District Water Officer は DWD の職員の経歴がある。2 週間前に契約ベースで雇用されたばかりであり、表流水関連の情報はまだ把握していない。 ・Water Office のスタッフは、District Water Officer 1 名、Account Water Officer 2 名、Water Quality Labo- Technician 1 名、Account Assistant 1 名、秘書 1 名、ドライバー 1 名の合計 7 名である。 <p style="text-align: right;">以上</p>

日時	2008年9月16日(金) 10:10~11:00
場所	カムリ県 DWO
出席者	カムリ県 DWO : Mr. Kiwalazi Charles (District Water Officer)
	DWD : Mr. Erisa Kyeyune (Hydrogeologist), Rural Water Supply, DWRM : Mr. Pule Johnson
	調査団 : 村上、山川、Ms. KYOBE Eva Nakiyingi (JICA ウガンダ事務所)
概要	<p>1. 来訪の目的説明 (調査団)</p> <p>2. <u>カムリ県及びカムリ県 DWO の概要</u></p> <ul style="list-style-type: none"> ・カムリ県は2年前に東側の地域が分割されカリロ県ができた。 ・県には井戸、浅井戸があり小規模の町 (Small Town) の配管による給水システムは始めたばかりである。また、湧水はない。 ・井戸の平均深さは約 60 m である。 ・県の南部の水質は問題ないが、北部のチョガ湖周辺、カユンガ県との境界であるビクトリア・ナイル (川) の周辺で塩分が含まれる。 ・飲料水の給水率は 55% である。 ・県北部 (チョガ湖周辺) には浅井戸はほとんどなく、深井戸のみであるが、水質が良くなく、井戸が困難な地域である。ナイル河沿いの井戸も水質良くない。 ・井戸、地下水に関する GIS データの整備 (Groundwater Mapping Program) が国内の 2 つのコンサルタントにより実施中であるが、成果は未だ送られてきていない。 <p>RUWASA プロジェクトが行われたウガンダ東部地域の地下水マッピングは完成している。</p> <ul style="list-style-type: none"> ・来年はこのプログラムは EU の資金により全国的に展開される予定で、外国のコンサルタントが従事することになっている。 ・深井戸 (ボアホール) の深度は県の北部で約 60m、南部で約 40m、成功率は約 85% である。井戸の揚水能力は非常に高い地域もあれば、揚水能力が低く乾いた地域もある。特に、Kakindo~Namasagail 間のナイル河周辺は、揚水能力の差が激しく数 m 離れただけで水が出ないことがある。 ・給水施設 (水源) のデータベースは、コンピューターの故障のため、更新されていない。現在復旧中である。 ・溜池 (Valley dam) のプロジェクトが実施されている。 ・カムリ県 DWO は 7 人から成るが、District Water Officer と Assistant District Water Officer は Ministry of Public Service から、残りは契約職員で MoWE から給与を支給されている。 ・昨年の洪水ではビクトリア・ナイル (川) の右支川である Kiko 川が氾濫し、カムリ~Nakabugu 間を結ぶ道路の橋が流失した。 ・資料は 9/19 (金) までに送る。 <p style="text-align: right;">以上</p>

註 : MoWE = 水環境省

件名	ウガンダ国チョガ湖流域水資源開発・管理計画調査事前調査
日時・場所	平成20年9月22日(火) 16:00~16:30 JICA ウガンダ事務所
出席者	ウガンダ事務所：洲崎所長、藤家所員 調査団：村上、山川
概要	<p><u>調査団</u></p> <p>1. 現地調査結果の報告 作成した現地調査報告書に基づき各団員の担当分野について報告。</p> <p>2. 再委託関連の見積の送付依頼 再委託関連の見積については、一部は入手できたが、未だ届いていないものもあり、届いた場合には、送付を依頼。</p> <p><u>ウガンダ事務所</u></p> <p>1. COWI の報告書について COWI は最近、新聞沙汰になっているが、その報告書について目を通しておいてもらいたい。</p> <p>2. 環境社会配慮 SEA については、環境法上、規定されているわけではなく避けてほしい。環境社会配慮についてはカウンターパート機関の分担事項であるが、実施能力が無く、またカウンターパート機関が外注する場合にもかなりの経費がかかるため実際には負担できない(実施できない)。例えば、<u>東部ウガンダ持続型灌漑開発計画調査</u>では農業省が EIA に要する費用を負担出来ず、最終的に JICA が肩代わりし、約400万円近く掛った事例から見ると、今回も類似のケースが想定される。このため、規定されている作業以外のことは実施する必要はない。</p> <p>3. District のインベントリーは信頼性が無いので、給水率だけで優先 District は選べない。北部支援も尊重する必要がある。また長期の給水 M/P では地方給水のフェーズ5くらいまで計画してはどうか。</p> <p>4. 事務所としては、Rural Growth Centre のレベルⅡの整備を推奨する。水プロジェクトとは言え、飲み水があると人が集まり、生産活動に波及する。本格調査では、給水施設が出来れば人が集まる事例を考慮して、計画を策定してもらいたい。</p> <p>5. ハンドポンプの井戸については、現地業者だと60万円程度でできるし、あまり高い技術も必要としない。ハンドポンプは District がやっており、ドイツは Small Town をやっており、村落のハンドポンプばかりをやっている時代ではなくなってきている。ハンドポンプを全て否定するわけではないが、日本は Rural Growth Centre に注力すれば良いのではないか。</p> <p>6. レベルⅡ給水において、停電が問題となるのであれば、ソーラーなどの補助電源について検討してはどうか。</p> <p style="text-align: right;">以上</p>
収集資料	

付属資料 6. 事前評価表

1. 案件名
ウガンダ国「チョガ湖流域水資源開発・管理計画調査」
2. 協力概要
(1) 事業の目的 本調査の目的は、チョガ湖流域内における水資源開発・管理基本計画の策定、及びそれを踏まえたチョガ湖流域内優先県における地方給水マスタープランの策定を通じて実施機関である水・環境省の計画策定・実施能力の向上を計ることを目的とする。
(2) 調査期間 2009年3月～2011年3月（約25カ月）
(3) 総調査費用 約●●●億円
(4) 協力相手先機関 水・環境省水資源管理総局（DWRM）及び水開発総局（DWD）
(5) 計画の対象(対象分野、対象規模等) 対象地域は、ウガンダ国内28の県にまたがるチョガ湖流域（面積：57,233平方km、人口：約750万人）。本調査は、Ⅰ．基礎調査、Ⅱ．水資源開発・管理基本計画策定、Ⅲ．地方給水マスタープラン策定の3つのフェーズに分け、フェーズⅠ及びⅡは、チョガ湖全流域を対象とし、フェーズⅢにおいては、同流域内2県程度を選定し対象とする。
3. 協力の必要性・位置付け
(1) 現状及び問題点 チョガ湖は、その東部にある山間地の降雨とナイル川とを主要な水源とする鳥取県ほどの大きさの湖で、流域面積はウガンダ国土の25%を占める。また全人口の25%が同流域内に居住する。降水量が年平均1,200mmと恵まれていることもあり、流域内では米、サトウキビ、綿花などの栽培や、牛を中心とする牧畜が盛んに行われている。 ウガンダはGDPの40%を農業が占め、輸出総額の80%は農産物によるものである。ウガンダの持続的経済発展にとって農業が盛んなチョガ湖流域の役割は非常に大きい。近年、流域内では以下のような課題が見られる。
ア. 流域管理 居住地や農地に洪水被害が及ぶようになっている。これに対処するには山間部で進行している森林伐採のコントロールや適切な構造物の配置、流域全体の流入・流出のモニタリング等が必要である。中下流部では排水や水質汚濁も問題となっている。 各県では県内の流域において、流域管理計画を含めた開発計画を作成することとなっているが、隣接する県同士においても調整は行われていない。県ごとの断片的な計画ではなく、流域全体として課題を把握し、有効な対策を示した流域管理計画を作成し、適切に管理を行う必要がある。 またチョガ湖はナイル川の一部をなしており、下流各国への影響も大きい。この点でも適切な流域管理は重要である。
イ. 水利用計画 チョガ湖流域の農業は殆どが天水により行われている。水・環境省は作物栽培や家畜飼育の振興のため、「Water for Production」と称する水利用を推進しようとしているが、各県政府は場当たりの谷を堰き止めるなどの対応をしている。また、小規模水力発電などが無秩序に計画されており、各セクターにおける水利用計画の整理が必要である。
ウ. 安全な水の確保 流域内では水理地質条件により地下水開発が難しく、また表流水の利用も、浄水のため

の費用がかかることや技術レベルの問題があり、限定されている。このため流域の給水率の平均は約40%、県によっては20%以下であり、全国平均の57%を大きく下回っている。人口増加が激しい地域もあり、自然条件や社会条件を踏まえた給水マスタープランを作成し、緊急に対応する必要がある。

水・環境省と各県政府は、このような水資源に係わる課題を解決するためには、水資源を統合的に管理し解決する必要性があることを十分に理解しているものの、具体的な対策は実施されていない。このためウガンダの水・環境省は、水資源開発・管理基本計画を策定し、かつ技術レベルの向上を図るべく我が国に開発調査による協力を要請してきた。本案件は同流域の課題の解決に資するのみならず、同国の開発の一定部分を方向付けるという意味からも意義深いものと言える。

なお要請内容が地理的・分野的に広範囲に及ぶため、JICAは2006年11月にプロジェクト形成調査を行った。この際にウガンダ側と協議のうえ、策定する水資源開発・管理基本計画の中から優先分野として地方給水を取り上げ、そのマスタープランも策定することとして整理した。

(2) 相手国政府国策上の位置付け

現在の国家戦略であるPEAP (Poverty Eradication Action Plan) 及び5ヵ年国家開発計画において、地方部の振興・生活水準の向上や水資源開発・管理能力の向上が述べられており、ウガンダ政府の重点政策とも一致する。

特に、給水施設の整備は、人々の生活基盤改善に必須であることから、PEAPにおいても、教育・保健と並び「人間開発」の重点分野のひとつとして位置づけられている。水と衛生分野では、2014年までに全地方住民が安全な水と衛生施設にアクセスできるようになる、という目標を掲げている。

(3) 他国機関の関連事業との整合性

デンマーク、アフリカ開発銀行がウガンダの水資源開発・管理において主要なドナーである。現在は、個別のプロジェクトを実施するのではなく、コモンファンドへの資金投入が主な内容となっている。各ドナーが投入した資金は、関係者の合意によって各事業に配分される。本開発調査は、早い段階から関係ドナーに説明してきており、重複する調査はない。援助協調の枠組みからも整合はとれている。

右コモンファンドへ投入した資金や、また各援助機関が進めた既存のプロジェクトについての情報や成果は実施機関である水・環境省に蓄積されており、それら情報を有効活用することが可能である。

(4) 我が国援助政策との関連、JICA 国別事業実施計画上の位置付け

本計画は、TICADIV横浜行動計画の水分野での協力に合致する。日本政府の対ウガンダ経済協力は、両国政府が合意した①人的資源開発、②基礎生活支援、③農業開発、④経済基礎インフラ整備、の重点4分野に基づき実施されており、本計画は②基礎生活支援に該当する。

水資源開発・管理及び地方部における安全な水供給は、JICAの対ウガンダの重点援助分野である「基礎生活支援」に位置づけられている。本開発調査は、「地方給水整備」JICAプログラムの主要なコンポーネントである。

「地方給水整備」JICAプログラム：①地方部へのハンドポンプ式井戸の建設および維持管理手法の指導、②水資源開発・管理計画の立案支援

4. 協力の枠組み

(1) 調査項目

本件調査は3つのフェーズに分けて実施する。フェーズⅠではチョガ湖流域の水資源に関する基礎調査を行い、フェーズⅡでは同流域の水資源開発・管理基本計画を策定する。また、フェーズⅢでは、チョガ湖流域の優先地域において水資源開発・管理基本計画を踏まえた地方給水マスタープランを策定する。各フェーズの調査項目は以下のとおりである。なお、流域内には、安全対策上、現地調査が実施できない地域もあるが、既存情報をもとに調査を行う。

フェーズⅠ：基礎調査

- ア. 既存データの収集と分析
- イ. 現地調査・実地調査
 - (ア) 河川及び湖沼現況（流入河川の河道状況・河川構造物、チョガ湖及びその周辺の湖沼）
 - (イ) 水源地域の現況（代表的な水源地域の状況把握）
 - (ウ) 上水、灌漑及び発電等利水施設の現況
 - (エ) 治水施設、排水施設等の現況
 - (オ) 自然・社会経済条件
 - (カ) 土地利用及び開発状況
 - (キ) 給水・衛生施設の実態調査
 - (ク) 水質調査
- ウ. 解析
 - (ア) 土地利用、表流水、地下水についての衛星画像解析
 - (イ) 雨量解析及び流出解析
 - (ウ) 地下水流解析
 - (エ) 現行の水資源開発・管理システムの解析
 - (オ) 資源に関する紛争
- エ. 総合水資源管理のための GIS データベースの確認
- オ. シミュレーションモデルの検討
- カ. 既存の水資源開発・管理計画の体系化・具体化
- キ. 水需要予測
- ク. 水資源賦存量の予備評価
- ケ. 水資源開発・管理上の法制度、組織の評価
- コ. 水資源開発・管理の基本戦略の策定
- サ. 地方給水マスタープランの対象となる優先地域の選定
- シ. ステークホルダー協議/技術移転セミナーの実施

フェーズⅡ：水資源開発・管理基本計画の策定

- ア. 水資源開発・管理上の問題点の確認
- イ. 地下水調査（試掘含む）
- ウ. 水質調査
- エ. 水資源賦存量の評価
- オ. 水収支解析
- カ. セクター間の水配分の検討
- キ. 水資源開発・管理基本計画の策定・評価
- ク. ステークホルダー協議/技術移転セミナーの実施

フェーズⅢ：地方給水マスタープランの策定

- ア. 既存給水施設のインベントリ調査
- イ. 運営・維持管理体制の現況調査
- ウ. 水需要予測
- エ. 既存の地方給水計画のレビューと代替案の検討
- オ. 地方給水施設の概念設計
- カ. 初期環境影響調査（IEE）
- キ. 運営・維持管理計画の策定
- ク. 優先地域における地方給水マスタープランの策定
- ケ. 優先プロジェクトの選定
- コ. ステークホルダー協議/技術移転セミナーの実施

<p>(2) アウトプット (成果)</p> <p>ア. チョガ湖流域を対象とした水資源開発・管理基本計画が策定される。</p> <p>イ. 2025年を目標年次とし、流域内の優先地域を対象とした地方給水マスタープランが策定される。</p> <p>ウ. 上記計画を策定することにより、調査手法、解析及び計画策定にかかる技術が移転される。</p> <p>(3) インプット (投入) : 以下の投入による調査の実施</p> <p>ア. コンサルタント (分野/人数)</p> <p>(ア) 総括/水資源管理</p> <p>(イ) 水文/水理地質</p> <p>(ウ) 水理/試掘調査</p> <p>(エ) 流域管理/治水計画</p> <p>(オ) 給水計画</p> <p>(カ) 水収支/シミュレーション</p> <p>(キ) 環境社会配慮/水質</p> <p>(ク) 社会・経済・財務評価/事業評価</p> <p>(ケ) 施設計画/積算</p> <p>(コ) 組織運営/維持管理計画</p> <p>イ. その他</p> <p>現地再委託による調査 (既存給水施設インベントリ、自然条件、社会状況調査、試掘)、調査に必要な機材、ステークホルダー協議/技術移転セミナー</p>
<p>5. 協力終了後に達成が期待される目標 (上位目標)</p> <p>(1) 提案計画の活用目標</p> <p>ア. 策定された水資源開発・管理基本計画及び地方給水マスタープランが採用され、水資源開発・管理及び給水施設整備に結びつく。</p> <p>イ. 計画に基づき整備される施設において、適切な施設利用がなされる。</p> <p>(2) 活用による達成目標の指標</p> <p>ア. チョガ湖流域において水資源が適切に開発・管理される。</p> <p>イ. チョガ湖流域の地方部における給水率が向上する。</p>
<p>6. 外部要因</p> <p>(1) 協力相手国内の事情</p> <p>ア. 政策的要因 : 開発政策の変更により水資源開発・管理分野の優先度が低下しないこと</p> <p>イ. 行政的要因 : 水・環境省の権限が変更されないこと</p> <p>ウ. 経済的要因 : 事業実施に関する予算措置が遅れないこと</p> <p>エ. 社会的要因 : 対象地域人口の急激な増加及び治安の悪化がないこと</p> <p>(2) 関連プロジェクトの遅れ</p> <p>特になし。</p>
<p>7. 貧困・ジェンダー・環境等への配慮項目 (注)</p> <p>(1) 水資源開発・管理基本計画策定にあたっては、基本情報の統合管理及びウガンダ側の各省庁や県が策定している計画を整理・統合することを主要な内容とする。大規模な水源開発や土木工事を伴う計画を立案するのではないため、環境・社会面で大きな負の影響を与えるものは想定されない。</p> <p>(2) チョガ湖流域には、ラムサール条約湿地が存在することから、調査及び計画策定にあたっては、環境社会配慮を担当する団員を1名配置し、環境・社会面の影響を分析することとともに、適切な環境社会配慮の実施を支援する。</p> <p>(3) 地方給水マスタープラン策定にあたっては、貧困層が多く居住する地方部において安全な水へのアクセスを向上することを目指す。施設計画や運営維持管理計画を策定する際や、給水施設の設置場所、水管理委員会のメンバー構成、水料金の決定の過程で社会的弱者に配慮する。</p>

8. 過去の類似案件からの教訓の活用（注）
<p>(1) ウガンダ無償資金協力「地方地下水開発計画」「第二次地方地下水開発計画」：チョガ湖流域は水理地質的に地下水開発が難しい地域がある。また、地下水質にも留意が必要である。</p> <p>(2) 水資源管理にあたっては、複数の機関が関連する可能性があることから、省庁間の調整を初期の段階から行う。</p> <p>(3) 本開発調査の結果が速やかに具体化されるよう、早い段階から他ドナーや日本政府関係者と協議しつつ進める。</p>
9. 今後の評価計画
<p>(1) 事後評価に用いる指標</p> <p>ア. 活用の進捗度</p> <p> (ア) 策定された水資源開発・管理基本計画が活用されたか。</p> <p> (イ) 策定された地方給水マスタープランに基づき、事業が実施されたか。実施により整備された給水施設では、適正な運営維持管理が行なわれているか。</p> <p>イ. 活用による達成目標の指標</p> <p> (ア) 水資源開発・管理基本計画に基づいて、策定された個別の計画の数</p> <p> (イ) 地方部における給水率の向上</p> <p>(2) 上記アおよびイを評価する方法および時期</p> <p>ア. フォローアップ調査によるモニタリング</p> <p>イ. 事後評価：本調査終了後5年目以降、必要に応じ実施</p>

(注) 調査にあたっての配慮事項

付属資料 7. 質問票及び回答

(1) 水資源関連

英文での回答が得られなかったため、該当箇所に和文で記入する；

QUESTIONS / INFORMATION on Water Resources Development & Management

The Preparatory Study Team shall be furnished with the following general and technical questions/information on the requested Study, in order to clarify the contents of the Study and to appraise the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions/information and kindly provide us with data and information requested herein for the sake of smooth implementation of the Study.

I. General

1. Development Plan/ Policy on Water Resources

1-1. National Development Plan/ Policy on Water Resources

1) Are there any National Development Plans/ Policy?

2) Are there any plans/ policy related to water resources development?

→新規 5 ヶ年国家開発計画(New 5 Year National Development Plan)等

1-2. Lake Kyoga Basin Development Plans/ Policy on Water Resources

Are there any Basin - level Development Plans/ Policy?

→収集資料：Lake Kyoga Integrated Water Resources Management and Development Project/ Project Concept Note 参照

1-3. Lake Kyoga Basin District - level Development Plans/ Policy on Water Resources

Are there any district - level Development Plans/ Policy?

→水資源に特化したものはないが、県の開発計画は、レベルの違いはあるものの、各県で一通り揃っているものと考えられる（収集資料 KAPCHORWA DISTRICT DEVELOPMENT PLAN 2008/92012/13）。

1-4. Please explain policy and system for water allocation, distribution and coordination.

→国家水政策(The National Water Policy (1999))、水行動計画(The Water Action Plan (1995))、水資源条例(The Water Resources Regulations (1998))等に含まれているものと考えられる。

2. Relevant Laws/Regulations

2-1. On water resources development

1) Surface water

2) Underground/ spring water

→国家水政策 (The National Water Policy (1999))、水行動計画 (The Water Action Plan (1995))、水資源条例 (The Water Resources Regulations (1998))、水法 Cap.152 (The Water Act Cap. 152 (2000))等に含まれているものと考えられる。

2-2. On water resources management

1) Surface water

2) Underground/ spring water

→国家水政策(The National Water Policy (1999))、水行動計画(The Water Action Plan (1995))、水資源条例(The Water Resources Regulations (1998))、水法 Cap.152 (The Water Act Cap. 152 (2000))等に含まれているものと考えられる。

2-3. On water quality control

1) Surface water

2) Underground/ spring water

→次表参照。

国家環境管理政策	The National Environment Management Policy (1994)
国家環境衛生政策	The National Environmental Health Policy (2005)

国家水政策	The National Water Policy (1999)
水法 Cap. 152	The Water Act Cap. 152 (2000)
国家環境行動法 Cap.153	The National Environmental Act Cap. 153 (2000)
水資源条例	The Water Resources Regulations (1998)
水(排水)条例	The Water (Waste Discharge) Regulations (1998)
排水管理条例	The Waste Management Regulations (1999)
水供給条例	The Water Supply Regulations (1998)

2-4. On water right

- 1) Authorization of water rights and water allocation system
- 2) Present situation of water right allocation in the Basin
- 3) Types and condition of water rights and registration system
- 4) Land ownership and registration system

→次表参照。

ウガンダ国憲法	The Constitution of Uganda (1995)
水行動計画	The Water Action Plan (1995)
湿地資源の保全と管理に係る国家政策	The National Policy for the Conservation & Management of Wetland Resources (1995)
国家水政策	The National Water Policy (1999)
水法 Cap. 152	The Water Act Cap. 152 (2000)
水資源条例	The Water Resources Regulations (1998)
水(排水)条例	The Water (Waste Discharge) Regulations (1998)

2-5. On watershed management including flood control

→不明。

3. Statistics (please note the availability)

3-1. National statistics including districts

3-2. Latest statistical year book

→昨年の統計は作成中とのことで、結局、JICA ウガンダ事務所から提供された 2002 年の Statistical Abstract を入手。

4. Relevant organization

4-1. Counterpart Agencies (DWRM & DWD)

- 1) Updated organization structure, number of staff by section & annual budget
- 2) Latest annual reports

→収集資料参照。

4-2. Technical Support Unit – 4

Updated organization structure, number of staff by section & annual budget

→不明。

4-3. District - level relevant organization in Lake Kyoga Basin

Updated organization structure, number of staff by section & annual budget

→不明。

4-4. Coordinating Committee for Drought

Is there a Committee for Measures against Drought which will consult the water allotment during the drought?

→不明。

4-5. Flood/sediment control

- 1) Which organization is responsible for flood/sediment control?
- 2) Updated organization structure, number of staff by section & annual budget

→MoWE、組織等は不明。

5. Stakeholders (please list up/ provide the materials)

1) Major stakeholders for the Study

→既存の組織としてはチョガ湖総合管理組織(LAKIMO)があるが、これはチョガ湖に接する 10 県(ソロティ、カタクイ、カベラマイド、クミ、パリサ、カムリ、カユンガ、ナカソンゴラ、アパッチ、リラ)によって 2004 年 3 月に結成された組織で、192 の湖岸管理組合(BMUs)と水資源及び天然資源の総合管理に係る主要官庁の代表者も含まれる。従って、この組織以外に流域上部の県も含まれ、更に水資源に関連する諸官庁も含まれる(事前調査報告書案 2-4-1 参照)。

2) Experience of stakeholder meetings organized by DWRM

→不明。

3) Reports or records of stakeholder meetings

→不明。

6. List of local consultants / contractors / agents (please include the name, address, number of employees, field of specialties, contact person, etc.)

1) Specialist for GIS

2) Specialists for Environmental Impact Assessment

3) Contractors with the experience of water-level gauge installation

4) Agents dealing with water-level gauges & relevant equipment

→付属資料 5 参照。

II. Technical

1. Inventory of Facilities for Water Resources Development/ Management & Water Supply by districts in Lake Kyoga Basin (please divide in accordance with the progress of the project; i.e. existing, on-going and planned)

1-1. Surface Water

1-2. Groundwater/ spring

1-3. Other water resources

→GIS データベースがあるとのことであるが、確認が必要。

2. Demand, Supply and Deficit of Water in Lake Kyoga Basin

- To be classified into potable water, industrial water & irrigation water

2-1. Water demand by districts of Lake Kyoga Basin

→不明。

2-2. Water supply capacity of Surface Water, Groundwater/ spring and other water resources by districts of Lake Kyoga Basin

→不明。

3. Present condition and/or problems on Water Resources Development/ Management by districts in Lake Kyoga Basin (please explain)

→現況の一部は、事前調査報告書案参照。

4. Rainfall Data in Lake Kyoga Basin

1) Location of rainfall stations

2) Records & duration of records

→全国で気象観測所 17 ヶ所、雨量観測所は 100 ヶ所程度。古い観測所の実績は 100 年以上であるが、内乱の激しい時期は、欠測等が多い。

5. Meteorological Data in Lake Kyoga Basin

1) Location of meteorological stations

2) Records (Max, Min, Mean Temp, Precipitation, Wind velocity, Evaporation, Sunlight and etc.) & duration of records

→収集資料「A Study on the Planned Restoration of Lake Kyoga/ Sub Report 1」参照。

6. Lake/River Water level & Discharge in Lake Kyoga Basin

1) Location of lake/river gauging stations

2) Records of water levels, discharge/ sedimentation & duration of records

3) Maintenance flow if required

→収集資料「A Study on the Planned Restoration of Lake Kyoga/ Sub Report 1」参照。維持流量については不明。

7. Groundwater/ spring in Lake Kyoga Basin

- 1) Location of monitoring stations
- 2) Records & duration of records
- 3) Groundwater potential
- 4) Land subsidence

→地方給水の質問票回答参照。

8. Operation Rule of Lakes, dams & diversion weirs in Lake Kyoga Basin

Are there any operation facilities to control the water level or discharge from Lake Kyoga?

→不明。

9. Simulation model to be used for the Study

- Current simulation model in use for water resources management in Uganda such as the one used with “Study on Planned Restoration of Lake Kyoga”

- 1) Surface water
- 2) Groundwater/ spring water

→表流水ではマイク 11、地下水ではマッドフロー、サーファー等を使用している様である。

10. Most critical issues on water resources development/ management in Lake Kyoga Basin (please explain)

- 1) Surface water
- 2) Groundwater/ spring water
- 3) Flood / sediment control
- 4) Maintenance flow

→現況の一部は、事前調査報告書案参照。

11. Available map/ Aerial photos in Lake Kyoga Basin

- 1) Scale
- 2) Year of mapping/ photos taken
- 3) White & black/ colored

→地図、航空写真共に地図局(Department of Surveys and Mapping)で購入可能。

12. Available geological map/ data in Lake Kyoga Basin

- 1) Scale
- 2) Year of mapping
- 3) White & black/ colored

→MEMD で購入可能。

13. Available land use maps & farming system/ cropping pattern by each cultivation area in Lake Kyoga Basin

- 1) Scale
- 2) Year of mapping
- 3) White & black/ colored

→不明。

14. Available Satellite Image in Uganda

→不明。但し、「A Study on the Planned Restoration of Lake Kyoga/ Sub Report 1」等では多くの衛星写真を使用している。

15. Available GIS Data base which may be used for the Study

- Base map

- 1) Scale
- 2) Year of mapping
- 3) White & black/ colored

- Data format such as the number of Arc Info.

- Number of layers and their information

- Relevant information on water resources development / management
→不明。

16. Activities of other donor agencies in Water Sector in Uganda

- 1) AfDB
 - 2) DANIDA
 - 3) GTZ
 - 4) SIDA
 - 5) Other donors
- 事前調査報告書案参照。

17. Integrated Water Resources Management Studies in the Western Region (Protos) & the Lake Albert (WWF)

- 1) What are the progresses on these studies?
 - 2) Please provide the framework of these studies if available.
- 事前調査報告書案参照。

18. Relevant reports / information

- 1) Study on Planned Restoration of Lake Kyoga
→収集資料参照。
- 2) Nile Basin Initiative
→事前調査報告書案参照。

(2) 地方給水関連

Question to Directorate of Water Development

The Preparatory Study Team shall be furnished with the following general and specific information on the requested Study, in order to clarify the contents of the Study and to appraise the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions (Items A), and please kindly provide us with data and information requested herein (Items B) for the sake of smooth implementation of the preparatory study.

Items A QUESTIONS (about Water Supply)

Please answer in detail as much as possible in writing to the following questions.

1. Policy and Strategy

(1) Please show the rural/urban water supply policy (if any).

The National Water Policy promotes a new integrated approach to manage the water resources in ways that are sustainable and most beneficial to the people of Uganda

(2) Please show the rural/urban water supply strategy (if any).

- *The pro poor strategy for the Water and Sanitation sector 2006 (please find attached)*
- *The Long-term Strategy for Investment Planning, Implementation and Operation & Maintenance of Water Supply and Sanitation in Rural Growth Centers (please find attached).*
- *The Water and Environmental Sanitation Emergency Response strategy paper report presents an operational strategy for water and environmental sanitation (WES) emergency response in Uganda. (please find attached)*

(3) Please show the goals for rural/urban water supply and sanitation in the Millennium Development Goals (MDGs).

The Goal for the Rural/ Urban water supply and sanitation is to provide “sustainable provision of safe water within easy reach and hygienic sanitation facilities, based on management responsibility and ownership by the users, to 77% of the population in rural areas and 100% of the urban population by the year 2015 with an 80%-90% effective use and functionality of facilities” (Medium Term Budget Framework Paper, 2004).

2. Law, Regulation and Standards

(1) Please show the list of every law and regulation concerning rural/urban water supply and sanitation.

The Water Statute 1995

The National Water Policy

Water Quality Standards- March 2007

(2) Please show the national Guideline or Standards on rural/urban water supply and sanitation.

Annual Sector Guidelines/ Schedules

(3) Please show the procedures and criteria for the well drilling license.

DWRM

(4) Please show the target water consumption rate per capita for rural/urban water supply in your country.

Please fill the following table:

Table-1 Standards on Target Water Consumption Rate in Uganda

Item	Unit	Urban		Rural (Villages)
		Urban (Large Towns)	Peri-urban (Small Towns)	
Rural hand dug well	Lit/Capita/day			15
Rural well with a hand pump	Lit/Capita/day			20
Rural piped water supply (public tap)	Lit/Capita/day			20
Rural piped water supply (house connection)	Lit/Capita/day			20
Urban water supply (public tap)	Lit/Capita/day		20	
Urban water supply (house connection)	Lit/Capita/day		50	
Factories				
Commerce				
Public institutions				
Hospitals and clinics	Lit/bed			
Hotels	Lit/bed			
Schools	Lit/Capita/day			

3. Present Conditions of Water Supply and Sanitation in Uganda.

- (1) Please show the general conditions of present rural/urban water supply and sanitation in Uganda.
 Coverage (Access) 63 %
 Functionality 82%
- (2) Please show the on-going/future projects or programs of rural/urban water supply and sanitation in Uganda.
 - ADB towns' project.
 - WSDP- in south west Uganda.
 - WSDP- Northern Uganda.
 - School/Community sanitation and water supply
 - Support to Rural Water Supply and Sanitation Programme
- (3) Please show the national budget for rural/urban water supply and sanitation for these three years.

FY 2005/2006	27.64bn(UGX)
FY 2006/2007	40.50bn(UGX)
FY 2007/2008	45.44bn(UGX)
- (4) Please show the list of the towns served by National Water and Sewerage Cooperation (NWSC).
 Kampala, Entebbe, Jinja, Mbale, Gulu, Lira, Arua, Fort portal
 Mbarara, Kabale, Soroi, Masaka

4. General Conditions of the Study Area (Lake Kyoga Basin)

Please show general conditions of the Study area:

- a. Administrative divisions (districts)

Kyoga-A	Kyoga B
Amolatar, Apac, Kyoga, Nakasongola, Luweero, Kayunga, Kamuli, Iganga, Kiboga, Kaliro, Nakaseke, Oyam, Soroti, Kaberamaido, Dokolo, Namutumba	Tororo, Mbale, Pallisa, Sironko, Manafa, Kapchorwa, Kumi, Katakwi, Moroto, Nakapiripirit, Bukwo, Buteleja, Budaka, Amuria, Bukedea and Lira

- b. Number of towns, rural growth centers, counties and villages in each district
- c. Total population and future projection of each district
- d. Major industries of the Study area
- e. Development plan of the Study area
- f. Conditions of the infrastructures such as road, electricity, telecommunication, accommodation and so on of the Study area
- g. Cases of water borne diseases

5. Present Conditions of Water Supply and Sanitation of the Study Area

- (1) Please show present water supply conditions of each district in the Study area:
 - a. Served population and average coverage ratio
 SPR 2007 and 2008
 - b. Achieved water consumption rate per capita
 SPR
 - c. Number of existing water supply system (shallow well, deep well, public tap, hand dug well, spring, rain water tank and etc.)
 SPR 2007 and 2008
 - d. Water sources of the un-served population (population of the users of unprotected hand dug wells, river water, pond and so on)
 SPR 2007 and 2008
 - e. Existence of the water vendor and its price
- (2) Please show present sanitation conditions of each district in the Study area:
 - a. Coverage ratio of latrine
 SPR 2007 and 2008 annexes
 - b. List of the wastewater treatment plants
 NWSC
 - c. House connection rate of sewerage system
- (3) Are there any updated well inventories or databases?
- (4) Are there any updated inventories or databases of water supply facilities?
 Parts of Kyoga A (TSU2-Lango) yes

6. Operation and Maintenance

- (1) What agencies are responsible for Operation and Maintenance (O&M) of water supply and sanitation projects?
Community, DLGs with support from MWE/DWD, Civil Society and Development Partners
- (2) Please show the following information concerning operation and maintenance of rural/urban water supply facilities
 - a. Ownership of water supply facilities
Refer to Extension workers hand book
Refer to National Framework for O&M Hand Book
Community resource book
 - b. Operating body
Refer to Software steps for a general mobilisation and for RGC
 - c. Managing body
Water and sanitation committee for water points and water boards for piped water systems, water user groups for umbrella arrangement.
 - d. Organization of water committee
 - e. Tariff system
 - f. Household income and ratio of the tariff payment in income
 - g. Training system for operator, repairer and water committee
 - h. System of the supply chain of spare parts (hand pumps)
 - i. Number of existing facilities and operating facilities of each district in the Lake Kyoga basin
 - j. Present condition of unaccounted for water of urban water supply systems (leakage loss and administrative loss).
- (3) What are reasons for non-operation? Please show difficulties or lessons learned in operation and maintenance of the facilities.
SPR 2007 and 2008
- (4) Please show the method of education and mobilization of village people for the operation and maintenance of the facilities.
Refer to National Framework for O&M Hand Book and Soft ware tools
- (5) Are there any capacity building plans for central/local government staff members?
Refer to TSU strategy
- (6) Are there any plans of privatization of the water supply services?
- (7) Please show types of hand pumps which are existing in the Lake Kyoga basin.
What type of hand pump does the Government recommend?
U2, U3 ordinary and U3 modified

7. On-going/planned Project in the Study area (Lake Kyoga basin)

- (1) Please show the on-going and planned projects for rural/urban water supply
 - Project name
WSDF north
 - Responsible agency
 - Outline of the project
 - Project component (activities, facilities etc.)
 - Target areas (districts, towns etc.)
 - Beneficiaries (population to be served)
 - Implementation year
 - Project cost and resources
- (2) Please show the on-going and planned projects for rural/urban sanitation.
 - ADB towns' project.
 - WSDF- Northern Uganda.
 - School/Community sanitation and water supply
 - Support to Rural Water Supply and Sanitation Programme
- (3) Please show the on-going and planned waste water treatment plant construction projects in the basins if any.

8. Organization of the Counterpart Agency and Relevant Agencies

- (1) What agencies are responsible for water supply and sanitation projects?
- (2) Please show the updated organization chart, number of staff members, and annual budget of last three

years and roles of the following agencies.

- ① **Water Supply Department (WSD)** which would be the counterpart agency
- ② **District W & S Coordination Committees (DWSCs)**
- ③ **Rural Water Supply Offices** of some districts
- ④ **National Water and Sewerage Cooperation (NWSC)**

9. Activities of other Donors, NGOs

- (1) Please show the list of the on-going/planned water supply and sanitation projects by other donors (DANIDA, SIDA, GTZ, Austria, AfDB, BADEA, UNICEF and so on) and NGOs in the Study area.
DWD to provide
- (2) Please show the list of the projects of the Joint Water and Sanitation Sector Programme Support (JWSSPS)
Policy and sector department to provide

10. Local Consultants, Contractors and Markets

- (1) Please show the lists of local consultants, NGOs and institutes which can undertake the following works:
DWD to provide
 - a. Geophysical prospecting
 - b. Topographic survey
 - c. Inventory survey of water supply facilities
 - d. Socio-economic survey
 - e. Activities of education and mobilization of population for rural water supply facilities
 - f. Construction of the data base system
- (2) Please show the list of laboratories which can conduct the water quality analysis, and show the unit cost of the water quality analysis for drinking water.
- (3) Please show the list of well drilling companies.
DWD to provide
- (4) Please show the list of local contractors which can undertake the construction of rural water supply facilities.
DWD to provide
- (5) What kind of the materials are available in Uganda which will be used for the construction of rural water supply facilities? Please show the unit price of local materials.
Multiple industries
- (6) Please show the unit cost of the engineers, office clerks, draft man, system engineers and others.

Items B REQUIRED DATA AND INFORMATION (about Water Supply)

Would you please kindly provide us with data and information requested herein for the sake of smooth implementation of the preparatory Study?

1. Policy, Plan and Report

DWD to provide

- a. The National Water Policy
- b. The latest Poverty Eradication Action Plan (PEAP)
- c. The Rural WSS Sub-sector Reform Strategy and Investment Plan, 2000-2015
- d. The Urban WSS Sub-sector Reform Strategy and Investment Plan, 2000-2015
- e. Sector Investment Plan toward 2015 (SIP)
- f. Joint Water and Sanitation Sector Programme Support (JWSSPS) Document
- g. Water and Sanitation Sector Performance Report 2007 and 2008
- h. Other related plans, programmers and reports (if any)

2. Law and Regulation Regarding Water Supply and Sanitation

DWD to provide

- a. The Water Supply Regulations
- b. The Sewerage Regulations
- c. The Local Government Act
- d. Regulation and standard for the planning of water supply facilities (if any)
- e. Design standard of rural water supply facilities (if any)
Design Manual

3. Data of the Study area (Lake Kyoga Basin)

a. Water supply facilities inventory (if any)

DWRM to provide

SPR 2007

b. Well inventory data showing well structure, geological log, pumping test and water quality, in the Study area. Please provide us data of one typical well in each requested district.

DWRM to provide

4. Maps of the Study area (Lake Kyoga Basin)

a. Updated administrative divisions (districts) map

b. Map of ethnic groups

(3) 環境関連

英文での回答が得られなかったため、該当箇所に和文で記入する。

QUESTIONS / INFORMATION
on
Environmental and social consideration

The Preparatory Study Team shall be furnished with the following questions/information on the requested Study, in order to clarify the environmental and social consideration of the Study and to appraise the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions/information and kindly provide us with data and information requested herein for the sake of smooth implementation of the Study.

1. Regal framework of environmental and social consideration

- 1) Relevant laws, regulations, guidelines, etc.
- 2) Outline of historical and memorial assets and/or heritages, cultural/ traditional objects in and around Lake Kyoga Basin
- 3) Natural environmental conservation and/or protected area in and around Lake Kyoga Basin such as wetlands around the lakes
- 4) Influence to Lake Kyoga wetlands from the water resources development / management plan in Lake Kyoga Basin
- 5) Situation of approval and ratification for international environmental conventions
- 6) Structure, capacity, function, activity and finance for environmental section
→事前調査報告書案 3-6 参照。

2. EIA/ social consideration process and its report

- 1) Experience of EIA and IEE studies by Counter agencies and copy of those reports
- 2) Existing natural and social environmental studies in Lake Kyoga Basin
- 3) System and procedures of resettlement and compensation
→事前調査報告書案 3-6 参照。

3. Process/Procedures for EIA and IEE & responsible agency

- 1) Guideline
- 2) Is NEMA (National Environment Management Authority) the agency in charge?
- 3) Required period of evaluation
- 4) Updated organization structure, number of staff & annual budget
→事前調査報告書案 3-6 参照。

付属資料 8. ウガンダ・ローカルコンサルタント、ローカル NGO 及び工事業者一覧

(1) 水供給分野の現地業者の現況

地方給水に関しては、主要ドナーの援助が資金提供のみのコモン・バスケット方式になっており、またドナーによる給水部門の民間育成も行われたため、ハンドポンプ設置井戸や保護湧泉などのレベル I 給水施設についてはコンサルタント及び建設会社とも民間企業が十分に育っている。また、井戸用 PVC ケーシング、給水パイプ、ハンドポンプ (U2・U3 ポンプ) などの現地生産が進んでおり、資機材の調達にも問題はない。

1) 井戸掘削会社

DWD は 2000 年までリグを所有しており直営で井戸を掘削していたが、機材は民間に売却し井戸掘削部門はなくなった。ウガンダ国では、1995 年の水法 (Water Statute)、1998 年の水資源規則 (Water Resources Regulations) により、井戸掘削は 1 年ごとに DWD (2008 年 7 月からは DWRM) から掘削許可証 (Drilling Permit) を得る事が必要となっている。2008 年 9 月時点で、23 社の井戸掘削業者会社が登録されている。入手できたウガンダに企業登録されている井戸掘削会社の情報を表 5-1 に纏めて示す。なお、ウガンダ国の井戸掘削会社は、基本的にどの会社も空中写真判読と物理探査による井戸のサイティングも行っている。

表 5-1 ウガンダ国の井戸掘削企業

社名	創業	保有リグ数	職員/技能者数	連絡先/所在地
Draco (U) Ltd	1997 年	3 台	16 人	担当者 : Mr. Angelo Corda、電話 : 256-392-763006 住所 : Plot 826, Jinja Road, Kampala
Sumadhura Technologies Ltd	1987 年	7 台	36 人	担当者 : Eng. K. Venkateshwar Reddy、電話 : 256-752-222957、住所 : Plot NO.83 Chorery Crescent PrtBell, Luzira, Kampala
Victoria Pumps Ltd	1994 年	5 台	12 人	電話 : 256-414-342483、住所 : Plot 2, Nyondo Close Bugolobi Ind. Area, Kampala
Agro Machinery (U) Ltd	1988 年	2 台	4 人	担当者 : Mr. Nyakairu、電話 : 256-712-934490 住所 : Nasser Road, Kampala
Ugan Drill	1995 年	2 台	6 人	
Muka Drilling	2000 年	2 台	6 人	
Royal Techno Industries Ltd	1999 年	2 台	7 人	担当者 : Mr. Koti Reddy、電話 : 256-782-905839 住所 : Kitintale, Kampala
Geoserve Uganda	2002 年	2 台		
Hippo Technical Services				担当者 : Eng. Stephen Omoit、電話 : 256-712-433479、住所 : NIC Building, Kampala
KLR (本社はインドのリグメーカー)		本社はリグメーカー		担当者 : Mr. Reddy、電話 : 256-773-219400 住所 : Sir Appolo Kaggwa Road, Old Kampala
PAT Drill (U) Ltd (本社はタイのリグメーカー)	2004 年 (本社は 1986 年)	本社はリグメーカー	タイ本社は 50 人	担当者 : Mr. Okwi John、電話 : 256-772-424152 住所 : 1116 Kyaliwajjala, Kirereka Road, Kampala
China Zhonghao (U) Ltd (本社は中国)	中国本社は 2001 年	中国の Zhonghao overseas construction Eng Co. Ltd の支社		担当者 : Mr. Liao Zerong、電話 : 256-772-733428、256-41-223426 住所 : Plot No.320 Block 243 Luzira, Kampala
Transafricane Drilling Systems				担当者 : Mr. Ejik Charles、電話 : 256-772-303997 住所 : Uganda House, Kampala
China Geo-Engineering Corporation	中国本社は 1982 年	本社の自社製リグあり		担当者 : Mr. Ling、電話 : 256-392-715496 住所 : Ntinda, Kampala

これら 14 社の内、規模が大きく実績のある以下の 3 社の訪問調査を行った。

① Draco (U) Ltd

1997 年創業、資本金 300,000,000 Ushs、ウガンダに本部を置く水井戸の掘削会社で、スーダン、コンゴ、ルワンダでも工事を行っている。会社に直属の職員は合計 16 名で、重役 4 名のうち社長と技術責任者はイタリア人。技術職員は、水理地質 2 名、給水エンジニア 2 名、土木エンジニア 1 名で、ドリラー 3 名中 1 人はイタリア人。リグは、FORACO 社製 RESKA R30/S TD 型、RESKA R25 CD 型、ATLAS COPCO 社製 B53 型の合計 3 台。物理探査器として、電気探査器の ABEM 社製 Terrameter SAS 1000 型 1 台と VLF 法電磁探査機の WADI を 1 台所有している。2005 年の第二次地方給水計画において、日さくの下請けで Kayunga 県において 38 本の深井戸を掘った経験がある。近年は、毎年百本程度の井戸掘削を受注している。

② Sumadhura Technologies Ltd

1987年に設立したインドの Naimisha Drillers と 1996年に設立したインドの Manisha Drillers が 2000年に合併して、Sumadhura Technologies Ltd が資本金 25.8 万米ドルでウガンダに設立された。社長はインド人である。所有するリグは全てインド製で、Sumadhura 2000 (2001年納入)、Sumadhura 450 B、Sumadhura 2000-B、Sumadhura 750 DTHR、Sumadhura 300B (2006年製)、Sumadhura 500 DTHR (2008年9月納入) の6台を所有しており、もう1台追加予定となっている。ウガンダでは最大規模の井戸掘削会社になりつつある。

電気探査器 (SSR-MP-AT 型) 3台と検層器 (Minilog-300M) を所有している。VLF 法電磁探査器 (WADI) はレンタル。職員は、管理職 10 人 (うち水理地質 5 名)、技術職 26 名 (うちドリラー 13 名) となっている。

③ Victoria Pumps Ltd

Victoria Pumps Ltd 社は、1988年に Danish Development Institution の (IFU : The Industrialisation Fund for Developing Countries) と現地企業の General Machinery Ltd 社の JV により起業された。社長はデンマーク人である。当初はハンドポンプと水中ポンプの販売代理店とメンテナンスシステムの支援であったが、India-Mk 2 と Mk 3 のウガンダ工業基準版の U2 と U3 ハンドポンプの製造を行っている。最近、ウガンダ国で最大の井戸掘削会社である 1994 年創業の DRILLCON Ltd (Drilling Contractors & Construction) を買収し、井戸掘削、水理地質調査なども行っている。リグは、Pilson、インドの KLR Industries Ltd 社製 KLR 350、Ingersoll Rand を含む合計 5 台を所有している。

2) ローカルコンサルタント

表 5-2 に、DWD が実施した小規模タウン給水プロジェクトのショートリストに掲載されていたローカルコンサルタントに、聞き取り調査で入手した地方給水・水資源に関するローカルコンサルタントを加えて作成した、ローカルコンサルタントのリストを示す。

表 5-2 地方給水・水資源に関するローカルコンサルタント

社名	住所	連絡先/電話
Waner Consultants Ltd	P.O. Box 16225, Kampala / Susie House, 1 st Floor Ggaba Road, Nsambya, Kampala	Dr. Charles Wana-Etyem 256-772-746952
Hydraulic & Sanitation Consult	P.O. Box 25877, Kampala	256-772-434822
MBW Consulting Engineers Ltd	P.O. Box 8493, Kampala	256-312-262800
M&E Associates	P.O. Box 4052, Kampala	256-772-787919
Kagga and Part Partners	P.O. Box 6583, Kampala	256-312-250006
Norplan Uganda Ltd	P.O. Box 7544, Kampala	256-312-261149
Fels Consultants Ltd	P.O. Box 33436, Kampala	256-772-428731
WE Consult	P.O. Box 6372, Kampala Mbuya Hill, Chwa II Road Plot 40, Kampala	Mr. Ron Sloots 256-312-264697
Aquatech Enterprises (U) Ltd	P.O. Box 40230, Kampala Port Bell Road, Kitintale, Kampala	Mr. Anthony K. Luutu 256-772-368896
Groundwater & GIS Consultants Ltd		
Water Links Ltd		
Scan Water Contractors & Consultants Ltd	P.O. Box 71015 Kampala Port Bell Road Plot 1252, Kitintale, Kampala	Mr. Kasozi Samuel 256-772-432307
National Environmental Consult Ltd	P.O. Box 935 Kampala	Mr. Nsubuga Senfuma 256-414-273768
AIR Water Earth (AWE) Ltd	P.O. Box 22428 Kampala 1 st Floor, 668, Entebbe Road, Kampala	Mr. Eng. Simon P. Otoi 256-414-268466
Socio-Economic Data Center Ltd	P.O. Box 10207 Kampala, Plot 5055, Peter Musoke Close, Kisugu Sourh, Kampala	Dr. Asingwire Narathius 256-075-790594

① Aquatech Enterprises (U) Ltd

水資源開発・管理分野のローカルコンサルタントで、1995年に設立され 1997年から業務を行っている。水理地質調査、井戸のサイティング、井戸の設計・施行管理、揚水試験、地下水モニタリング、水質調査、水資源評価、環境影響評価等を行っている。資本金 60,000,000Ushs で 2006年の売り上高は、414,552,232Ush となっている。人員は合計 14 名で、専門別では水理地質 2 名、地質 4 名、土木エンジニア 1 名、水資源管理 1 名、公衆衛生 1 名、テクニシャン 2 名 (ク

ラフトマン、メカニック)、会計 2 名等となっている。物理探査器、電気探査器の ABEM 社製 Terrameter SAS 1000 を 1 台と ABEM 社製の SAS 300C Terrameter を 1 台所有している。

② WE Consult

Water, Environment and Geo Services Ltd としてウガンダにおいて 1997 年に設立し、WEGS Consultants と呼ばれていた。同社は 2003 年に東・南部アフリカの水・環境エンジニアリング部門で活動している WE Group のメンバー企業となり、WE Consult と呼ばれている。ルワンダ、ケニア、モザンビークに事務所を構えて活動しているが本部はウガンダである。当初は井戸のサイティング、井戸の施行管理を中心とした水資源開発・管理のコンサルタントであったが、2002 年に環境部門を設置し、近年は測量や GIS 関連の業務も行っている。具体的には、物理探査による井戸のサイティング、井戸の設計・施行管理、揚水試験、水資源評価調査、水文調査、給水・衛生分野の F/S や計画策定、衛生教育、社会・経済調査、測量、GIS 地図化、環境調査などを実施している。DWRM が実施している GIS による地下水マッピングを、チョガ湖流域中部 8 県 (Kumi, Soroti, Bukedea, Kamuli, Kaliro, Mukono, Kayunga, Jinja) について受注し、2007 から現在まで実施中である。また、我が国の 1998～2000 年地方地下水開発計画において Mubende 県と Kiboga 県の深井戸約 100 本の空中写真判読と物理探査によるサイティングを行っている。

物理探査器として、ABEM 社製 Tetrameters SAS1000 型 1 台と SAS 300C 型 1 台をウガンダに所有しており、ABEM 社製 Terrameter SAS 300C 型 2 台をモザンビーク国に所有している。人員は合計 31 名で 19 人が職員、12 人がフリーランスとなっている。国籍ではオランダ 6 人、ウガンダ 13 人、モザンビーク 8 人、イタリア 1 人、カナダ 1 人、アメリカ 1 人、デンマーク 1 人、社長はオランダ人である。専門別では水理地質 10 人、水・給水エンジニア 3 人、水文 1 人、都市計画 2 人、社会科学 3 人、衛生・公衆衛生 2 人、環境 (環境、湿地、動物学、植物学) 4 人、GIS 2 人、ドリラー 1 人などである。

③ その他

National Environmental Consult Ltd は水資源管理・環境を専門とするコンサルで、社長は前の水資源管理局長であり、ナイル流域委員会のメンバーでもある。水文、水資源、水理地質、社会・経済の専門家がいる。

AIR Water Earth Ltd は水分野のエンジニアリングと環境が専門であり、ウガンダ国では規模の大きいコンサルタントである。

SCAN Water Contractors & Consultants Ltd は水理地質と水文の専門家がおり、水資源・地下水を専門としている。社長は DWD の OB で、チョガ湖流東部の 10 県で実施された RUWASA プロジェクトで働いた経験がある。水中ポンプを所有しており、揚水試験が実施できる。

TBS 社は環境を専門としたコンサルタントで、社長は現在大学の講師である。

Socio-Economic Data Center Ltd は、Mekereer 大学の社会学部長が経営する社会・経済専門の調査会社である。地方給水における社会・経済調査や運営・維持管理に関する調査経験がある。

WCL 社は水資源のエンジニアリング会社である。

3) 現地サプライヤー

ウガンダ国政府が推奨するハンドポンプのタイプは、政府は U2、U3 および U3 Modified の 3 機種となっている。U2 と U3 は地下部分のポンプ本体は輸入品の India Mk-2 と Mk-3 をそのまま使用しており、地表部のみウガンダ基準で変更し現地生産したものである。U3 Modyfied は U3 の改良版である。ウガンダでは U2 が一般的で、U3 も多く、India Mk-2/3 も普及している。India Mk2/3 と U2/3 の両方のプレートが付いた井戸もあり、互換性もあることから、現場での区別はかなり難しい。DWD によると日本の第二次地方給水は、地下水位が浅い場合は U2 を、地下水位が深い場合は U3 Modyfied を使ったとのことである。

① Victoria Pumps Ltd.

1988 年に Danish Development Institution の (IFU : The Industrialisation Fund for Developing Countries) と現地企業の General Machinery Ltd 社の JV により起業された。社長はデンマーク人である。U2、U3、U3 Modified ハンドポンプの 3 機種の製造販売している他、インド製の AFRIDEV ハンドポンプとイタリアの SAER 社製水中ポンプの販売代理店でもある。井戸用ケーシング等の PVC パイプ類は、イタリアから輸入している。我が国の 1998～2000 年地方地下水開発計画でハンドポンプを納入した実績がある

ハンドポンプの運営・維持管理に関して、同社は修理人の研修を実施している。

② **Multiple Industries Ltd.**

1991年からPVC、ポリエチレンやプラスチック製品の製造販売を行っており、給水管、排水管、井戸用ケーシング・スクリーン、ジェリ缶、貯水タンク、家庭用プラスチック製品などを製造している。水道管の接続部品とハンドポンプは輸入販売している。ハンドポンプに関しては基本的にインドアの販売代理店であり、India Mk-2 (U2)、India Mk3 (U3)、U3 Modified、Afridev、Extra-deep well、Tara の5機種を扱っている。井戸用のPVCケーシング・スクリーンはウガンダ基準のUS264-2001とドイツ基準のDIN8062を満たした製品を国内で自社生産している。4インチ、4.5インチ、5インチ、6インチ径の4種類のサイズのケーシングがある。

付属資料 9. 主要収集資料リスト

チヨガ湖流域水資源開発・管理計画調査事前調査・収集資料リスト(1/2: 水資源関連)

No	資料の名称	形態	サイズ	ページ	オリジナル 又はコピー	発行機関または入手 先
1	Lake Kyoga Integrated Water Resources Management and Development Project/ Project Concept Note	Copy 電子ファイル	A4	27	コピー	DWRM
2	A Study on the Planned Restoration of Lake Kyoga Report	Copy (一部) 電子ファイル	A4	220	コピー	DWRM
3	Support to the management of sudd blockage on Lake Kyoga	Copy (一部) 電子ファイル	A4	27	コピー	DWRM
4	ウガンダ東部及び北部における洪水被害について(2007/11/5)	Copy	A4	14	コピー	地球環境部
5	Annual Rural Electrification Report	Book	A4	54	オリジナル	REA
6	水力発電開発地点	Copy	A4	1	コピー	DWRM
7	KAPCHORWA DISTRICT DEVELOPMENT PLAN 2008/92012/13	Copy (一部) 電子ファイル	A4	206	コピー	カプチョルワ県
8	JICA INFORMATION by DWO Kapuchorwa (Sept.2008)	電子ファイル	-	-	電子ファイル	カプチョルワ県
9	Drawing/ Construction of Kawomeri dam in Alerek Sub County, Abim District	Copy	A4	13	コピー	DWD
10	A Review of the Application of Environmental Impact Assessment (EIA) in Uganda	Copy	A4	66	コピー	NEMA
11	List of Registered & Certified Environmental Practitioners in Uganda 2008	Copy	A4	11	コピー	NEMA
12	MoWE, Approved Structure	Copy	A4	55	コピー	JICA ウガンダ事務所
13	DWRM 組織図	Copy (一部) 電子ファイル	A4	1	コピー	DWRM
14	2002 Statistical Abstract	Copy	A4	222	コピー	JICA ウガンダ事務所
15	Land Cover (Use) Stratification Map	Copy	A4	27	コピー	JICA ウガンダ事務所
16	Sheraton Hotel 等会議室見積	Copy	A4	14	コピー	JICA ウガンダ事務所
17	TOYOTA 車のパンフレット	Copy	A4	一式	コピー	販売店

チヨガ湖流域水資源開発・管理計画調査事前調査・収集資料リスト(2/2: 地方給水関連)

No	資料の名称	形態	サイズ	ページ	オリジナル 又はコピー	発行機関または入手 先
1	Constitution of the Republic of Uganda 1995 (英文)	Book	A5	229	オリジナル	The Law Development Centre
2	Local Government Act CAP.243 (as amended) (英文)	Book	A5	197	オリジナル	
3	Public Health Act CAP.281 (英文)	Book	A5	83	オリジナル	
4	Land Act CAP.227 (英文)	Book	A5	98	オリジナル	
5	Uganda Traveller's Map, 1/1,350,000 (英文)	Map	A1	1	オリジナル	Macmillan Uganda
6	Uganda, Edition 2008, 1/700,000 (英文)	Map	A1	1	オリジナル	Books R US LTD
7	Uganda Geology, 1/1,500,000 (英文)	Map	A1	1	オリジナル	Department of Surveys and Mapping
8	Index of Standard Map Sheets (1:50,000) Map Stock at 09/04/2006, 1/2,500,000 (英文)	Map	A4	1	プリント	Department of Lands and Surveys
9	Uganda Districts Information Handbook, Expanded Edition 2007-2008 (英文)	Book	B5	226	オリジナル	Fountain Publishers
10	Macmillan Uganda Secondary School ATLAS (英文)	Book	A4	128	オリジナル	Macmillan Uganda
11	Kayunga District, Water Sources Location Map, 1/150,000 (September 2008) (英文)	Map	A0	1	オリジナル	Ministry of Water and Environment (MoWE), Directorate of Water Resources Management (DWRM)
12	Kayunga District, Hydrogeological Characteristics Map, 1/310,000 (September 2008) (英文)	Map	A0	1	オリジナル	
13	Kayunga District, Groundwater Potential Map (1/2), 1/150,000 (September 2008) (英文)	Map	A0	1	オリジナル	

No	資料の名称	形態	サイズ	ページ	オリジナル 又はコピー	発行機関または入手 先	
14	Kayunga District, Groundwater Potential Map (2/2), 1/150,000 (September 2008) (英文)	Map	A0	1	オリジナル		
15	Kayunga District, Groundwater Supply Technology Options Map, 1/150,000 (September 2008) (英文)	Map	A0	1	オリジナル		
16	Kamuli District, Hydrogeological Characteristics Map, 1/300,000 (September 2008) (英文)	Map	A0	1	オリジナル		
17	Kamuli District, Groundwater Quality Map, 1/200,000 (September 2008) (英文)	Map	A0	1	オリジナル		
18	Kamuli District, Groundwater Potential Map, 1/200,000 (September 2008) (英文)	Map	A0	1	オリジナル		
19	Kamuli District, Groundwater Supply Technology Options Map, 1/200,000 (September 2008) (英文)	Map	A0	1	オリジナル		
20	Water and Sanitation Sector Performance Report 2007 (September 2007) (英文)	Book	A4	211	オリジナル		Ministry of Water and Environment (MoWE)
21	Ministry of Water and Environment Approved Structure (英文)	Document	A4	55	プリント		
22	Water and Sanitation Sector, Sectorial Specific Schedules/ Guidelines 2008/9, Final(Updated) (December 2007) (英文)	Document	A4	28	プリント		
23	Five Year National Development Plan (NDP), Draft Water and Sanitation Sector Working Paper (February 2008) (英文)	Document	A4	53	プリント		
24	Ministerial Policy Statement for Water and Sanitation FY 2008/2009 (英文)	Document	A4	136	コピー		
25	Ministerial Policy Statement Financial Year 2006/07, Votes:019,150,157&501-580 Head 119 (June 2006) (英文)	Document	A4	170	コピー		
26	National Water Policy (英文)	Document	A4	33	プリント		
27	Water and Sanitation Sector Medium Term Budget Framework Paper FY 2006/07 to FY 2008/09 (March 2006) (英文)	Document	A4	43	コピー		
28	Water and Sanitation Sector Five-Year Development Plan (July 2006 – June 2011), Final Report (英文)	Document	A4	52	コピー	MoWE, Directorate of Water Development (DWD)	
29	Environmental Monitoring Template for Water and Sanitation (March 2007) (英文)	Document	A4	12	プリント		
30	Steps in Implementation of Water and Sanitation Software Activities (Final 2004) (英文)	Document	A4	12	プリント		
31	Steps in Implementation of Water and Sanitation Software Activities, A Guide to District Local Governments (December 2007) (英文)	Document	A4	10	コピー		
32	MTEF Segment for Water and Sanitation Sector (April 2006) (英文)	Document	A4	108	コピー		
33	Review of Capital Investment Plan for Water and Sanitation Services, Final Report (March 2003) (英文)	Document	A4	54	プリント		
34	A National Framework for Operation and Maintenance of Rural Water Supplies (March 2004) (英文)	Document	A4	44	プリント		
35	Operational Strategy for Water and Environmental Sanitation Emergency Response in Uganda, Strategy Paper Report (September	Document	A4	28	プリント		

No	資料の名称	形態	サイズ	ページ	オリジナル 又はコピー	発行機関または入手 先
	2004) (英文)					
36	Pro-Poor Strategy for the Water and Sanitation Sector (March 2006) (英文)	Document	A4	13	プリント	
37	Preparation of Long-term Strategy for Investment Planning, Implementation and Operation & Maintenance of Water Supply and Sanitation in Rural Growth Centres, Consultancy services Final Report (August 2003) (英文)	Document	A4	158	プリント	
38	Long-term Strategy for Investment Planning, Implementation and Operation & Maintenance of Water Supply and Sanitation in Rural Growth Centres, District Implementation Manual 2007 Annex3.6 (may 2005) (英文)	Document	A4	16	プリント	
39	Long Term Strategy for Water Supply and Sanitation Services in Small Towns, Summary of Recommendations (August 2003) (英文)	Document	A4	15	プリント	
40	Long Term Strategy for Water Supply and Sanitation Services in Small Towns, Main Report (August 2003) (英文)	Document	A4	176	プリント	
41	Joint Water and Sanitation Sector Programme Support (2008-2012), Programme Document (July 2007) (英文)	Document	A4	113	プリント	Government of Uganda
42	Joint Water and Sanitation Sector Programme Support (2008-2012), Programme Document, Annexes (July 2007) (英文)	Document	A4	171	プリント	
43	Rural Water Supply, Sanitation and Hygiene Situation, Soroti District Inventory (英文)	Document	A4	8	コピー	District Water Office - Soroti
44	Sirinko District Water and Sanitation Profile (英文)	Document	A4	7	コピー	District Water Office - Sironko
45	Kamuli District Situation Analysis (英文)	Document	A4	11	コピー	District Water Office - Kamuli
46	A Brief Report on Water and Sanitation Activities in Mukono District (英文)	Document	A4	2	コピー	District Water Office - Mukono
47	Status Report for Water and Sanitation Activities in Kapchorwa District (英文)	Document	A4	20	コピー	District Water Office-Kapchorwa
48	Socio-Economic Data Centre Limited, Company Profile (英文)	Document	A4	19	プリント	Socio-Economic Data Centre Ltd
49	National Environmental Consult Ltd – NECOL, Company Profile 2008 (英文)	Document	A4	8	プリント	NECOL
50	Air Water Earth (AWE) Limited の会社案内 (英文)	Document	A4	35	プリント	Air Water Earth (AWE) Limited
51	Scan Water Contractors and Consultant Ltd, Company Profile (英文)	Document	A4	21	プリント	Scan Water Contractors and Consultant Ltd
52	Aquatech Enterprises (U) Ltd の会社案内 (英文)	Document	A4	60	プリント	Aquatech Enterprises (U) Ltd
53	WE consult 社の会社案内パンフレット (英文)	パンフレット	A4		オリジナル	Water, Environment & Geo Services
54	Multiple Industries Ltd の製品カタログ (英文)	カタログ	A4	26	オリジナル	Multiple Industries Ltd
55	Draco (U) Ltd., Company Profile (英文)	Document	A4	100	コピー	Draco (U) Ltd
56	Sumadhura Technologies Limited, Company Profile (英文)	Document	A4	334	コピー	Sumadhura Technologies Ltd
57	デジタル版の収集資料集 (上記資料の内の 8, 21, 22, 23, 26, 29, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 48, 49, 50, 51, 52 及びチョガ湖流域の井戸データベース)	デジタル			CD-R	